This Final Environmental Impact Report (EIR)/Environmental Assessment (EA) includes some refinements since the release of the February 2009 revised Draft EIR/EA, as required, to provide updated information and/or supplemental analysis presented in the draft document as a result of consideration of public comments received during circulation of the revised Draft EIR/EA. No new impacts have been identified within this Final EIR/EA, the severity of the impacts identified in the Draft EIR/EA are unchanged from what was previously described, and no feasible alternatives or mitigation measures were identified that would clearly lessen the environmental impacts of the proposed Gerald Desmond Bridge Replacement Project (project). All comments and responses to comments are provided within Chapter 4 of this Final EIR/EA.

Based on the project-specific impacts described in the revised Draft EIR/EA for the proposed project and after consideration of the public comments and associated refinements, the Port of Long Beach (Port or POLB) and California Department of Transportation (Caltrans) have identified the North-side Alignment Alternative as the preferred alternative.

This document has been prepared by the City of Long Beach acting by and through its Board of Harbor Commissioners (Port of Long Beach [Port or POLB]) as lead agency for the EIR and the California Department of Transportation (Caltrans) as lead agency for the EA, in accordance with Section 6005 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (23 United States Code [U.S.C.] 327[a][2][A]), the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality (CEQ) Regulations implementing NEPA (40 *Code of Federal Regulations* [CFR] 1500-1508); Federal Highway Administration (FHWA) Environmental Regulations (23 CFR 771); and the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code [PRC] 21000 *et seq*. as amended) and implementing guidelines (California Code of Regulations [CCR], Title 14, Section 15000 *et seq.*).

ES 1.1 SUMMARY OF CHANGES TO THE PROJECT FOLLOWING CIRCULATION OF THE JUNE 2004 "DRAFT" EIR/EA

Subsequent to the public comment period for the previously circulated Draft EIR/EA (June 2004), the Port elected to consider two additional alternatives: a bridge rehabilitation alternative and a tolling alternative (using tolls to fund bridge construction and operation). In addition, the Port updated the analysis of existing and future traffic conditions by collecting more recent traffic data and updating the projection of future traffic conditions based on recent forecasts of marine terminal activity and configuration.

The proposed project limits (i.e., new bridge and related improvements, and Southern California Edison [SCE] transmission line relocation) remain the same as that presented in the 2004 Draft EIR/EA; however, the study area was expanded, as described in the 2005 revised Notice of Preparation (NOP), to address the tolling alternative as follows: Willow Street/Sepulveda Boulevard on the north end and Interstate 110 (I-110) on the west end. The tolling alternative was found to have effects beyond these expanded study limits, extending to Interstate 405 (I-405) to the north, I-110/State Route (SR) 91 to the west, and into downtown Long Beach at Pine Avenue to the east. The south end of the project study area has not changed, terminating at Pico Avenue south of the Ocean Boulevard interchange.

Subsequently, the tolling alternative was not carried forward for further consideration as discussed below in Section ES 1.9 and in Chapter 1, Section 1.7. The study area was then reduced and is now slightly larger than the study area discussed within the 2004 Draft EIR/EA. The study area now extends along Ocean Boulevard from just west of Navy Way/Seaside Avenue on Terminal Island to Pine Avenue in downtown Long Beach. Project limits to the north and south have not changed from the 2004 Draft EIR/EA and extend to 9th Street on SR 710 to the north and to Pico Avenue south of Ocean Boulevard to the south.

The Bridge Rehabilitation Alternative would seismically retrofit the existing bridge by improvements including replacing the bridge deck and expansion joints, adding steel casings at all

columns, foundation retrofit, replacing sway bracings, and painting of all steel members. After bridge rehabilitation, roadway operations within the project areas would be the same as existing.

With the addition of the Rehabilitation Alternative, tolling alternative, expanded study area limits, and updated traffic forecasts, the Port elected to update several technical studies supporting the revised Draft EIR/EA. These consisted of the Air Quality Analysis, Traffic Impact Analysis, Noise Study, Natural Environment Study, Community Impact Analysis, Visual Impact Analysis, Water Resources, and Hazardous Waste Initial Site Assessment (ISA). The revised Draft EIR/EA also included a Health Risk Assessment (HRA). POLB issued the revised NOP in December 2005 and made it available to the public and responsible/ trustee agencies to provide comments regarding the revisions to the proposed project. No comments were received from either the public or responsible/trustee agencies during the public review period of the revised NOP.

ES 1.2 INTENDED USES AND AUTHORIZING ACTIONS

The Port and Caltrans are acting as the lead agencies for the proposed project in accordance with CEQA and NEPA, respectively. The Port and Caltrans have prepared a joint EIR/EA for the proposed project.

As described in Chapter 4, the revised Draft EIR/EA was circulated and made available, as required by CEQA and NEPA, to interested and concerned parties, including private citizens, community groups, the business community, elected officials, and public agencies. This Final EIR/EA provides the basis for decision making by the local and federal lead agencies.

This Final EIR/EA includes refinements to analysis included in the revised Draft EIR/EA, as required, based on all written public comments and public hearing comments. Subsequent to circulation of this Final EIR/EA, the lead agencies are required to take actions regarding the environmental document. The POLB Board of Harbor Commissioners (BHC) will determine whether to certify the EIR and issue Findings and a Statement of Overriding Considerations, and Caltrans will issue a Finding of No Significant Impact (FONSI). Based on Caltrans consideration of the project impacts and consideration of the public comments included in this Final EIR/EA, the project will not result in a significant impact pursuant to NEPA and an Environmental Impact Statement (EIS) is not required.

ES 1.2.1 Caltrans Intended Uses

Caltrans is the lead agency for the proposed project under NEPA, primarily because federal funding would be obtained and the affected transportation segment would become part of the National Highway System. Caltrans would approve the project under NEPA on behalf of FHWA under its assumption of responsibility pursuant to 23 U.S.C. 327.

ES 1.2.2 Port of Long Beach Intended Uses

The Port seeks federal and state approvals to proceed with construction of the project. The Port is responsible for the preparation of the joint CEQA and NEPA documentation, pursuant to the respective environmental regulations and guidelines of Caltrans and FHWA.

Subsequent to completion of the Final EIR/EA, the Board of Harbor Commissioners (BHC) would certify the EIR. If the project is appealed to the California Coastal Commission (CCC), then the Port would use the Final EIR/EA to demonstrate compliance with CEQA and NEPA and to justify approval of the project. In the event that the project is approved, the BHC would approve a transportation easement and issue a Harbor Development Permit.

ES 1.3 PROJECT LOCATION AND SETTING

The Gerald Desmond Bridge is one of three bridges connecting surface highways to Terminal Island in the harbor area (see Exhibit ES-1). The bridge is located within the Port in an area zoned industrial. The Port owns most of this land, with several relatively small, privately owned properties located in the Inner Harbor area and northernmost sections of the Port. The bridge crosses the Back Channel and generally runs east-west across Pier D. It is located in three different Planning Districts in the Long Beach Harbor. These include the Northeast Harbor Planning District, the Terminal Island Planning District, and the Middle Harbor Planning District (POLB, 1999).

The proposed project and alternatives are located in the southwest portion of the City of Long Beach at the southern end of Interstate 710 (I-710). I-710 is classified as SR 710 south of Pacific Coast Highway (PCH) in the State of California's Streets and Highways Code. Under the Bridge Replacement Alternatives, the bridge and Ocean Boulevard would become part of SR 710 and would operate as a freeway facility with controlled access. The improvements between the existing SR 710 and

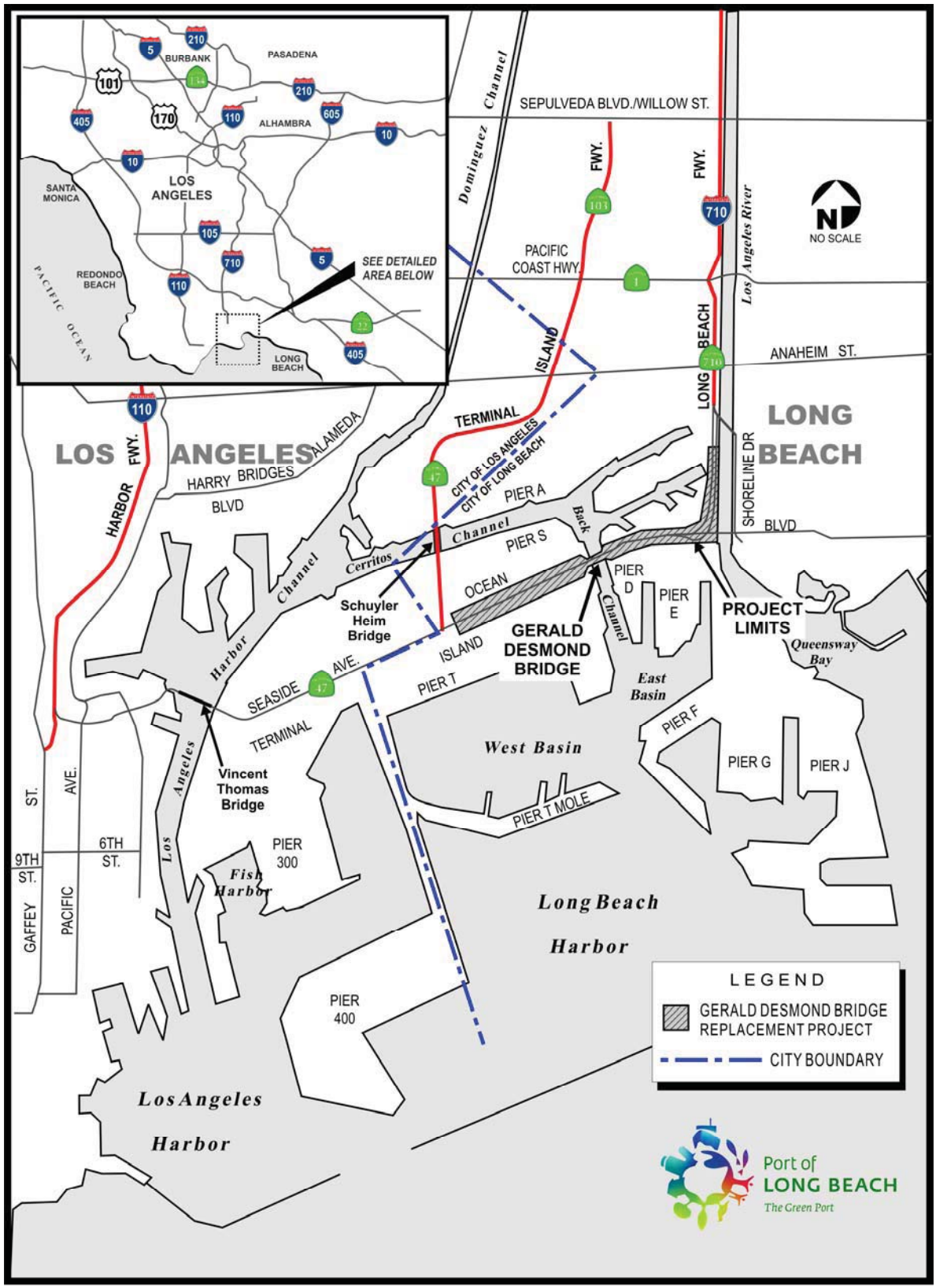

Exhibit ES-1
Gerald Desmond Bridge Replacement Project Vicinity and Project Location Map

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SR 47, including the bridge, would be transferred to Caltrans by easement following route adoption and execution of a freeway agreement. It is estimated that the transfer would be completed within 2 years after construction.

The proposed project is over the Back Channel/ Cerritos Channel area of the Port. It is centered along Ocean Boulevard from the intersection of the Terminal Island Freeway (SR 47) at the western end to its eastern terminus at the westerly end of the bridge over the Los Angeles River. The southern limit of the project is located on Pico Avenue approximately 660 feet (ft) (201 meters [m]) south of the Ocean Boulevard interchange. The northern limit of the project is along SR 710, approximately 2,630 ft (801 m) north of Ocean Boulevard, and to the southernmost limit of the SCE tower on Pier A.

ES 1.4 PROJECT OBJECTIVES

The objectives of the proposed project include providing a structurally sound bridge linking Terminal Island and Long Beach/SR 710 over the next hundred years, given that the existing bridge is seismically deficient and could be seriously damaged in a major earthquake. Another objective is to provide sufficient roadway capacity to handle current and projected vehicular traffic volume demand, which the existing bridge cannot provide with only two through lanes and no outside shoulders. Lastly, the proposed project would provide sufficient vertical clearance for safe navigation through the Back Channel to the Inner Harbor, which the existing bridge, at only 156 ft (47.5 m) above mean high water level (MHWL), does not provide. (See Section 1.1.2.2 for detailed information supporting these objectives.)

The project would replace or rehabilitate the existing seismically deficient Gerald Desmond Bridge. Additionally, the North- and South-side Alternative Alignment Alternatives would improve vehicular traffic flow and marine vessel safety for current and future marine vessels requiring passage through the Back Channel. The Bridge Replacement Alternatives would provide additional benefit to the Port and region by handling existing operations and forecasted growth in vehicular traffic, vessel traffic, and goods movement. The project objectives are consistent with similar goals addressed in the Port Master Plan (PMP), as amended.

ES 1.5 PURPOSE AND NEED

The main purpose of the proposed project is to provide a structurally sound/seismically resistant bridge, in addition to improved vehicular capacity and marine vessel safety. The project purpose is consistent with similar goals addressed in the PMP, as amended.

This project is included in the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP) and 2008 Regional Transportation Improvement Program (RTIP) for Local Highway Projects (Project ID LA000512).

The current estimated cost of the proposed project for the North- and South-side Bridge Replacement Alternatives and the Rehabilitation Alternative is approximately $983 million, $1.0 billion, and $289.3 million (in 2008 dollars), respectively. The Port would secure funding for the project from federal, state, regional, and local agency resources, and it would continue to pursue public-private partnerships to the extent required to supplement public funds.

ES 1.5.1 Project Purpose

The purpose of the proposed project is four-fold – to provide a bridge that would:

1. Be structurally sound and seismically resistant;
2. Reduce approach grades;
3. Provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and
4. Provide vertical clearance that would afford safe passage of existing container ships and for new-generation larger vessels currently being constructed.

Only the Bridge Replacement Alternatives would meet all four purposes of the project, as well as provide a structure that would meet the transportation needs of the Port and the region for its planned 100-year design life. The Rehabilitation Alternative would still require replacement after its 30-year design life (see Section ES 1.10 for additional discussion comparing the proposed alternatives).

ES 1.5.2 Project Need

The following discussion summarizes the present and projected deficiencies in the Gerald Desmond Bridge that constitute the basic needs for rehabilitation or replacement of the bridge.

Bridge Condition

According to a County of Los Angeles Department of Public Works Bridge Inspection Report dated September 5, 2007, the bridge has a sufficiency rating of 43. Bridges that are found to be structurally deficient or functionally obsolete, as defined by FHWA, with a sufficiency rating of less than 80 are eligible for federal funding for rehabilitation. Bridges are eligible for replacement when they have a sufficiency rating of less than 50 (Caltrans, 2001).

The existing bridge is physically deteriorated. One of the major physical deficiencies of the bridge is that the concrete is spalling off the bridge in many areas. Pieces of fallen concrete weighing several pounds have been found, requiring the Port to install netting underneath the bridge to protect Port facilities and workers below.

The bridge is also seismically deficient. It was designed in the early 1960s and completed in 1968. As with all bridges of that era in high seismic regions, its original construction has seismic performance issues that do not meet current seismic standards required by the American Association of State Highway and Transportation Officials (AASHTO), as well as Caltrans Seismic Design Criteria (SDC). Additional seismic deficiencies that do not meet current AASHTO or SDC requirements include the presence of lap splices at the base of columns and an insufficient amount of confinement reinforcement in the bridge columns. Both of these deficiencies will make it very difficult for the bridge to withstand a major earthquake without incurring significant damage to the columns and potentially threatening overall bridge integrity.

An assessment of the existing bridge was performed to evaluate whether it is in compliance with current AASHTO codes, as well as Caltrans seismic criteria, and to determine the extent of any bridge rehabilitation needed to comply with current codes.

Several reports, including a 2005 Inspection Report, 2002 Load Rating Report, and 1989 Fatigue Memorandum, were reviewed to confirm the condition of the existing bridge and estimate the amount of work and cost associated with bringing it up to current AASHTO and Caltrans standards. A brief summary of findings from these reports is provided below:

- The Inspection Report cited the condition of the deck as “critical,” and the condition of the paint as “extremely poor.” With the existing deck crossing seawater and now being 40 years old, the inspection found it would have to be replaced in the near future to protect the overall structural integrity of the bridge and improve its seismic response. Deck replacement would also necessitate replacement of all expansion joints. To prevent major deterioration of the bridge steel members, painting would also be required in the near future.
- The Load Rating Report indicated that the members of the arch main span were overstressed for all design truck loads and would need to be replaced.

The existing bridge underwent a seismic retrofit study in the early 1990s, followed by a seismic retrofit to improve its seismic performance. To minimize retrofit cost, partial steel column casings were added at select columns, such as Piers 15 and 16, to support the main steel truss span.

Traffic Capacity/Roadway Deficiencies

Capacity

In 2005, which is the NOP baseline year, approximately 38 percent of all traffic on the Gerald Desmond Bridge had an origin or destination in the Ports of Long Beach and Los Angeles (Ports) (Iteris, 2009). Of the approximately 59,700 vehicles per day (vpd) on the bridge, 15,200 or 25 percent were trucks.

The presence of substantial numbers of vehicles other than passenger cars (i.e., heavy-duty trucks) affects traffic flow in two ways: (1) these vehicles occupy more roadway space than passenger cars; and (2) the operational capabilities of these vehicles, including acceleration, deceleration, and maintenance of speed, are inferior to passenger cars and result in the formation of large gaps in the traffic stream, which reduces highway capacity. On long sustained grades and segments where trucks operate considerably slower, formation of these large gaps can have a profound impact on the traffic stream (Iteris, 2009).

The bridge is forecast to carry a substantial amount (39 percent) of non-port, regional through traffic in 2030 (Iteris, 2009). Regional traffic will increase due to several major development projects that have been constructed in downtown Long Beach, such as the Pike at Rainbow Harbor and the proposed San Pedro Waterfront Development in the Port of Los Angeles (POLA).

Year 2030 forecasted traffic volumes without the project are approximately 124,670 total trips per

day (including 54,360 trucks or 43.6 percent of the total traffic) on the Gerald Desmond Bridge (Iteris, 2009).

Level of Service (LOS). LOS is defined in six levels, from A through F. Level A is free-flow, high-speed conditions. At Level D, speed and maneuverability are reduced due to congestion, and Level F is a breakdown in flow, with speeds and vehicular throughput potentially dropping to zero. In 2005, peak-hour (i.e., morning, midday, and evening) traffic on the uphill segments (i.e., base of bridge to the crest) of the existing Gerald Desmond Bridge operated at LOS B or C in both the westbound (WB) and eastbound (EB) directions. In 2030, without the project, operations during peak hours are projected to be LOS F WB toward Terminal Island and LOS C EB toward Long Beach (Iteris, 2009).

Deficiencies

The primary roadway deficiencies are the lack of outside shoulders and the steep approach grades.

Shoulders. The lack of shoulders often results in broken-down trucks or passenger vehicles being stuck in the outside lane, effectively blocking or severely restricting the entire traffic flow in that direction of travel until the incident is cleared. The lack of shoulders also makes it more difficult for emergency vehicles and tow vehicles to gain access to the incidents. Providing outside shoulders would improve safety to the emergency responders and traveling public in these situations. The recent addition of climbing lanes on the bridge does not mitigate the need for breakdown shoulders because breakdowns still tie up the outside lanes as wider, slow-moving trucks must negotiate around incidents.

Approach Grades. The long, steep approach grades cause trucks to operate considerably slower, especially when passing, which creates large gaps in the traffic stream and further reduces highway capacity. The current approach grades are 5.5 percent on the west side of the bridge and 6 percent on the east side.

Vertical Clearance

The existing bridge is located over the main federal navigation channel (i.e., Back Channel) that serves the Port. It provides a vertical clearance of 156 ft (47.5 m) above MHWL, which is insufficient for the clearance of some existing container ships, as well as new vessels currently being constructed. The Gerald Desmond Bridge is one of the lowest bridges of any large commercial port in the world.

In addition, the vertical clearance afforded by the SCE transmission lines crossing Cerritos Channel north of the bridge is only 153 ft (46.6 m) above MHWL. These transmission lines would be the primary vertical clearance hazard to navigation if the bridge clearance were to be increased.

ES 1.6 PROJECT BACKGROUND

The existing Gerald Desmond Bridge was constructed in the mid 1960s and seismically upgraded in 1995. It provides four through travel lanes (i.e., two in each direction). On the uphill segments, climbing lanes were added by reconstructing the roadway area of the bridge to handle container trucks and improve LOS on the bridge. This improvement resulted in three ascending lanes and two descending lanes in each travel direction. Each climbing lane ends at the crest of the bridge. The bridge is a steel tied-arch truss structure, in which the horizontal forces of the arch are borne by the bridge deck, rather than the ground or the bridge foundations. The bridge has a 409.5-ft-long (124.8-m-long) suspended span that crosses the deep-water navigable channel connecting the middle and inner harbors of the Port (Parsons-HNTB, 2002a).

As the fifth largest seaport complex in the world, the Ports handle more than 30 percent of U.S. waterborne container cargo (POLB, 2006b). The bridge is a vital link in Port-area goods movement infrastructure because it is the westerly extension of SR 710, which is the primary access route for the Ports and carries approximately 15 percent of all U.S. port-related container traffic (Caltrans *et al.*, 2005).

ES 1.7 PROJECT DESCRIPTION

ES 1.7.1 Bridge Replacement

The proposed project would construct a new bridge across the Back Channel and associated roadway connectors, demolish the existing Gerald Desmond Bridge, and relocate the SCE transmission lines crossing the Cerritos Channel north of the bridge.

The new bridge, excluding approach structures, would be 2,000 ft (610 m) long, and it would be elevated 200 ft (61 m) above the MHWL of the Back Channel. Bridge replacement would also necessitate reconfiguration of adjacent freeway and arterial interchanges.

ES 1.7.2 Bridge Replacement Concepts

A study of the various types of possible bridges determined that a cable-stayed bridge would be

the best option. A cable-stayed bridge consists of a continuous girder with one or more towers erected above piers in the middle of the span. From these towers, cables stretch down diagonally (usually to both sides) and support the girder. A design team consisting of Port staff representatives, an architect, and project engineers began the aesthetic design process with a review of the overall design parameters, such as the context of the surrounding site, the bridge roadway geometry, the recommended height and span for the bridge, and the estimated dimensions of the major structural members.

The team next considered aesthetics, cost, constructability, seismic performance, right-of-way (ROW) issues, schedule risk, impact to Port operations, and maintenance.

Based on the results of the design review, four cable-stayed alternatives were chosen for further consideration:

- Single Mast Tower
- Delta Tower
- H-Tower with Vertical Legs
- H-Tower with Slanted Legs

An in-depth study of these four design options was conducted over an 8-month period and included more detailed analysis and design for each alternative. Concepts for architectural lighting of the bridges were developed. Additionally, the potential ROW impacts to third-party properties were more fully defined.

Based on this in-depth study, two design options were selected to be carried forward for further development: Single Mast Tower and H-Tower with Slanted Legs. With further refinements to the bridge concept study, the Port staff elected to proceed with the development of the Single Mast Towers with a steel composite deck.

ES 1.7.3 SCE Transmission Line Relocation

Because the new bridge would be 200 ft (61 m) above the MHWL, in contrast to the existing bridge at 156 ft (47.4 m) above MHWL, the project also requires that the SCE high-voltage transmission towers and lines that cross the Cerritos Channel north of the bridge be raised.

ES 1.8 ALTERNATIVES

Like the revised Draft EIR/EA, this Final EIR/EA fully analyzes the North-side Alignment (preferred alternative), the South-side Alignment, the Rehabilitation Alternative, and the No Action Alternative.

ES 1.8.1 No Action Alternative

Under the No Action Alternative, the Gerald Desmond Bridge would not be replaced or rehabilitated. It would remain in its existing deteriorated condition until a retrofit schedule is established. It would remain with insufficient roadway capacity to handle projected car and truck traffic volumes, and inadequate channel clearance for safe passage of some existing and new-generation container ships.

Under the No Action Alternative, the existing bridge would continue in use as the sole direct connection between SR 710, the City of Long Beach, and Terminal Island. Existing measures to protect against falling structural elements would need to be enhanced as the bridge continued to deteriorate, and the related safety issues would increase in severity. Seismic safety of the channel crossing would not be enhanced with a new or rehabilitated bridge meeting current seismic standards. Increasing traffic volumes would result in steadily deteriorating LOS; this impact would also occur with the Rehabilitation Alternative.

Under the No Action Alternative (as with the Rehabilitation Alternative), the existing SCE transmission lines would not be removed or relocated.

ES 1.8.2 North-side Alignment Alternative (Preferred Alternative)

The North-side Alignment Alternative would provide a new bridge located approximately 140 ft (42.7 m) north of the existing bridge (measured from centerline to centerline). This bridge alignment would have a vertical profile over the Back Channel of 200 ft (61 m) above the MHWL. The roadway grades would be 5 percent in both directions.

The new bridge would be a cable-stayed design. The total bridge length would be 2,000 ft (610 m) long, with a main span opening across the channel of 1,000 feet (306 m), tower to tower. The west and east approach structures would be 3,117 ft (950 m) and 3,035 ft (925 m) in length, respectively.

The bridge cross section and approaches to the new bridge would include the following project features:

- Three 12-ft-wide (3.6-m) lanes in each direction

- A 10-ft-wide (3-m) outside shoulder in each direction
- A 10- to 12-ft-wide (3- to 3.6-m) inside shoulder in each direction
- A 32-inch (in.)-high (81.3-centimeter [cm]) barrier that would run along the outside of each shoulder
- Reconstruction of the existing Horseshoe interchange ramp connectors
- Reconstruction of the existing connectors to SR 710 and the two ramp connections to Pico Avenue

The approach spans would be of concrete box girder construction, either segmental or cast-in-place.

This alignment alternative would use the land between the existing bridge and the Long Beach Generating Station (LBGS) (former SCE plant), and it would require construction of new ramps for the existing Horseshoe interchange. The proposed alignment would transition to join Ocean Boulevard approximately 3,280 ft (1,000 m) east of the channel, and the new connections would join SR 710 approximately 2,630 ft (801 m) north of Ocean Boulevard.

The Horseshoe interchange would use reconfigured ramps to provide access from the WB Gerald Desmond Bridge to Pier T Avenue and from Pier T Avenue to the EB Gerald Desmond Bridge. Additional ramp connections would be provided between Pier T Avenue and both Ocean Boulevard and the one-way frontage roads created by the newly constructed POLB Ocean Boulevard and SR 47 Interchange Project. These ramps would allow full access between Pier T Avenue and Ocean Boulevard in all directions.

At the SR 710 interchange, a new median connection to Ocean Boulevard in downtown Long Beach would be constructed, as would a new pair of connector ramps between SR 710 and the new bridge. A new hook ramp or loop ramp would be used to replace the existing on-ramp between Pico Avenue and the WB Gerald Desmond Bridge. The current ramp between Pico Avenue would be partially reconstructed to join the new connectors from SR 710. This interchange concept would enable trucks traveling to and from SR 710 to remain in the outside lanes, while cars traveling to and from downtown Long Beach via Ocean Boulevard would remain in the inside lanes. This approach would minimize the intermixing of cars and trucks accessing the above facilities. The estimated cost for this alternative is approximately $983 million.

ES 1.8.3 South-side Alignment Alternative

The South-side Alignment Alternative would provide a new bridge located approximately 177 ft (53.9 m) south of the existing bridge (measured from centerline to centerline). As with the North-side Alignment Alternative, this bridge alignment would have a vertical profile over the Back Channel of 200 ft (61 m). The main span bridge design options would be the same as those proposed for the North-side Alignment Alternative. The bridge cross section and approaches to the new bridge would include the same project features as described for the North-side Alignment Alternative.

The proposed alignment would transition to join existing Ocean Boulevard approximately 3,280 ft (1,000 m) west of the channel. This alignment would require reconstruction of all ramps for the existing Horseshoe Interchange and a portion of the existing Pier T terminal main gate facility. The proposed alignment would transition to join existing Ocean Boulevard approximately 3,280 ft (1,000 m) east of the channel, and the new connections would join existing SR 710 approximately 2,820 ft (860 m) north of Ocean Boulevard. The four existing ramp connections to Pico Avenue would have to be reconstructed for this alternative. The interchange design variations used for the North-side Alignment Alternative would also be applied to the South-side Alignment Alternative. The estimated cost for this alternative is approximately $1.0 billon.

ES 1.8.4 Bridge Rehabilitation Alternative

With this alternative, the existing bridge would be rehabilitated to improve its seismic performance and to extend its operational life span. No new traffic lanes would be added, and the height of the bridge would remain at 156 ft (47.5 m) above the MHWL. To comply with current seismic detailing standards for new bridges, the lap splices at the base of the columns would need to be eliminated and the amount of confinement reinforcement increased. Because there are no practical means to accomplish this, the best solution would be to add steel casings at all columns. Lacking a detailed seismic performance study, it is assumed that the casings would be placed along the full height of the columns. These retrofit measures would allow for the level of deformation needed for the bridge to withstand a major earthquake and to comply with Caltrans SDC requirements for

capacity protection of column foundations and bent caps.

Main span trussed arch members would likely require strengthening and connection retrofit to meet SDC joint capacity protection requirements. Typical for this type of bridge in the state of California, retrofit measures for truss members include member strengthening and installation of additional bolted through steel plates at truss joints, similar to the retrofit of the existing Carquinez Bridge, San Francisco Oakland Bay Bridge Main Span, and others.

In summary, to bring the existing Gerald Desmond Bridge up to current AASHTO standards and to mitigate continuous bridge deterioration would require the following measures:

- Replacement of the bridge deck
- Replacement of expansion joints
- Replacement of the sway bracings for the main span
- Painting of all steel members
- Seismic retrofit of foundations, columns, bent caps, abutments, and superstructure

The estimated cost for these corrective measures is approximately $289.3 million. The conceptual-level cost could only be determined after the retrofit measures are better defined.

All of the above measures would be consistent with the level of retrofit undergone by major bridges in California, where retrofit measures were designed for a “No Collapse” design criteria. The “No Collapse” criteria imply that the bridge would survive the maximum credible earthquake (MCE) without collapse and loss of life, but it would have a high probability of being condemned after an extreme seismic event such as the MCE. Thus, even with implementation of the above seismic retrofit measures, the existing bridge seismic performance would not be on par with the proposed new bridge. The new bridge would be designed to withstand the MCE with only repairable damage allowed and an ability to be in service within days after the MCE event.

ES 1.9 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR FURTHER ANALYSIS

The June 2004 Draft EIR/EA evaluated several other alternatives, including tunnel options, main span and approach span options, design options, and interchange options, which were all withdrawn from further evaluation. In addition, to those alternatives, the Draft EIR/EA considers a tolling alternative as an alternative evaluated but eliminated from further consideration. The alternates are described and the rationale for their elimination is discussed in Section 1.7 of this document.

ES 1.10 COMPARISON OF ALTERNATIVES

The North-side and South-side Alignment Alternatives would achieve the project’s purpose and need. Specifically, these alternatives would:

1. Provide a new bridge that is structurally sound and seismically resistant;
2. Reduce approach grades;
3. Provide sufficient roadway capacity to handle current and future car and truck traffic volumes; and
4. Provide vertical clearance that would afford safe passage of existing container ships and for new-generation vessels currently being constructed.

The North-side Alignment Alternative would impact Port and private properties, including tenant businesses and utilities. It would require demolition of the Port Maintenance Yard and temporary relocation of Fireboat Station No. 20. The North-side Alignment Alternative would result in the conversion of approximately 0.7-acre (0.3-hectare [ha] of privately held Port-related industrial land to public/ transportation use. Privately owned facilities affected include Pacific Pipelines, LLC, LBGS, SCE, Connolly Pacific and Los Angeles County Flood Control District (LACFCD). Potential effects on these properties could include loss of land due to acquisition, modified access due to bridge footings and easements, and relocation/replacement of utilities and/or facilities. The current estimate for the value of the land for the affected private properties is $2.0 million (see Section 2.1.3.2 [Relocations] for further discussion).

The South-side Alignment Alternative would also achieve the project’s purpose and need as discussed under the North-side Alignment Alternative. This alternative would impact primarily Port properties, utilities, and tenant businesses. This alternative would require reconfiguration of both the California United Terminals and Total Terminal International, Inc. (TTI) operations on Piers D, E, and T. The Pier E gate at the California United Terminal facility would require relocation and would include reconfiguration of the

following elements: entrance and exit roadways, inbound optical character recognition (OCR) devices, receiving gate lanes with pedestals, scales, cameras and queuing area, trouble resolution building and parking area, outbound primary radiation portal monitors (RPM) and OCR, outbound secondary RPM, exit gate lanes with pedestals and cameras, associated underground electrical and communication lines, and pavement markings/ barriers. It is estimated that the reconfiguration on Piers D and E would cost approximately $10.0 million. Reconfiguration of Pier T would result in the permanent loss of 2.4 acres (1-ha) within the TTI terminal storage facility currently used for refrigerated container storage. Additionally, reconfiguration on Pier T would require modification of the following elements: relocation of a portion of the main gate canopy, driver's service building and trouble parking, steel high-mast light poles, chassis storage, and associated utilities, barriers, and pavement markings. It is estimated that the reconfiguration on Pier T would also cost approximately $10.0 million. The South-side Alignment Alternative would also permanently reduce leasable Port acreage by approximately 2.4 acres (1-ha). The estimated present value of lost Port lease revenue would be $7.0 million over a typical 20-year lease (see Section 2.1.3.2 [Relocations] for further discussion).

When comparing the anticipated environmental effects of the North- and Southside Alignment Alternatives, there are no substantial differences in the environmental effects associated with construction and operation of these alternatives.

Under the Rehabilitation Alternative, the bridge would survive an extreme seismic event without collapse and loss of life, but it would have a high probability of being condemned and taken out of service; therefore, even with implementation of the retrofit measures in the Rehabilitation Alternative, at an estimated cost of $289.3 million, the bridge seismic performance would not be on par with a new bridge. Furthermore, bridge rehabilitation would not handle current and future traffic volumes, nor would it provide the vertical clearance needed for safe passage of container ships.

The No Action Alternative would not meet the purpose and need for the proposed project, and it would not eliminate the need for rehabilitation or replacement of the Gerald Desmond Bridge. The No Action Alternative would not improve clearance for the safe passage of container ships or handle current or forecasted traffic volumes. Under the No Action Alternative the bridge would likely be severely damaged during an MCE and would endanger life and property for those using the bridge, ships in the Back Channel, and at adjacent Port and private facilities.

ES 1.10.1 Preferred Alternative

After considering all public comments received on the Draft EIR/EA, the potential effects of the project alternatives as described in the Final EIR/EA, and the potential benefits resulting from implementing the project alternatives, the Port and Caltrans have identified the North-side Alignment Alternative as the preferred alternative. The EIR/EA has compared the three Build Alternatives and the No Build Alternative and has concluded: (1) the No Build Alternative does not satisfy the project purpose and need; (2) the North-side and South-side Alignment Alternatives, when compared with the Rehabilitation Alternative, better satisfy the project purpose and need because they better provide for future traffic demand and meet all of the project objectives; (3) the environmental effects associated with the North-side and South-side Alignment Alternatives (both during construction and operation) are reasonably equivalent; and (4) the North-side Alignment Alternative is more cost effective than the South-side Alignment Alternative. Accordingly, the North-side Alignment Alternative has been selected as the preferred alternative for purposes of the environmental review.

ES 1.10.2 Project Approval

All public comments on the revised Draft EIR/EA have been considered, and the Port and Caltrans have selected a preferred alternative. In accordance with CEQA, the Port has prepared findings for all significant impacts identified and a Statement of Overriding Considerations for impacts that cannot be mitigated to below a level of significance. The Findings and Statement of Overriding Considerations will be forwarded to the BHC for consideration with a recommendation to approve the project and certifying that the project complies with CEQA. Caltrans, as assigned by FHWA, has determined that the NEPA action does not significantly impact the environment, and the Department will issue a FONSI in accordance with NEPA.

ES 1.11 RIGHT-OF-WAY IMPACTS

Estimates of nonresidential displacements and partial acquisitions were made by reviewing engineering design plans, aerial photographs, and through field reviews. There is no residential acquisition required for the Build Alternatives.

Several private properties and Port tenants would be impacted by ROW acquisition and property relocation. As more detailed engineering becomes available during the final design phase, the ROW impacts will be defined. The POLB will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601, *et seq.*), as amended, for any ROW acquisitions on private property.

ES 1.12 PUBLIC INVOLVEMENT

An NOP/Preliminary Environmental Analysis Report (PEAR) to prepare an EIR/EA and a Notice of Initiation of Studies (NOIS) for the proposed project were issued on October 25, 2002, by POLB. An agency scoping meeting was held on November 12, 2002, at the POLB Administration Building to solicit comments and discussion from responsible and trustee agencies regarding the proposed project. In addition, a public scoping meeting was held at the POLB Administration Building later the same day. Four comment letters were received during the NOP review period and scoping meetings. Issues of concern were traffic, utilities, water resources, and hazardous waste/materials.

The Draft EIR/EA was issued by the Lead Agencies on June 15, 2004, with the public comment period concluding on July 29, 2004. Twelve (12) comments were received during the Draft EIR/EA public review and comment period. Also, a public hearing was held July 19, 2004. These comments were addressed in the revised Draft EIR/EA.

Because the project study area was expanded and Rehabilitation and Toll Operation Alternatives were considered for the build alternatives, the Port issued a revised NOP in December 2005 and made it available to the public and responsible/trustee agencies. No comments were received from either the public or responsible/trustee agencies during the public review of the NOP.

The revised Draft EIR/EA was issued by the lead agencies on February 4, 2010, with the public comment period concluding on March 18, 2010. Forty-nine (49) comments were received during the revised Draft EIR/EA public review and comment period. In addition, two public hearings were held on February 17 and 24, 2010. Chapter 4 of the Final EIR/EA describes in detail the public outreach/participation during the public review and comment period, and it includes all comments and responses to comments received on the revised Draft EIR/EA and from the public hearings.

ES 1.13 FINAL EIR/EA CONTENTS

Information contained within this Final EIR/EA is generally the same as was included in the revised Draft EIR/EA, except where information was refined or supplemented to address public comments received on the revised Draft EIR/EA, as described in responses to comments provided in Chapter 4. A detailed project description is presented in Chapter 1, and it now includes additional discussion on the lead agencies' decision to select the North-side Alignment Alternative as the preferred alternative. The environmental consequences associated with the proposed project on the affected Human, Physical, and Biological Environments, as well as measures to avoid, minimize, and/or mitigate these effects are presented in Chapter 2. Also, included in Chapter 2 is an analysis of potential cumulative impacts of the proposed project. Chapter 3 presents the analysis of project impacts pursuant to CEQA. Chapter 4 summarizes the consultation and coordination undertaken with agencies and the public This includes a summary of the public outreach and public participation process on the revised Draft EIR/EA and all comments and responses to comments received during the public review and public comment period for the revised Draft EIR/EA and public comments from the public hearing. Chapter 5 provides a list of preparers for the Final EIR/EA. Chapter 6 contains the distribution list for the Final EIR/EA and includes federal government agencies and all agencies and interested parties that commented on the revised Draft EIR/EA. Chapter 7 lists the references used for the technical analyses. Chapter 8 contains the Port's Application Summary Report to satisfy PMP and California Coastal Act requirements.

ES 1.14 SUMMARY OF SIGNIFICANT AND ADVERSE IMPACTS AND MITIGATION MEASURES

Table ES-1 summarizes adverse and significant project effects, proposed minimization/mitigation measures and residual effects subsequent to implementation of minimization and mitigation measures.

Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
Traffic and Circulation (see Section 2.1.5)						
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier B Street/9th Street intersection during construction Stage 2.	TC-1 Prior to the start of construction Stage 2, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stage 2: Add dual NB right-turn lanes; restripe EB through/right lane to a right-turn lane; provide one (1) EB through lane; and continue two (2) SR 710 SB off-ramp lanes to Pico Avenue.	Minor Impact	Less than Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier B Street/9th Street intersection during construction Stages 3 and 4.	TC-2 Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4: remove NB-SB split-signal phasing; restripe NB through lane to a NB left-turn lane; widen SB approach and provide two (2) left-turn lanes and one (1) through lane; and continue two (2) on-ramp lanes to NB SR 710.	Temporary Adverse	Temporary Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier D Street intersection during construction Stages 2, 3, and 4.	TC-3 Prior to the start of construction Stage 2, a traffic signal will be installed at the intersection of Pico Avenue and Pier D Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative.	Temporary Adverse	Temporary Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur at the Pico Avenue and Pier E Street intersection during construction Stages 3 and 4.	TC-4 Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue and Pier E Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4: permanently signalize the intersection (the signal will not be removed after completion of construction of a Bridge Replacement Alternative); restripe NB through lane to a NB right-turn lane, providing a single NB through lane; add dual free-flow WB right-turn lanes; and continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue.	Minor Impact	Less than Significant
√	√	X	A project-related adverse effect is anticipated at the intersection of Navy Way/Seaside Avenue.	TC-5 During the design phase of a Bridge Replacement Alternative, the Port shall add a third NB left-turn lane to mitigate the project effect at the Navy Way/Seaside Avenue intersection.	Minor Impact	Significant[1]
√	√	X	A project-related adverse effect is anticipated at the intersection of Ocean Boulevard/Magnolia Avenue.	TC-6 The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection	Minor	Less than Significant
√	√	X	A temporary adverse traffic effect attributable to the Bridge Replacement Alternatives would occur on WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange.	No feasible measures to minimize traffic effects at WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway interchange have been identified. However, construction of the SR 47 Flyover as part of the SR 47 project would eliminate the temporary adverse traffic effect.	Temporary Adverse	Temporary Significant
√	√	X	A temporary adverse traffic effect has been identified that would result from construction of the proposed Bridge Replacement Alternatives at the Ocean Boulevard and Terminal Island Freeway interchange.	The two intersections of the Ocean Boulevard ramps (north and south) and the Terminal Island Freeway would have temporary unavoidable adverse effects for 3 years, which is the approximate combined duration of construction Stages 2, 3, and 4 of either of the proposed Bridge Replacement Alternatives..	Temporary Adverse	Temporary Significant
Hazardous Materials/Wastes (see Section 2.2.3)						
√	√	√	Previously unidentified contaminated soil and groundwater may exist within the construction impact areas that could affect human health or be released to the environment.	HM-1 A Phase II Site Investigation shall be performed in construction areas where excavation will exceed 5 feet (ft) (1.5 meters [m]) below ground surface (bgs), where groundwater may be encountered and in areas where underground storage tanks (USTs) were removed without closure. The results of the Phase II investigation would be incorporated into the Safety Plan to protect construction workers against known contamination in construction areas. A Hazardous Waste Management Plan based on the results of the Phase II investigation will also be incorporated into the Final Design to ensure proper disposal of contaminated materials and contaminated groundwater found in the construction areas.	Minor Impact	Less than Significant
√	√	√	Cross contamination of water-bearing intervals may occur during excavation and bridge pile installation.	HM-2 A risk assessment shall be performed prior to construction to determine how construction activities will impact the water-bearing levels and, as applicable, to determine health risks to construction workers. HM-3 To minimize cross-contamination of the water-bearing zones, the construction contractor shall employ construction techniques to minimize the need for dewatering.	Minor Impact	Less than Significant
√	√	√	Asbestos-containing materials (ACM) may be released to the environment during bridge rehabilitation and building and bridge demolition.	HM-4 The Port shall conduct a survey to screen for asbestos-containing materials (ACMs) and lead-based paint (LBP) in all affected buildings and the bridge prior to any demolition activities. Identification of locations of buildings or structures containing ACMs and LBP will be clearly identified on the construction plans and incorporated into the project safety plan and hazardous waste management plan. Any disturbance/demolition of structures containing ACM or LBP will be completed in accordance with the contract specifications and all federal, state, and local laws and regulations.	Minor Impact	Less than Significant
√	√	√	Soil areas disturbed during construction may contain aerially deposited lead (ADL).	HM-5 Prior to construction, the Port shall test areas within the proposed project corridor where soil may be disturbed for ADL. If ADL levels meet or exceed the action level set forth by the hazardous waste management plan for the project, then ADL-contaminated soils shall be removed in accordance with federal, state, and local regulations.	Minor Impact	Less than Significant

[1] This intersection is within the POLA and is outside of the Port's Jurisdiction, thus the impact is considered significant and unavoidable; however, with implementation of TC-5 or one of the other POLA projects being considered for this location, this impact would be eliminated (see Section 3.2.1.4.3 for further discussion).

√ - Impact associated with alternative; X – Impact not associated with Alternative

Table ES-1 Summary of Potentially Adverse/Significant Impacts						
North-side Alignment Alternative	**South-side Alignment Alternative**	**Rehabilitation Alternative**	**Potential Impacts-**	**Avoidance, Minimization and/or Mitigation Measures**	**Residual Impacts NEPA**	**Residual Impacts CEQA**
√	√	√	The public/construction workers may be exposed to hazardous materials during construction activities.	HM-6 A Safety Plan will be required to address any exposure to hazardous materials. The Safety Plan will include proper personal protective equipment (PPE) work requirements, soil and air space monitoring requirements, documentation and reporting requirements, and action levels.	Minor Impact	Less than Significant
√	√	√	According to Port officials, the bridge structure is likely to have lead-based paint (LBP) coatings that would be disturbed by demolition.	HM-7 The contractor shall prepare a Lead Compliance Plan in accordance with California Code of Regulations (CCR) Title 8 Section 1532.1. The Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.	Minor Impact	Less than Significant
√	√	√	The project may require the removal or disturbance of any existing yellow thermoplastic traffic lane striping in the project area.	HM-8 If it is determined that the project would require the removal or disturbance of any existing yellow thermoplastic traffic lane striping in the project area, then Caltrans standard measures shall be implemented to ensure the proper removal, storage, and disposal of the material, as applicable.	Minor Impact	Less than Significant
Public Health and Safety (see Section 2.2.4)						
√	√	X	An analysis of accident and terrorist vulnerability of the new bridge was recommended by the Gerald Desmond Bridge Technical Advisory Panel (TAP). The intent of this assessment is to address the potential vulnerability of the bridge and develop conceptual modifications to the bridge design as required.	HS-1 An Accident and Terrorist Vulnerability assessment of the build alternative shall be completed and all recommendations incorporated into the project during final design. The assessment will analyze and consider applicable protection measures for the construction and operational phases of the proposed project.	Minor Impact	Less than Significant
√	√	√	Road work associated with the project alternatives could potentially adversely affect emergency response times or interfere with the emergency response services. Also, marine transportation hazards could potentially adversely affect ships navigating through the Back Channel during the bridge construction and demolition phases.	HS-2 The Port shall submit all bridge work schedules to the Long Beach Police and Fire Departments, United States Coast Guard (USCG), and Caltrans at least 2 weeks prior to initiation of work to provide adequate time for the agencies to plan for alternate routes in case of emergencies.	Minor Impact	Less than Significant
√	√	√	Project construction may affect business operations and access.	HS-3 Prior to initiation of construction activities, the Port shall notify all businesses, tenants, and utility companies (i.e., SCE, gas, water, oil, and telecommunications) within the project area of the proposed work schedules and associated roadway and ramp closures.	Minor Impact	Less than Significant
√	√	√	Temporary delays within the Back Channel may occur during construction and demolition.	HS-4 The Port shall notify all marine transportation and recreational boating companies 2 weeks prior to initiation of planned work activities potentially affecting normal operations within the Back Channel. HS-5 The Port shall regularly notify USCG and all Port tenants of scheduled work over the Back Channel during construction and demolition of the project.	Minor Impact	Less than Significant
√	√	√	Possible exposure of workers to hazardous situations and materials during project construction and demolition.	HS-6 The contractor shall prepare an emergency response and health and safety plan in accordance with all applicable federal, state, and OSHA standards. The plan should address potential emergency situations and assure the safety and health of workers by setting and enforcing standards to reduce occupational injuries and accidents. The Port will review and approve the plans prior to initiation of construction activities.	Minor Impact	Less than Significant
Air Quality (see Section 2.2.5)						
√	√	X	Construction emissions associated with the North- and South-Side Alignment Alternatives would exceed South Coast Air Quality Management District (SCAQMD) nitrogen oxide (NO_x) thresholds.	AQ-C1: Construction processes shall adhere to all applicable SCAQMD rules and regulations concerning the operation of construction equipment and dust control. AQ-C2: Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications. AQ-C3: During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts. AQ-C4: To the extent feasible, use electricity from power poles rather than temporary diesel or gasoline power generators. AQ-C5: As part of the Port's commitment to promote the Green Port Policy and implement CAAP, the proposed project construction would employ all applicable control measures included in the CAAP and relevant clean air technologies. Project heavy-duty construction equipment would use clean fuels, such as ultra-low sulfur fuel, or compressed natural gas and oxidation catalysts. AQ-C6: Construction activities that affect traffic flow on the arterial roadways shall be scheduled to off-peak hours to the extent possible. Additionally, construction trucks shall be directed away from congested streets or sensitive receptor areas. AQ-C7: During the construction period, temporary traffic controls, such as flaggers, and improved signal flow for synchronization to maintain smooth traffic flow, shall be provided. AQ-C8: Trucks used for construction prior to 2015 shall use engines with the lowest certified NO_X emission levels, but not greater than the 2007 NO_X emission standards. AQ-C9: Where feasible, construction equipment shall meet the EPA Tier 4 non-road engine standards. The equipment with Tier 4 engine standards becomes available starting in year 2011.	Temporarily Adverse during Construction Years 1,2 and 3	Temporarily Significant during Construction Years 1, 2 and 3

√ - Impact associated with alternative; X – Impact not associated with Alternative

Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
√	√	X	Operational emissions associated with the North- and South-Side Alignment Alternatives would exceed South Coast Air Quality Management District (SCAQMD) nitrogen oxide (NO_x) thresholds.	There are no feasible mitigation measures to address NO_x operational emissions for transportation projects. Vehicle emissions are regulated at the federal and state levels. Reduction of operational vehicle emissions will come from three overarching strategies: more efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. Reduced emission in the transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy. It should be noted that a portion of the operational exceedance would be attributable to construction emissions associated with the demolition of the Gerald Desmond Bridge subsequent to opening the new bridge. The construction emissions included as part of the opening year have been mitigated to the maximum extent practicable as discussed in Measures AQ-C1 through AQ-C9.	Temporarily Adverse during Opening Year Minor Impact in 2030	Temporarily Significant during Opening Year Less than Significant in 2030
√	√	X	Exceedance of SCAQMD NO_x construction and operational thresholds would result in cumulative air quality impacts	CEQA (AQ)-1: **Cumulative Air Quality Impact Reduction Program.** To help reduce cumulative air quality impacts associated with the Gerald Desmond Bridge Replacement Project, the Port will require the project to contribute $2 million in support of the Schools and Related Sites Guidelines for the Port of Long Beach Grant Programs ($1 million) and Healthcare and Seniors Facility Program Guidelines for the Port of Long Beach Grant Programs ($1 million). The distribution of these funds to potential applicants and projects will be determined through a public evaluation process and approved by the Board of Harbor Commissioners (see detailed discussion in Chapter 3, Section 3.2.2.4, for discussion of methodology for determining contribution amount). The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes the commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Project Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication.	Temporary Adverse	Significant
Biological Environment (see Section 2.3)[2]						
√	√	X	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-1: **Artificial Nest Boxes (Peregrine Falcon):** A minimum of two nesting ledges with artificial nest boxes will be installed on the new bridge in different locations prior to demolition of the existing bridge. The boxes will be available prior to the nesting season. The new nest locations will be approved by CDFG and will be selected to minimize disturbance to the extent feasible. Should the peregrine falcons not use the new bridge for nesting despite the nest boxes, alternate suitable nesting sites are available in the project vicinity (e.g., hotels, silos, bridges, Long Beach City Hall).	Minor Impact	Less than Significant
√	√	X	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-2: **Precluding Nesting on the Existing Bridge (Peregrine Falcon)*:*** Once the nest boxes are in place on the new bridge, and a minimum of 2 months prior to initiation of demolition activities within 500 ft (152 m) of the exiting nesting locations, measures and/or structures approved by CDFG to discourage nesting at the previously used nest sites would be implemented under the supervision of a CDFG-approved raptor biologist. If existing nest sites are occupied, then exclusion activities could not occur until 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first (see No Work Zone under BR-3 Monitoring Program).	Minor Impact	Less than Significant
√	√	X	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites on the Gerald Desmond Bridge.	BR-3: **Monitoring Program (Peregrine Falcon):** The proposed monitoring program is based on measures from the Peregrine Falcon Monitoring and Mitigation Program (PFMMP) for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP as proposed for the North- and South-side Alignment Alternatives are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of construction activities. • *Timing of Monitoring:* A raptor biologist will initiate monitoring at least 1-year prior to the beginning of construction and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing and new bridge and begin prior to the placement of artificial nest boxes on the new bridge and prior to attempts to preclude nesting at the existing bridge. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first. • Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the new bridge. • *Biological Monitor:* A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring. • *Monitoring Effort:* All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the existing and new bridge. Monitoring during construction will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting on the old bridge, or if they have relocated to an alternate nesting site. If peregrines attempt to nest on the existing bridge while construction activities are occurring, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods as approved by CDFG would be implemented at the nesting locations. If nest abandonment occurs, then the Port, in coordination with CDFG, will determine the feasibility of creating temporary nesting ledges at alternate locations in areas with less intense construction activities. Nesting on the new structures shall be discouraged until construction of the new bridge is completed. The Port, in coordination with	Minor Impact	Less than Significant

[2] On August 6, 2009 the California Fish and Game Commission voted to remove the peregrine falcon from the State's list of endangered species. Currently the ruling is under review by the State Office of Administrative Law. Pending approval of the ruling, the peregrine falcon would be removed from the endangered species list, but would remain a "fully protected" species. The final ruling on the matter may or may not result in a change in either/both the impact findings and/or proposed mitigation pertaining to the species. This information is expected to be available in time for inclusion in the final environmental document.

√ - Impact associated with alternative; X – Impact not associated with Alternative

Table ES-1 Summary of Potentially Adverse/Significant Impacts						
North-side Alignment Alternative	**South-side Alignment Alternative**	**Rehabilitation Alternative**	**Potential Impacts-**	**Avoidance, Minimization and/or Mitigation Measures**	**Residual Impacts NEPA**	**Residual Impacts CEQA**
				CDFG, will develop measures to be implemented by a raptor biologist, where feasible, or under the direction of a raptor biologist, where precluded by construction site safety concerns, to discourage nesting. Such measures may include continued removal of nesting materials or installation of CDFG-approved exclusion devices. • *No Work Zone:* During construction of the new bridge and prior to exclusion efforts for bridge demolition activities, the existing nest ledges and boxes would be available for nesting. If a nesting attempt is made on the new bridge while under construction, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting on the areas under construction. Prior to exclusion activities on the existing bridge, nesting ledges on the new bridge will be available for use. During demolition, if falcons attempt to nest on the existing bridge, despite efforts to deter nesting, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to further exclude nesting on the Gerald Desmond Bridge during demolition activities. Should a nest be successfully established within the construction area during construction of the new bridge or demolition of the Gerald Desmond Bridge, the Port will instruct construction crews to adhere to a "No Work Zone" around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the Migratory Bird Treaty Act (MBTA). This "No Work Zone" will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized – 30 days after the last young leaves the nest or until nest abandonment, whichever occurs first. Demolition activities can continue at other locations outside of the "No Work Area." • *Reporting:* Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during construction of the new bridge. During demolition, post-construction monitoring reports will be prepared to provide details on placement of artificial nest boxes and exclusion activities and use of the nesting ledges on the new bridge. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.		
√	√	X	Potentially adverse impacts to the resident bat species include behavior modification caused by construction activities and changes in roost preferences and/or roosting sites on the Gerald Desmond Bridge.	BR-4: **Placement of Bat Boxes:** Bat roosting boxes on the new bridge will be made available a minimum of 2 months prior to demolition activities within 500 ft (152 m) of active roosts at the existing bridge. Bat roosting boxes will be designed and built during construction of the new bridge, which is scheduled to occur before demolition of the existing bridge, to be ready for placement once the under-bridge structures are complete. The location and design of artificial roosts will also consider the temperature measured at roosts on the existing bridge during the preconstruction period. A variety of designs and recommendations are available (Langenstein *et al.,* 1998; Keeley and Tuttle, 1999). • In addition to, or in lieu of, bat roosting boxes, the new bridge may be designed to incorporate potential roosts as part of the structure (Exhibit 2.3.5-5), or such structures may be designed and added to the new bridge post-construction (Exhibit 2.3.5-6). Bats prefer roosting sites with crevices 0.5- to 1.25 in. (1.27 to 3.175 cm) wide (Keeley and Tuttle, 2000). Bats also use soffits if they are left open; therefore, bridge design could also include soffits that could be left open without damaging the bridge or hindering access for maintenance or other ongoing bridge work. One such type of artificial roost is the Texas bat-abode, which has an external panel on either side and 1- by 2-in. (2.5- by 5.1-cm) wooden spacers sandwiched between 0.5- to 0.75-in. (1.2- to 1.9-cm) plywood partitions (Exhibit 2.3.5-6). The internal partitions will be designed to provide crevices 0.75-in. (1.9 cm) wide and at least 12 in. (31 cm) deep. Smooth roost surfaces need to be textured to provide footholds for bats on one or both sides of each plywood partition, creating irregularities at least every 0.125-in. (0.3-cm). Footholds for bats are constructed of rough-sided paneling, or panels coated with polyurethane or epoxy paint sprinkled with rough grit, or attaching plastic mesh with silicone caulk or rust-resistant staples.	Minor impact	Less than Significant
√	√	X	Potential impacts associated with the elimination of bat roosting sites	BR-5: **Precluding Roosting on the Existing Bridge:** Prior to demolition, bats must be excluded from the existing bridge. Methods for excluding bats include use of a chemical repellant (i.e., naphthalene), use of floodlights, high-frequency noise, and placement of physical barriers such as nets to prevent bats from using roost sites (Greenhall, 1982). The exclusion method will be approved by the Port, Caltrans, and CDFG. The mechanical exclusion device is considered the safest and the most reliable (Exhibits 2.3.5-2 through 2.3.5-4). These barriers are commonly screens of mesh, hardware cloth, or wire, with mesh openings no greater than 0.25-in. (0.64-cm). The best time for bat proofing is November through March, after juvenile bats have learned to fly (Bat Conservation and Management, Inc., 2005). Exclusion work will be performed by contractors approved by Caltrans as experienced with excluding bats on bridges. This exclusion process may require 1 to 2 weeks, or potentially longer, given the size of the existing bridge. Bat exclusion via netting is accomplished by first affixing mesh netting over known entry points using I-bolts, which allows bats to exit the bridge but not return. Bats returning to the bridge would first return to their normal point of entry, and then they would seek new roosts once they have determined that it is not possible to return to their old roosting site. This process will be monitored by a CDFG-approved bat biologist each night for at least 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that bats do not discover and use new roosts on the existing bridge and that no bats become entangled in netting. If any new roosts are discovered on the existing bridge, they will be covered with mesh according to the above procedure. Very small crevices or fissures in the bridge may be sealed using caulk or a similar filling agent. Should numerous bats still be observed exiting the bridge at night after installation of exclusion cloth, it may be necessary to add another exclusion method, such as floodlights illuminating access points or crevices used by attract bats (bats will not roost in a well-lit area).	Minor Impact	Less than Significant
√	√	√	Various sensitive species of bats may be displaced during rehabilitation or construction and demolition activities.	BR-6: **Bat Monitoring Program:** A monitoring program will be implemented throughout the construction phases of the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/ survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification, locations of bat roosts, and documentation of roost characteristics based on Fenton (2003) and O'Shea *et al.* (2003). If CDFG species of special concern are identified, the Port will coordinate with CDFG and incorporate additional monitoring/protection measures as applicable. Timing of Monitoring: Bat preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of construction. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season).	Minor Impact	Less than Significant

√ - Impact associated with alternative; X – Impact not associated with Alternative

Table ES-1 Summary of Potentially Adverse/Significant Impacts						
North-side Alignment Alternative	**South-side Alignment Alternative**	**Rehabilitation Alternative**	**Potential Impacts-**	**Avoidance, Minimization and/or Mitigation Measures**	**Residual Impacts NEPA**	**Residual Impacts CEQA**
				Each survey will include daytime and nighttime surveys (see Monitoring Effort) focused on identifying specific locations of bat roosts and roost access points. One month prior to the initiation of demolition of the existing bridge, the frequency of preconstruction surveys at the existing bridge and new bridge will increase to once weekly. This will coincide with placement of bat roosts on the new bridge. Quarterly construction monitoring will be completed. If CDFG sensitive bat species are identified during the preconstruction surveys or during quarterly surveys, then monthly monitoring during the bat breeding season will be completed and will focus on construction effects on bats. If it is determined that construction disturbance is affecting CDFG sensitive species, then the Port will coordinate with CDFG to incorporate additional protection measures, as applicable. Monitoring during the demolition phase will focus on ensuring that all bats have been excluded after installing the bat boxes on the new bridge and prior to initiating demolition activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights, or until no bats are observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, exclusion netting will be installed, and the monitoring process will continue until bats have been excluded from the bridge. Post-construction monitoring will be conducted quarterly for 3 years and will document use of new bat roosts. • *Biological Monitor:* A qualified bat biologist thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port will conduct all bat monitoring and supervise the design and placement of new bat roosts and bat exclusion methods and devices. • *Monitoring Effort*: The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat device (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices on the existing bridge. During the quarterly preconstruction surveys, once the specific locations of bat roosts are determined, temperatures of existing roosting sites will be recorded so that selection of the location and type of artificial roosts on the new bridge can ensure duplication to the extent feasible of the thermal regime at existing bat roosts. Monitoring during construction and demolition will focus on whether construction activities are disturbing bats at the existing and new bridge. If disturbances to bats are documented, and monitoring has identified the presence of maternity roosts or CDFG sensitive species, then the Port will coordinate with CDFG to identify measures to minimize effects on the maternity roosts and sensitive species. • *Reporting:* Quarterly reports summarizing the monitoring efforts and observations at the new and existing bridge will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, the type of artificial bat roosts used at the new bridge, and exclusion devices at the existing bridge. The final report will also include photos and detailed observations, and a conclusions and recommendations section for agency use in future projects.		
√	√	X	Potential impacts to cormorants associated with SCE transmission line relocation.	BR-7: Initial construction activities for the new transmission towers/lines shall not begin during the nesting season (April through August) if double-crested cormorants have active nests on the transmission towers. Construction activities associated with the transmission tower/lines will be initiated prior to or after the breeding season or after the young have fledged	Minor Impact	Less than Significant
√	√	X	Potential impacts to migratory birds associated with potential night time construction and installation of new lighting for operation.	BR-8 Construction and operational bridge lighting during and following construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting types known to minimize adverse effects (i.e., low-pressure sodium lights, high-pressure sodium lights, or light-emitting diode [LED] lights) will be used, and lighting types known to be disruptive to migrating wildlife, such as mercury vapor lamps (Jones, 2000), will be avoided. Additionally, lighting will be shielded to ensure that light is focused where it is needed, focusing lighting inward and minimizing the amount of lighting used to the maximum extent possible.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-1b: **Artificial Nest Boxes:** Prior to the final design phase, the Port, in coordination with CDFG, will select temporary locations for alternate nesting sites on the Gerald Desmond Bridge that would minimize the amount of disturbance within 250 ft (76 m) of new perch locations. Construction will be phased to complete adjacent seismic retrofit activities and painting operations at the new nesting locations outside of the nest site selection and breeding periods. Subsequent to completing the adjacent seismic retrofit activities, the temporary nesting ledges will be installed, and be continually available for use.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-2b: **Precluding Nesting on the Existing Bridge:** To ensure no mortality of peregrines due to construction-related mishaps associated with bridge deck replacement, CDFG-approved exclusion methods will be installed at existing nest sites under the supervision of a CDFG-approved raptor biologist before initiating rehabilitation activities. Exclusion will occur prior to the nest site selection or after the breeding season. Due to the proximity of the bridge deck replacement activities to the existing nest sites, exclusion devices will remain until completion of the rehabilitation activities.	Minor Impact	Less than Significant

√ - Impact associated with alternative; X – Impact not associated with Alternative

Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
X	X	√	Potentially adverse impacts to the resident peregrine falcons include behavior modification caused by construction activities and changes in perch preferences and/or nesting sites associated with demolition of the Gerald Desmond Bridge.	BR-3b: **Monitoring Program:** The proposed monitoring program is based on measures from the PFMMP for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMMP, as proposed for the Rehabilitation Alternative, are provided below. A mitigation and monitoring plan will be prepared and submitted to CDFG for concurrence prior to initiation of rehabilitation activities. • *Timing of Monitoring:* A raptor biologist will initiate monitoring at least 1-year prior to the beginning of rehabilitation and at least 2 months prior to nest site selection, generally January to mid-February. Monitoring will continue through the breeding season, which generally extends through mid-July. Monitoring will occur at the existing nesting locations and at the alternate nesting locations after placement of artificial nest boxes. Monitoring during construction will continue once weekly during the breeding season until the breeding season or construction is complete, whichever occurs first. Post-construction monitoring will occur for 3 years after construction. Surveys will be conducted once monthly from January through July to document peregrine falcon nesting at the existing sites. • *Biological Monitor:* A raptor biologist with several years of experience observing peregrine falcon behavior and approved by the Port, Caltrans, and CDFG will be selected to conduct the monitoring. • *Monitoring Effort:* All monitoring will be conducted with the use of binoculars and/or spotting scope and document peregrine falcon activity in the vicinity of the bridge. Monitoring during bridge rehabilitation will require an average of 8 to 12 hours of observation per week to determine whether peregrine falcons are exhibiting normal breeding behavior and are nesting at the temporary locations, or if they have relocated to an alternate nesting site. If peregrines attempt to nest at the temporary nesting locations during rehabilitation activities, then a qualified peregrine monitor will observe the pair for a minimum of 16 hours per week to determine the effect of the construction on peregrine behavior. This level of effort will continue as long as incubating peregrines or nestlings under the care of adults occupy the nesting site. If the young fledge, then the observations will continue for a minimum of 30 days after the last young leaves the nest ledge. If the raptor biologist reports that the peregrines are exhibiting behavior that may indicate potential nest abandonment, then visual screens or other methods approved by CDFG would be implemented at the nesting locations. Nesting on the Gerald Desmond Bridge in locations other than the temporary nesting locations shall be discouraged until rehabilitation activities are complete. The Port, in coordination with CDFG, will develop measures to be implemented by a raptor biologist, where feasible. or under the direction of a raptor biologist, where precluded by construction site safety concerns, to discourage nesting within areas under construction. Such measures may include continued removal of nesting materials or installation of additional CDFG-approved exclusion devices. • *No Work Zone:* During bridge rehabilitation activities, alternate nest ledges and boxes will be available for nesting. If a nesting attempt is made at a new location that would be under construction during the nesting season, then a "No Work Zone" of approximately 250 ft (76 m) will be enforced until the raptor biologist implements CDFG-approved methods to discourage nesting at the new location. Should a nest be successfully established within the construction area during bridge rehabilitation, the Port will instruct construction crews to adhere to a "No Work Zone" around the nest site. The Port will coordinate with USFWS and CDFG to obtain permission to remove the nest in accordance with the MBTA. This "No Work Zone" will extend around the nest for a radius of approximately 250 ft (76 m) and be maintained until removal of the nest is authorized or 30 days after the last young leaves the nest, or until nest abandonment, whichever occurs first. Rehabilitation activities can continue at other locations outside of the "No Work Area." • *Reporting:* Quarterly reports summarizing monitoring observations of nesting peregrines, including breeding behavior, nest data, disturbances, and reproductive success, will be submitted during bridge rehabilitation activities. During post-construction monitoring, quarterly reports will provide details on nesting attempts, breeding behavior, and reproductive success. Reports will be prepared by the raptor biologist and submitted to the Port, Caltrans, and CDFG.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident bat species include behavior modification caused by construction activities and changes in roost preferences and/or roosting sites on the Gerald Desmond Bridge.	BR-5b: **Precluding Roosting on the Existing Bridge:** Prior to beginning construction activities on each section of the bridge, bats will need to be excluded from that section. Bat proofing will occur outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly. Bat exclusion will be staged to ensure that roosting sites in areas not currently under construction will be available at all times during the project to minimize the potential effects on bats. Exclusion methods for the Rehabilitation Alternative will be the same as discussed under BR-5.	Minor Impact	Less than Significant
X	X	√	Potentially adverse impacts to the resident bat species include behavior modification caused by construction activities and changes in roost preferences and/or roosting sites on the Gerald Desmond Bridge.	BR-6b: **Bat Monitoring Program:** A monitoring program will be implemented throughout the project, as applicable. CDFG concurrence on the proposed monitoring program will be obtained prior to initiation of bat monitoring/survey activities. All surveys/monitoring will be conducted by an approved CDFG bat biologist. Preconstruction monitoring will focus on bat species identification and locations of bat roosts and access points. If CDFG species of special concern are identified during preconstruction surveys, then the Port will coordinate with CDFG and incorporate additional monitoring and protection measures, as applicable. During exclusion activities, monitoring of the exclusion devices will occur to ensure that entanglement of bats is not occurring. Monitoring will continue as long as bats are observed exiting the existing bridge. Subsequent to exclusion, monitoring during bridge rehabilitation activities will continue, focusing on locations where additional exclusion may be required. Post-construction monitoring will document re-colonization of the bridge and former roost areas. • *Timing of Monitoring:* Preconstruction surveys will be initiated a minimum of 1-year prior to the initiation of bridge rehabilitation activities. The surveying and monitoring regime will consist of quarterly monitoring surveys, including a survey in June (i.e., prime bat roosting season). One month prior to rehabilitation activities, surveys will increase to weekly and consist of daytime and nighttime surveys (see Monitoring Effort) focused on species identification, identifying specific locations of bat roosts, access points, and roost characteristics. Monitoring during the bat exclusion phase will focus on ensuring that all bats have been excluded prior to initiating bridge rehabilitation activities. Subsequent to installation of exclusion devices, roosting areas will be monitored for 7 consecutive nights or until no bats are	Minor Impact	Less than Significant

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Table ES-1 Summary of Potentially Adverse/Significant Impacts

North-side Alignment Alternative	South-side Alignment Alternative	Rehabilitation Alternative	Potential Impacts-	Avoidance, Minimization and/or Mitigation Measures	Residual Impacts NEPA	Residual Impacts CEQA
				observed to exit the structure from known roosting areas at nightfall. During this time, monitoring will be performed to ensure that no bats become entangled in netting and that the bats do not discover and use new roost areas on the existing bridge. If any new roosts are discovered, then exclusion netting will be installed, and the monitoring process will continue until bats have been excluded from the bridge. Post-construction monitoring will be conducted quarterly for 3 years to document the post-construction bat re-colonization of the bridge. • *Biological Monitor:* A qualified bat biologist, thoroughly familiar with Anabat™ equipment and approved by CDFG, Caltrans, and the Port, will conduct all bat monitoring and supervise the design and placement of bat exclusion methods and devices. • *Monitoring Effort:* The quarterly surveys will be performed during appropriate lunar/weather conditions and focus on identifying active bat roosts on the existing bridge. Each quarterly survey will include one survey during the day to search for urine staining and accumulation of bat feces or guano, and one evening/night survey period using a sonic bat (i.e., Anabat™ or Sonobat™). Several visits may be required per survey to determine specific roost locations and roost access points, and information necessary for designing bat exclusion devices for the bridge. Monitoring during construction will focus on the presence of bats in the bridge area and to identify areas that would require further exclusion. • *Reporting:* Quarterly reports summarizing the monitoring efforts and observations will be prepared and submitted to the Port, Caltrans, and CDFG. Following construction, a final report will be prepared and include the name of the bat monitor, survey methods and dates, survey times and weather conditions, and exclusion devices used. The final report will also include photos and detailed observations, and conclusions and recommendations for agency use in future projects.		
√	√	X	Potential impacts to nesting double-crested cormorants during initiation of construction activities for new transmission towers/lines.	BR7: Initial construction activities for the new transmission towers/lines shall not begin during the nesting season (April through August) if double-crested cormorants have active nests on the transmission towers. Construction activities associated with the transmission tower/lines will be initiated prior to or after the breeding season or after the young have fledged.	Minor Impact	Less than Significant
X	X	√	Potential impacts to migratory birds associated with night time construction lighting during bridge rehabilitation.	BR-8b: Bridge lighting during construction will be designed to minimize the potential for bird collisions with the bridge structure. Lighting will be shielded to ensure that light is focused inward on the construction area and minimize spillover that could affect migratory birds.	Minor Impact	Less than Significant
√	√	√	Potential for project to spread invasive species.	BR-9: Project landscaping will be limited to slopes near the bridge ramps and will follow the provisions set forth in Executive Order (EO) 13112, which mandates preventing the introduction of and controlling the spread of invasive plant species on highway rights-of-way (ROWs). No invasive species listed in the National Invasive Species Management Plan or the State of California Noxious Weed List shall be used in the landscaping plans for the proposed project.	Minor Impact	Less than Significant
Climate Change (see Section 3.3)[3]						
√	√	X	Project-related increases in greenhouse gas (GHG) emissions are considered an unavoidable significant project impact.	There are no feasible mitigation measures to address GHG for transportation projects. GHG transportation emission reductions will come from three overarching strategies: more-efficient vehicles, lower-carbon fuels, and reduction of vehicle use or VMT. The GHG emission reductions in the transportation sector will be achieved through regulations, market mechanisms, incentives, and land use policy.	N/A	Significant
√	√	X	Project-related increases in GHG emission would contribute to regional cumulative increases in GHG emissions and are considered an unavoidable significant project impact.	CEQA (GHG)-1: **Greenhouse Gas Emission Reduction Program Guidelines (GHG Program).** To partially address the cumulative GHG impacts of the Gerald Desmond Bridge Replacement Project, the Port will require this project to contribute $400,000 to the GHG Program (see detailed discussion in Chapter 3, Section 3.2.2.4, for discussion of methodology for determining contribution amount). This contribution will be used to pay for measures pursuant to the GHG Emission Reduction Program Guidelines, which include, but are not limited to, generation of green power from renewable energy sources, ship electrification, goods movement efficiency measures, cool roofs to reduce building cooling loads and the urban heat island effect, building upgrades for operational efficiency, tree planting for biological sequestration of CO_2, energy-saving lighting, and purchase of renewable energy certificates (RECs). The timing of the payments pursuant to this mitigation measure shall be made by the latter of the following two dates: (1) the date that the Port issues a Notice to Proceed or otherwise authorizes the commencement of construction on the project; or (2) the date that the Gerald Desmond Bridge Replacement Final EIR/EA is conclusively determined to be valid, either by operation of PRC Section 21167.2 or by final judgment or final adjudication. At the project level, there are common measures that have the potential to reduce GHG emissions. These measures include using reclaimed water, landscaping, energy-efficient lighting, and idling restrictions.	N/A	Significant

[3] Climate change analysis is not required by Caltrans pursuant to NEPA. Climate change impacts and mitigation were developed by the Port pursuant to CEQA.

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