

Appendix H
Minimization/Mitigation
Monitoring Program

**MINIMIZATION AND MITIGATION SUMMARY
GERALD DESMOND BRIDGE REPLACEMENT PROJECT**

ENVIRONMENTAL COMMITMENTS						
NO.	DESCRIPTION OF COMMITMENT	RESPONSIBLE PARTY/ MONITOR	TIMING/PHASE	TASK COMPLETED (Sign and Date)	COMMITMENT SOURCE	COMMENTS
TRAFFIC AND CIRCULATION: North- and South-side Alignment Alternatives						
TC-1	<p>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:</p> <ul style="list-style-type: none"> ▪ Add dual northbound (NB) right-turn lanes; ▪ Restripe eastbound (EB) through/right lane to a right-turn lane; ▪ Provide one (1) EB through lane; and ▪ Continue two (2) State Route (SR) 710 southbound (SB) off-ramp lanes to Pico Avenue. 	POLB/Contractor	Prior to construction Stage 2		Traffic Study EIR/EA	
TC-2	<p>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:</p> <ul style="list-style-type: none"> ▪ 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. 	POLB/Contractor	Prior to construction Stages 3 and 4		Traffic Study EIR/EA	
TC-3	<p>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 Stage 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative.</p>	POLB/Contractor	Prior to construction Stage 2		Traffic Study EIR/EA	

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TC-4	<p>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:</p> <ul style="list-style-type: none"> ▪ 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 westbound (WB) right-turn lanes; and ▪ Continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue. <p>The <i>Middle Harbor Redevelopment Project Draft Environmental Impact Statement (DEIS)/Draft Environmental Impact Report (DEIR) and Application Summary Report (ASR)</i> prepared for the Port and United States Army Corps of Engineers (USACE) includes signalization of the Pico Avenue/ Pier D Street and Pico Avenue/ Pier E Street intersections. If these signals are implemented as part of that project prior to the start of construction Stage 2 for the Pico Avenue/Pier D Street intersection and construction Stage 3 for the Pico Avenue/Pier E Street intersection, then that would remove the need for the signalization component of the proposed mitigations under TC-3 and TC-4, respectively.</p>	POLB/Contractor	Prior to construction Stages 3 and 4		Traffic Study EIR/EA	
TC-5	<p>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.</p> <p>POLA is currently considering two potential projects at the Navy Way/Seaside Avenue intersection. One project would provide grade separation of left turns and the other would implement a centerline barrier on Seaside Avenue that would eliminate left turns. Either project would remove the signal at the intersection, thereby eliminating the adverse effect of the proposed Bridge Replacement Alternatives at the intersection. If either of these projects or any other comparable project is implemented prior to construction of the Bridge Replacement Alternatives, then the adverse effect of the Bridge Replacement Alternatives at the intersection would be removed and the proposed mitigation measure would not be required.</p>	POLB/Contractor	During Design		Traffic Study EIR/EA	

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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.	POLB	Prior to initiation of construction		Traffic Study EIR/EA	
HAZARDOUS WASTE AND MATERIALS: North- and South-side Bridge Replacement and Rehabilitation Alternatives						
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.	POLB/Contractor	Prior to final design		Initial Site Assessment, EIR/EA	
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.	POLB/Contractor	Prior to final design		Initial Site Assessment, EIR/EA	
HM-3	To minimize cross-contamination of the water-bearing zones, the construction contractor shall employ construction techniques to minimize the need for dewatering.	POLB/Contractor	Construction		Initial Site Assessment, EIR/EA	
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 structures containing ACM or LBP will be completed in accordance with the contract specifications and all federal, state, and local laws and regulations.	POLB/Contractor	Prior to building or bridge demolition		Initial Site Assessment, EIR/EA	

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HM-5	Prior to construction, the Port shall test areas within the proposed project corridor where soil may be disturbed for aerially deposited lead (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	POLB/Contractor	Prior to construction		Initial Site Assessment, EIR/EA	
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.	Contractor	Prior to construction		Initial Site Assessment, EIR/EA	
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	Contractor	Prior to construction		Initial Site Assessment, EIR/EA	
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.	Contractor	Prior to final design		Initial Site Assessment, EIR/EA	
PUBLIC HEALTH AND SAFETY						
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.	POLB	Prior to final design		EIR/EA	
HS-2	A bridge construction and demolition schedule shall be submitted 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.	POLB	Prior to construction		EIR/EA	

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HS-3	Prior to initiation of construction activities, all businesses, tenants, and utility companies (i.e., Southern California Edison [SCE], gas, water, oil, and telecommunications) within the area of the proposed construction/demolition or rehabilitation shall be notified of the schedules and associated roadway and ramp closures related to the proposed project.	POLB	Prior to construction		EIR/EA	
HS-4	All marine transportation and recreational boating companies shall be notified 2 weeks prior to initiation of planned construction/demolition or rehabilitation activities potentially affecting normal operations within the Back Channel.	POLB	Prior to and during construction		EIR/EA	
HS-5	The USCG and all POLB tenants shall be regularly notified of scheduled work over the Back Channel during the construction and demolition phases of the project.	POLB	Prior to and during construction		EIR/EA	
HS-6	An emergency response and health and safety plan shall be prepared 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. POLB will review and approve the plans prior to initiation of construction activities.	Contractor, POLB	Prior to and during construction		EIR/EA	
AIR QUALITY: North- and South-side Alignment Alternatives						
AQ-C1	Construction processes shall adhere to all applicable South Coast Air Quality Management District (SCAQMD) rules and regulations concerning the operation of construction equipment and dust control.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
AQ-C2	Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.	POLB/Contractors	Prior to and during construction		Air Quality Technical Study EIR/EA	
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.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	

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AQ-C4	To the extent feasible, use electricity from power poles rather than temporary diesel or gasoline power generators.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
AQ-C5	As part of the Port's commitment to promote the Green Port Policy and implement the Clean Air Action Plan (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.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
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.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
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.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
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.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
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.	POLB/Contractors	Construction		Air Quality Technical Study EIR/EA	
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	POLB	Prior to Construction		Air Quality Technical Study EIR/EA	

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	and approved by the Board of Harbor Commissioners. 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.					
BIOLOGICAL RESOURCES: Bridge Replacement Alternatives						
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 the California Department of Fish and Game (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).	POLB/Contractor	Construction		Natural Environment Study/, EIR/EA	
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 existing 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).	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
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	POLB/Contractor	Preconstruction/ Construction/ Postconstruction		Natural Environment Study, EIR/EA	

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	<p>construction activities.</p> <ul style="list-style-type: none"> <i>Timing of Monitoring:</i> 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. <p>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.</p> <ul style="list-style-type: none"> <i>Biological Monitor:</i> 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. <i>Monitoring Effort:</i> 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. <p>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</p>					

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	<p>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.</p> <p>Nesting on the new structures shall be discouraged until construction of the new bridge is completed. 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. Such measures may include continued removal of nesting materials or installation of CDFG-approved exclusion devices.</p> <ul style="list-style-type: none"> • <i>No Work Zone</i>: 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. <p>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.</p> <p>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 the United States Fish and Wildlife Service (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</p>					

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BR-4	<p>occurs first. Demolition activities can continue at other locations outside of the "No Work Area."</p> <ul style="list-style-type: none"> <i>Reporting:</i> 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. <p>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 <i>et al.</i>, 1998; Keeley and Tuttle, 1999).</p> <p>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 inches (in.) (1.27 to 3.175 centimeters [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).</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	

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BR-5	<p>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.</p> <p>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 repellent (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.</p> <p>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).</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	

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BR-6	<p>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 <i>et al.</i> (2003). If CDFG species of special concern are identified, the Port will coordinate with CDFG and incorporate additional monitoring/protection measures as applicable.</p> <p>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). Each survey will include daytime and nighttime surveys (see Monitoring Effort) focused on identifying specific locations of bat roosts and roost access points.</p> <p>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.</p> <p>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</p>	POLB/Contractor	Pre-construction/ Construction/ Post construction		Natural Environment Study, EIR/EA	

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	<p>process will continue until bats have been excluded from the bridge.</p> <p>Post-construction monitoring will be conducted quarterly for 3 years and will document use of new bat roosts.</p> <ul style="list-style-type: none"> • <i>Biological Monitor:</i> 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. • <i>Monitoring Effort:</i> 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 on the existing bridge. <p>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.</p> <p>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.</p> <ul style="list-style-type: none"> • <i>Reporting:</i> 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 					

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	existing bridge. The final report will also include photos and detailed observations, and a conclusions and recommendations section for agency use in future projects.					
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.	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
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.	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
BIOLOGICAL RESOURCES: Bridge Rehabilitation Alternative						
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.	POLB/Contractor	Construction		Natural Environment Study/, EIR/EA	

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BR-2b	<p>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.</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
BR-3b	<p>Monitoring Program: The proposed monitoring program is based on measures from the PFMP for the Gerald Desmond Bridge (BioResource Consultants, 1998) used from 1998 through 2004. Modified measures from the 1998 PFMP, 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.</p> <ul style="list-style-type: none"> 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. <p>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.</p> <ul style="list-style-type: none"> 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 	POLB/Contractor	Preconstruction/ Construction/ Postconstruction		Natural Environment Study, EIR/EA	

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	<p>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.</p> <p>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.</p> <p>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.</p> <ul style="list-style-type: none"> • <i>No Work Zone:</i> 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. <p>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</p>					

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	<p>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."</p> <ul style="list-style-type: none"> 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. 					
BR-5b	<p>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.</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
BR-6b	<p>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</p>	POLB/Contractor	Pre-construction/ Construction/ Post construction		Natural Environment Study, EIR/EA	

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	<p>and former roost areas.</p> <ul style="list-style-type: none"> <i>Timing of Monitoring:</i> 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. <p>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 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.</p> <p>Post-construction monitoring will be conducted quarterly for 3 years to document the post-construction bat re-colonization of the bridge.</p> <ul style="list-style-type: none"> <i>Biological Monitor:</i> 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. <p><i>Monitoring Effort:</i> 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</p>					

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BR-8b	<p>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.</p> <ul style="list-style-type: none"> <i>Reporting:</i> 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. <p>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.</p>	POLB/Contractor	Construction		Natural Environment Study, EIR/EA	
BIOLOGICAL RESOURCES: North- and South-side Alignment and Bridge Rehabilitation Alternatives						
BR-9	<p>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.</p>	POLB/Contractor	Final design		Natural Environment Study, EIR/EA	
Climate Change: North- and South-side Alignment Alternatives						
CEQA (GHG)-1	<p>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. 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 carbon dioxide (CO₂), energy-saving lighting, and purchase of renewable energy.</p>	POLB	Prior to Construction		Air Quality Technical Study EIR/EA	

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	<p>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 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.</p>					