May 2022
Port of Stockton Rail Bridge Replacement and Rail Improvement

ANCHOR QEA

Draft Environmental Assessment

Prepared for Port of Stockton and United States Coast Guard

May 2022
Port of Stockton Rail Bridge Replacement and Rail Improvement

Draft Environmental Assessment

Prepared for
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UNITED STATES COAST GUARD (COAST GUARD) DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PORT OF STOCKTON RAIL BRIDGE REPLACEMENT AND RAIL IMPROVEMENTS PROJECT AT THE PORT OF STOCKTON, SAN JOAQUIN COUNTY, CALIFORNIA

This Coast Guard draft environmental assessment (DEA) was prepared in accordance with Environmental Planning Policy, COMDTINST 5090.1 (series) and is in compliance with the National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321 to 4370h) and the Council on Environmental Quality Regulations dated 28 November 1978 (40 C.F.R. §§ 1500–1508).

This DEA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). This DEA concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This DEA also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during DEA preparation.

5/26/2022 Date	Digitally signed by Carl Hausner Date: 2022.05.26 06:44:19 -07'00' Carl T. Hausner Document Preparer[1]	Bridge Management Specialist Title/Position

I reviewed the DEA and submitted my written comments to the Proponent.

5/26/2022 Date	Digitally signed by Carl Hausner Date: 2022.05.26 06:47:15 -07'00' Carl T. Hausner Environmental Reviewer[2]	Bridge Management Specialist Title/Position	NW Level II Provisional, Interim, I, II, or III

I reviewed the DEA and submitted my written comments to the Proponent.

5/26/2022 Date	Digitally signed by Carl Hausner Date: 2022.05.26 06:47:34 -07'00' Carl T. Hausner Senior Environmental Professional[2]	Bridge Management Specialist Title/Position	NW Level II Interim, II, or III

In reaching my decision/recommendation on the Coast Guard's proposed action, I considered the information contained in this DEA and considered and acknowledge the written comments submitted to me from the Environmental Reviewer(s).

_____ Date	DUNN.BRIAN.L.1173033954 Digitally signed by DUNN.BRIAN.L.1173033954 Date: 2022.05.26 11:30:35 -04'00' Brian L. Dunn Proponent	Chief, Office of Bridge Programs Title/Position

Executive Summary

Introduction

This Environmental Assessment (EA) for the Port of Stockton Rail Bridge Replacement and Rail Improvement Project (Proposed Action) was prepared in accordance with the following:

- National Environmental Policy Act of 1969 (NEPA; 42 United States Code 4321 et seq., 1982)
- President's Council on Environmental Quality's (CEQ's) "Regulations Implementing the Procedural Provisions of the National Environmental Policy Act" (40 Code of Federal Regulations [CFR] 1500 et seq., 2021)
- Department of Homeland Security Management Directive 5100.1

USCG is the NEPA lead agency. This EA evaluates the environmental effects of USCG's issuance of a Bridge Permit that would result in removal and replacement of the Port of Stockton's (Port's) functionally obsolete rail swing bridge over the San Joaquin River (the federal action) and the related construction of a new lead track to increase the overall efficiency of train operations within the Port. While the federal action is restricted to USCG's approval of the bridge removal and replacement, this EA conservatively evaluates construction and operations of the entire Rail Bridge Replacement and Rail Improvement Project as the Proposed Action.

Purpose and Need for Proposed Action

The purpose of the Proposed Action is to replace the outdated rail swing bridge and accommodate planned capacity needs of the rail infrastructure within the Port, to increase efficiency of train operations within the Port, and to support future increases in train volumes. The Port's rail system currently serves 21 trains per week and while weekly train volumes are expected to increase to 34 trains by 2026, several system bottlenecks constraining existing movements at the Port result in the current system only being able to serve a maximum of 28 trains per week.

The existing rail swing bridge between the Port's East and West Complexes was built more than 85 years ago; the bridge now has outdated rail size, clearance, and weight limitations, and over time has become susceptible to structural deficiencies that could lead to closure. The weight restrictions of the existing bridge only allow for locomotives with enough power to transport 30 to 40 carloads at once, while the overhead truss structure prevents the passage of larger and taller railcars. The existing rail swing bridge has only one track; as rail volumes to and from the West Complex grow, it is expected there would be delay times for trains waiting for the bridge to be clear. Additionally, if a bridge closure were to occur, there would be no rail service to terminals in the West Complex. A modern, expanded rail removable span bridge would allow for larger and heavier locomotives, reduce the additional train movements, allow larger train cars with greater capacity to accommodate the bridge weight restrictions, improve safety, and remove creosote-treated wood from within and above the mainstem San Joaquin River.

In addition to the rail swing bridge limitations, the Port's lead track is not long enough to serve existing trains and the part of the train that cannot fit causes blockages on the connecting track. Blockages on the lead track cause staging bottlenecks in the following two locations at the Port: the 700 Yard and at Port Yard. Adding a track to the existing Port rail infrastructure and adding a rail classification yard in the West Complex would alleviate these bottlenecks and reduce travel times for switching operations.

Proposed Action and Alternatives

As part of the Proposed Action, the USCG would issue a Bridge Permit, which would allow the Port to replace the existing rail swing bridge between the East and West Complexes with a new double-track rail removable span bridge—with center spans that would be removable for the passage of vessels engaged in emergency response upriver from the bridge. Replacing the rail swing bridge would allow the Port to make additional system-wide rail improvements, including constructing a new lead track and associated modifications to road underpasses and overpasses near the terminus of the Ort J. Lofthus Freeway (Crosstown Freeway), constructing a new rail underpass at Fresno Avenue, and constructing a new rail classification yard in the West Complex.

The CEQ's regulations implementing NEPA require inclusion of a No Action Alternative to serve as a baseline against which the impacts of the Proposed Action can be evaluated. Under the No Action Alternative, the existing rail swing bridge would not be replaced. Because the rail swing bridge is integral to the larger rail system improvements, the Port would also not move forward with constructing a new lead track and associated modifications to road underpasses and overpasses and constructing a new rail classification yard in the West Complex. Current operations and standard maintenance would continue with growth expected absent the rail improvements.

Several other alternatives, including constructing a fixed bridge, a single-track bridge, a single-track bridge with temporary shoofly, a single-track bridge adjacent to the current location, a new bridge in an alternative location entirely, were considered. These alternatives were eliminated from further analysis because they would not meet the reasonable needs of current and prospective future navigation on the San Joaquin River, not meet the project purpose and need to accommodate projected rail volumes, or because of increased costs, required property acquisitions outside the Port, and the potential for new retaining walls or other features. There are no other reasonable alternatives that would meet the stated purpose and need for the action.

Agency and Public Involvement

Pursuant to the requirements of NEPA (40 CFR 1506.6, 2021), this EA is subject to public involvement. USCG has invited and encouraged agencies, organizations, and members of the public with a potential interest in the Proposed Action to participate. USCG is distributing the Draft EA for a 30-day public review and comment period. The Notice of Availability announcing the availability of the Draft EA was published in the *Coast Guard Local Notice to Mariners*. The Draft EA is available for review online at: https://go.usa.gov/xuGjD.

CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts. Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments," requires inviting federally recognized Tribes to participate in NEPA and the National Historic Preservation Act (NHPA) Section 106 process as Sovereign Nations based on their potential ancestral tied to the Proposed Action area. In August 2021, USCG initiated consultation for the Proposed Action with the State Historic Preservation Officer under Section 106 of the NHPA. Consultations with the U.S. Fish and Wildlife Service and National Marine Fisheries Services under Section 7 of the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act was initiated on April 15, 2022. All consultations are ongoing.

Summary of Potential Environmental Consequences

A summary of the environmental impacts of each alternative is provided in Table ES-1, and a list of mitigation measures that would be implemented to avoid or minimize adverse effects on the environment is provided in Table ES-2. As presented in Table ES-2 and further described in Section 4.1, MM-BIO-1 and MM-BIO-5 include compensatory mitigation requirements. The Proposed Action would avoid significant environmental impacts.

Table ES-1
Summary of Environmental Effects by Alternative

Environmental Resource	Proposed Action	No Action
Biological Resources	Short-term, minor, adverse impact and short-term, minor, beneficial impact	Long-term, minor, adverse impact
Cultural Resources	Long-term, minor, adverse impact	No impact
Geology and Soils	Long-term, minor, adverse impact	No impact
Hydrology and Water Quality	Short-term, minor, adverse impact	Long-term, minor, adverse impact
Hazardous Materials	Short-term, minor, adverse impact	Long-term, minor, adverse impact
Air Quality and Greenhouse Gases	Short and long-term, minor, adverse impacts	Long-term, minor, adverse impact
Noise and Vibration	Short-term, minor, adverse impact	Long-term, minor, adverse impact
Transportation	Short-term, minor, adverse impact and short-term, minor, beneficial impact	Long-term, minor to significant, adverse impact
Utilities and Infrastructure	Short-term, minor, adverse impact	No impact
Visual Resources	Short and long-term, minor, adverse impact	No impact
Land Use	No impact	No impact
Environmental Justice	No disproportionate impact	No disproportionate impact

Table ES-2
Summary of Mitigation Measures

Mitigation Measure	Responsible Party and Implementation	Timing and Monitoring
MM-BIO-1: Obtain Coverage under the SJMSCP or Conduct Nesting Bird Surveys; Bat Surveys and Avoidance Measures; Elderberry Surveys, Setbacks, and Compensation; and Western Pond Turtle Buffer Establishment. To avoid impacts on potentially present special-status species, the Proposed Action will apply to obtain coverage under the *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)* (SJCOG 2000), a voluntary program that allows for participants to be issued streamlined ESA and CESA approvals (Incidental Take Permits) and to mitigate for impacts to certain special-status species. The Port will submit an application for coverage to the SJCOG (the agency that administers the SJMSCP) within 60 days of construction. SJCOG will review the Proposed Action, prepare a staff report, and submit the report to the SJMSCP Habitat Technical Advisory Committee, which determines whether the Proposed Action will be covered under the SJMSCP. Assuming that the Proposed Action is approved for coverage, an SJCOG biologist will conduct a site visit to determine which ITMMs included in the SJMSCP are applicable to the Proposed Action. SJCOG will then execute a final summary of applicable ITMMs. ITMMs will include surveys, monitoring, and applying temporary construction buffers, if determined appropriate by SJCOG. The Port will implement all required ITMMs identified by the SJCOG. Ground disturbance will not occur until the ITMMs have been satisfied. If the Proposed Action is not able to obtain coverage under the SJMSCP, the Port will implement the following avoidance and minimization measures specific to nesting birds (including swallows), bats, VELB, and western pond turtle: For nesting birds, alternatives to SJMSCP coverage include surveys and avoidance measures consistent with CDFW's standard requirements. If equipment staging, site preparation, or other construction work is scheduled to occur between February 1 and September 15—the nesting season of protected raptors and other avian species—a CDFW-approved biologist will conduct a pre-construction survey of the Proposed Action area for active nests within 7 days prior to starting construction. The minimum survey area will be 250 feet for passerines, 500 feet for small raptors, and 1,000 feet for larger raptors. Surveys will be conducted during periods of peak activity (early morning or dusk) and will be of sufficient duration to observe movement patterns. If a lapse in work of 15 days or longer occurs, another survey will be performed before construction is re-initiated. If any active bird nests are found, a buffer around the nest will be established by the biologist in coordination with CDFW. The buffer area will be fenced off from work activities and avoided until the young have fledged, as determined by the biologist. The biologist will monitor the active nest until the young have fledged, for at least 2 hours per day when construction activities are occurring to observe the behavior of the nesting birds. If the birds show signs of disruption to nesting activities (e.g., defensive flights or vocalizations directed toward contractor personnel, standing up from a brooding position, or flying away from the nest), the buffers will be expanded by the biologist until no further interruptions to nesting behavior are detectable. For swallows, alternatives to SJMSCP coverage include avoidance measures consistent with CDFW's standard requirements. Before nesting swallow season (February 1 to September 30), the Port, in consultation with CDFW, will install exclusionary devices on existing bridge structures to prevent the establishment of swallow nests within the footprint of the Proposed Action area. Exclusionary devices will be limited to solid materials and will not contain monofilament netting or similar material. Exclusionary devices will be inspected weekly while in place to ensure that they are in good condition and functioning properly. During inspection, if exclusionary devices need repair, the Port will make repairs immediately upon discovery. Project activities will not be initiated or conducted if an active swallow nest is detected on site. The qualified biologist will conduct a survey of the bridges no more than 5 days prior to construction activity to ensure that no active nests are present. If any active nests are found, the qualified biologist will establish an appropriate buffer to comply with the Migratory Treaty Act of 1918 and Fish and Game Code 3503. The qualified biologist will increase the buffer if nesting birds show signs of unusual or stressed behavior as a result of project activities. The qualified biologist will have the authority to stop project work activities near the nesting birds if the nesting birds exhibit abnormal behavior that may cause nest abandonment or the loss of eggs or young, until an appropriate buffer is established. To avoid encroachment, the buffers will be clearly marked for avoidance and will remain in effect until the young have fledged or until the nest has been abandoned as confirmed by the qualified biologist. For bats, alternatives to SJMSCP coverage include surveys and avoidance measures consistent with CDFW's standard requirements. A qualified bat biologist will conduct daytime and evening acoustic surveys for bats within 14 days prior to beginning project construction or work at or within 50 feet of the bridges. If bats are identified on site, the qualified biologist will identify the species and estimate the quantity present, roost type, and roost status but will avoid disturbing bats during surveys. If foraging bats, active roosts, or other signs of bat activity (i.e., guano or urine staining) are identified on site, the qualified bat biologist will flag or mark all roosts and actively used features for avoidance. If complete avoidance is not possible (i.e., roosts within the bridge structures), then the qualified bat biologist will develop a Bat Mitigation and Monitoring Plan in consultation with CDFW. The Bat Mitigation and Monitoring Plan will include an assessment of all anticipated impacts to bats, including noise disturbance during construction, effective avoidance and minimization measures to protect bats, and compensatory mitigation for	The Port will submit an application for coverage to SJCOG within 60 days prior to project construction. Assuming that the proposed project is approved for coverage, an SJCOG biologist will conduct a site visit to determine which ITMMs included in the SJMSCP are applicable to the project. SJCOG will then execute a final summary of applicable ITMMs for the proposed project. The Port will implement all required ITMMs identified by the SJCOG. Ground disturbance will not occur until the ITMMs have been satisfied. If the proposed project is not able to obtain coverage under the SJMSCP, the Port will implement avoidance and minimization measures specific to nesting birds (including swallows), bats, VELB, and western pond turtle.	An application must be submitted by the Port within 60 days of project construction. ITMMs must be implemented prior to and during any ground-disturbing activities.

Mitigation Measure	Responsible Party and Implementation	Timing and Monitoring
permanent impacts to bats or their nesting or roosting habitat. Construction will commence only after the Bat Mitigation and Monitoring Plan is implemented. For VELB, alternatives to SJMSCP coverage include the following for areas with elderberry bushes identified in pre-construction surveys: • If elderberry shrubs are present in the Proposed Action area, a setback of 20 feet from the dripline of each elderberry bush will be established. • Brightly colored flags or fencing will be placed surrounding elderberry shrubs throughout the construction process. • For all shrubs without evidence of VELB exit holes that cannot be retained as described in the previous two bullets, the Port will count all stems of 1 inch or greater diameter at ground level during pre-construction surveys. Compensation for removal of these stems will be provided by the Port in coordination with USFWS and CDFW. • For all shrubs with evidence of VELB exit holes, the Port will undertake transplanting elderberry shrubs displaying evidence of VELB occupation to VELB mitigation sites during the dormant period for elderberry shrubs (November 1 to February 15). For elderberry shrubs displaying evidence of VELB occupation that cannot be transplanted, compensation for removal of shrubs will be provided by the Port in coordination with USFWS and CDFW. For western pond turtle, alternatives to SJMSCP coverage will include establishing a 300-foot buffer area between any nesting turtle sites and the wetland located near the nesting site. These buffers will be indicated by temporary fencing if construction has or will begin before nesting periods are ended (the period from egg laying to emergence of hatchlings is normally April to November).		
MM-BIO-2: Obtain and Implement NPDES Construction Stormwater General Permit. A NPDES Construction Stormwater General Permit will be obtained for the Proposed Action, which will require the development of a construction SWPPP. The construction SWPPP will include best management practices including or similar to use of barriers (e.g., netting or sandbags) to prevent pollutants from entering the water, equipment inspection for spills, and maintenance and implementation of material spill prevention and cleanup plans. The construction SWPPP will ensure that contaminants are not accidentally introduced into the waterway.	The Port will be responsible for obtaining the NPDES Construction Stormwater General Permit and creating and implementing the SWPPP. The Port will submit an application for coverage to RWQCB within 60 days prior to project construction.	The permit shall be obtained prior to the start of construction. SWPPP implementation shall occur during construction with monitoring by the Port.
MM-BIO-3: Conduct In-Water Construction During Established Window. All in-water work will be conducted during the annual CDFW-, NMFS-, and USFWS-approved work window, which is expected to span from July 1 to November 30.	The Port will include requirements in all construction contracts for construction contractors to conduct all in-water work during the approved work windows.	In-water work shall be completed during the approved window, expected to span from July 1 through November 30.
MM-BIO-4: Employ Soft-Start Techniques, Use Noise Attenuation Device, and Conduct Underwater Noise Monitoring During Impact Pile Driving. During construction, the Port will implement soft-start techniques for impact pile driving, which is industry standard and will be required per regulatory permits. Soft-start techniques include bringing pile driving or other loud equipment online slowly, providing any fish that are potentially present with the opportunity to disperse from the Proposed Action area. The Port will also employ a bubble curtain or similar noise attenuation methodology during all impact hammer use. To verify that conditions meet the assumptions used in the analysis, the Port will prepare an underwater noise monitoring plan, obtain agency approval of the plan, and conduct noise monitoring during impact hammer use.	The Port will retain a qualified biologist or hydroacoustic specialist to prepare an underwater noise monitoring plan. The Port will submit the prepared plan to obtain agency approval. Following agency approval of the plan, the Port will comply with the provisions of the plan including conducting noise monitoring during impact hammer use. The Port will require construction contractors to implement soft-start techniques and use noise attenuation devices during impact pile driving. The Port will include soft-start techniques and other underwater noise attenuation requirements in construction contracts.	Soft-start techniques, noise attenuation, and noise monitoring shall be implemented prior to and during construction, with monitoring by the Port.
MM-BIO-5: Compliance with Permitting Requirements for In-Water or Riparian Habitat Work. For work with the potential to affect jurisdictional waters and wetlands, the Port will conduct a delineation of wetlands and waters and will comply with permitting requirements from USACE, RWQCB, and CDFW to avoid and minimize impacts to jurisdictional waters and riparian habitats. For any unavoidable impacts, compensation for impacts to jurisdictional waters will be provided at agency-approved mitigation ratios, including compensation for permanent fill (1:1 ratio) and compensation for temporary impacts to fish habitat through purchasing aquatic habitat credits at the Shin Kee Mitigation Bank (anticipated to be between 0.3 and 0.6 acre-credit), which is expected to start selling habitat and wetland credits in 2022 or 2023. Work occurring in stream-dependent riparian habitats will also occur in compliance with permitting requirements from CDFW. The Port will implement erosion control measures, design staging and refueling areas, and require equipment inspections and maintenance to avoid impacts on riparian areas.	The Port will retain a qualified biologist to conduct a delineation of wetlands and waters and comply with permitting requirements from USACE, RWQCB, and CDFW to avoid and minimize impacts to jurisdictional waters and riparian habitats. For any unavoidable impacts, the Port will provide compensation at agency-approved mitigation ratios, including compensation for permanent fill (1:1 ratio minimum) and compensation for temporary impacts to fish habitat through purchasing aquatic habitat credits at the Shin Kee Mitigation Bank (anticipated to be between 0.3 and 0.6 acre-credit). For work occurring in stream-dependent riparian habitats, the Port will require construction contractors to implement erosion control measures and design staging and refueling areas, and require equipment inspections and maintenance to avoid impacts on riparian areas.	Delineation of wetlands and waters shall be completed and permits received prior to the start of construction. Compensation for impacts to jurisdictional waters shall be completed prior to construction. Compliance with permits and implementation of best management practices shall be completed prior to and during construction with monitoring by the Port.

Mitigation Measure	Responsible Party and Implementation	Timing and Monitoring
MM-GEO-1: Reclamation District Coordination. The Port will coordinate with Reclamation Districts 403 and 404 prior to any levee excavation and will implement any Reclamation District recommended measures for levee failure or flood abatement and avoidance.	The Port will coordinate with the Reclamation Districts and implement any recommended measures.	Coordination shall occur prior to construction. Recommended measures shall be implemented during construction, with monitoring by the Port.
MM-GEO-2: Geotechnical Investigation and Reinforcement Measures. The Port will perform a geotechnical investigation in the vicinity of the rail underpass at Fresno Avenue. The geotechnical investigation will identify design measures to minimize or avoid potential soil or geologic hazards, which will be implemented by the Port, and will include but not be limited to liquefaction.	The Port will retain a qualified engineer to perform a geotechnical investigation. Based on the results of the geotechnical investigation, the Port will identify and implement design measures to minimize or avoid potential soil or geologic hazards.	The geotechnical investigation shall be completed prior to final design. Design measures shall be implemented during construction, with monitoring by the Port.
MM-HAZ-1: Work Restrictions at Site 19. Prior to construction work requiring earthwork in Site 19, the Port will prepare an SMP covering the Site 19 work and submit it to DTSC for approval. Ground disturbance in Site 19 will not begin until DTSC has approved the SMP. Construction work on Site 19, including ground disturbance or excavation, will not extend into the stockpile portion of the site.	The Port will prepare an SMP covering the Site 19 work and submit it to DTSC for approval.	The SMP shall be prepared and approved prior to ground disturbance in Site 19. The SMP shall be implemented during construction, with monitoring by the Port.
MM-AQ-1: Construction Idling Reductions. The Port will require construction contractors to minimize heavy-duty construction idling time to 2 minutes where feasible. Exceptions shall include vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles that are being serviced, or vehicles that are in a queue waiting for work.	The Port will include requirements in all construction contracts. The Port will require construction contractors to minimize heavy-duty construction idling time to 2 minutes where feasible.	This mitigation measure shall be implemented prior to and during construction, with monitoring by the Port.
MM-AQ-2: Use of Tier 4 Engines During Construction. All land-based construction equipment will use USEPA Tier 4 Final engines, except for specialized equipment or when Tier 4 engines are not available. In place of Tier 4 engines, off-road diesel-powered heavy equipment will incorporate retrofits such that emission reductions are achieved equal to or exceeding that of a Tier 4 engine.	The Port will include requirements in all construction contracts. The Port will require construction contractors to use USEPA Tier 4 Final engines, except for specialized equipment or when Tier 4 engines are not available.	This mitigation measure shall be implemented prior to and during construction, with monitoring by the Port.
MM-AQ-3: Evaluate Vegetative Barriers. The Port will evaluate areas to potentially include vegetative barriers along the lead track, specifically in the area between the track and residential communities on West Scotts Avenue.	The Port will retain a qualified landscaper to evaluate potential plant species and location(s) for potential installation of a vegetative barrier(s) along areas of the lead track.	The evaluation would occur prior to and/or during construction by the Port, with installation of any vegetative barrier(s) occurring during or following lead track construction.
MM-NOI-1: Equipment Noise Limitations. Generators will not exceed 70 dBA at a distance of 50 feet, and dozers will not exceed 80 dBA at a distance of 50 feet. Verification will be provided to the City prior to approval of grading plans.	The Port will include requirements in all construction contracts that generators and dozers shall operate to the stated noise limitations.	Verification shall be provided to the City prior to the approval of grading plans.
MM-NOI-2: Stationary Equipment Limitations. Generators, compressors, and other noisy stationary equipment will be placed as far away from occupied residential properties as is practicable.	The Port will include requirements in all construction contracts that require that generators, compressors, and other noisy stationary equipment are placed as far away from occupied residential properties as is practicable.	This mitigation measure shall be implemented during construction, with monitoring by the Port.
MM-NOI-3: Construction Staging Limitations. Construction staging will not be located within 70 feet of occupied residential properties.	The Port will include requirements in all construction contracts that limit construction staging within 70 feet of occupied residential properties.	This mitigation measure shall be implemented during construction, with monitoring by the Port.
MM-NOI-4: Dozer and Excavator Limitations. Use of dozers and excavators will be limited where feasible within 70 feet of residential property lines.	The Port will include requirements in all construction contracts that limit the use of dozers and excavators to within 70 feet of residential property lines.	This mitigation measure shall be implemented during construction, with monitoring by the Port.
MM-NOI-5: Develop and Implement a Construction Truck Route Map. A construction truck route will be developed that avoids sending trucks north of West Scotts Avenue on South Fresno Avenue. Additionally, the route will minimize the number of truck trips accessing the proposed LLDT and underpass sites via West Scotts Avenue by using the existing access road south of the rail line, within the rail right-of-way.	The Port will develop and implement a construction truck route map that meets the stated requirements. The Port will include the truck routes in construction contracts and require compliance as part of construction contracts.	The construction truck route map shall be prepared prior to the start of construction. The route and truck trip limits will be implemented during construction, with monitoring by the Port.

Mitigation Measure	Responsible Party and Implementation	Timing and Monitoring
MM-NOI-6: Quiet Pile-Driving Technologies. "Quiet" pile-driving technology (such as pre-drilling of piles, use of vibratory or sonic pile drivers, and use of more than one pile driver to shorten the total pile-driving duration) will be employed where feasible, in consideration of geotechnical and structural requirements and conditions. Pre-drilling piles does not generate high impact-type noises, as emitted during impact pile driving. Noise emissions from pre-drilling activities typically are from diesel engines and occasional clangs from auger equipment. Where and when feasible, piles driven by a vibratory hammer generally do not generate measurable off-site noise beyond typical construction noises. The Port may elect to limit impact pile driving to only a portion of the total piles driven at the Proposed Action site and, if possible, use limited impact pile proofing only in combination with a vibratory installation process. Other technologies that may reduce impact pile-driving noise include inserting wood blocks between the pile and driver and using acoustic blankets that are suspended around the location of the pile strike.	The Port will retain an acoustic specialist or engineer to consider implementation of technologies to limit or reduce pile-driving noise or limitations on impact pile-driving.	This mitigation measure shall be implemented during construction, with monitoring by the Port.
MM-NOI-7: Timing Restrictions. The Port will require that the construction contractor limit the timing of pile-driving activity to result in the least possible disturbance. The City of Stockton Municipal Code allows for construction 7 days per week between the hours of 7:00 a.m. and 10:00 p.m. However, as a mitigation measure, the Port will limit the times and days of pile-driving activities (i.e., between the hours of 9:00 a.m. and 5:00 p.m. and only on weekdays). Imposing these additional limits may reduce the potential for disturbance of nearby residences during times of day and hours of day when noise-sensitive receptors may have higher sensitivities to impact-type noises.	The Port will include requirements in all construction contracts that limit the times and days of pile-driving activities.	Time limitations shall be imposed during construction, with monitoring by the Port.

Notes:
ESA: Endangered Species Act
CDFW: California Department of Fish and Wildlife
CESA: California Endangered Species Act
City: City of Stockton
dBA: A-weighted decibel
DTSC: Department of Toxic Substances Control
ITMM: Incidental Take Minimization Measures
LLDT: long lead double track
NMFS: National Marine Fisheries Service
NPDES: National Pollutant Discharge Elimination Service
SJCOG: San Joaquin Council of Governments
SJMSCP: *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)*
SMP: Soil Management Plan
SWPPP: Stormwater Pollution Prevention Plan
USEPA: U.S. Environmental Protection Agency
USFWS: U.S. Fish and Wildlife Service
VELB: valley elderberry longhorn beetle

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ABBREVIATIONS

2040 General Plan	*Envision Stockton 2040 General Plan*
AQMD	Air Quality Management District
ARB	California Air Resources Board
BGEPA	Bald and Golden Eagle Protection Act
BNSF	BNSF Railway
CAAQS	California Ambient Air Resources Board Quality Standards
Caltrans	California Department of Transportation
CCTC	Central California Traction Company
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	methane
City	City of Stockton
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CPUC	California Public Utilities Commission
cSEL	cumulative sound exposure level
dB	decibel
dBA	A-weighted decibel
Delta	Sacramento-San Joaquin River Delta
DPS	distinct population segment
DTSC	California Department of Toxic Substances Control
DWSC	Deep Water Ship Channel
EA	Environmental Assessment
EFH	essential fish habitat
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FMP	Fisheries Management Plan
FTA	Federal Transit Administration
GHG	greenhouse gas

GWP	global warming potential
HCFCs	hydrochlorofluorocarbons
HFCs	hydrofluorocarbons
HMM	Hazardous Materials Management
I-5	Interstate 5
in/sec	inches per second
ITMM	incidental take minimization measure
L_{dn}	Day/Night Average Sound Level
L_{eq}	Equivalent Sound Level
LLDT	long lead double track
L_{max}	Maximum Sound Level
Ln	Statistical Sound Level
LUC	Land Use Covenant
MBTA	Migratory Bird Treaty Act
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NCA	Noise Control Act of 1972
NCTS Stockton	Naval Computer and Telecommunications Station, San Diego Detachment Stockton
NEPA	National Environmental Policy Act of 1969
NGVD29	National Geodetic Vertical Datum of 1929
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination Service
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PBF	physical and biological features (or primary constituent elements)
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
PM_{10}	particulate matter less than 10 micrometers in diameter
Port	Port of Stockton
POW	prisoner of war

PPV	peak particle velocity
Proposed Action	Rail Bridge Replacement and Rail Improvement Project
ROG	reactive organic gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJCOG	San Joaquin Council of Governments
SJMSCP	*San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)*
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMP	Soil Management Plan
SO_2	sulfur dioxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
UP	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibel
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled

1 Introduction

This Environmental Assessment (EA) for the Rail Bridge Replacement and Rail Improvement Project (Proposed Action) evaluates the environmental effects of the U.S. Coast Guard's (USCG's) issuance of a Bridge Permit that would result in removal and replacement of the Port of Stockton's (Port's) functionally obsolete rail swing bridge over the San Joaquin River (the federal action) and the related construction of a new lead track to increase the overall efficiency of train operations within the Port. While the federal action is restricted to USCG's approval of the bridge removal and replacement, this EA conservatively evaluates construction and operations of the entire Rail Bridge Replacement and Rail Improvement Project as the Proposed Action.

This EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 United States Code 4321 et seq., 1982), the President's Council on Environmental Quality's (CEQ's) "Regulations Implementing the Procedural Provisions of the National Environmental Policy Act" (40 Code of Federal Regulations [CFR] 1500 et seq., 2021), and Department of Homeland Security Management Directive 5100.1. USCG is the lead federal agency for the Proposed Action's NEPA review. The information and analysis contained in this EA will determine whether implementing the Proposed Action would result in a significant impact on the environment, requiring the preparation of an environmental impact statement, or if no significant impacts would occur and a finding of no significant impact would be appropriate.

This document is organized to present introductory information on the Proposed Action (Section 1), a description of the Proposed Action and alternatives evaluated (Section 2), affected environment (Section 3), environmental consequences (Section 4), cumulative effects (Section 5), environmental significance of the Proposed Action (Section 6), and a list of agencies and persons consulted (Section 7). It also contains numerous appendices, some of which have global reference throughout the document, including figures (Appendix A), tables (Appendix B), rail bridge construction phasing information (Appendix C), rail construction phasing information (Appendix D), photographs (Appendix E), special-status species potentially present in the Proposed Action area (Appendix F), California Native Plant Society (CNPS) list plant species tables (Appendix G), noise modeling results (Appendix H), air quality modeling results (Appendix I), and document preparers (Appendix J).

1.1 Purpose and Need

The purpose of the Proposed Action is to replace the outdated rail swing bridge and accommodate planned capacity needs of the rail infrastructure within the Port, to increase efficiency of train operations within the Port, and to support future increases in train volumes. The Port's rail system currently serves 21 trains per week, and weekly train volumes are expected to increase to 34 trains by 2026 based on tenant activity. However, several system bottlenecks constrain existing movements at the Port, and the current system is only able to serve a maximum of 28 trains per week.

The pre-World War II era wood and steel truss, single-track swing bridge between the East and West Complexes was designed using 1930s rail weight limits and clearance restrictions. The bridge now has outdated rail size, clearance, and weight limitations, and over time has become susceptible to structural deficiencies that could lead to closure. The weight restrictions of the existing bridge only allow for locomotives with enough power to transport 30 to 40 carloads at once, while the overhead truss structure prevents the passage of larger and taller railcars. Some tenants at the Port partially fill railcars because of the weight restrictions to cross the existing bridge; for example, cargo that could

fit into four cars is instead loaded into five cars. The existing rail swing bridge has only one track; as rail volumes to and from the West Complex grow, it is expected there would be delay times for trains waiting for the bridge to clear. Additionally, if a rail swing bridge closure were to occur, there would be no rail service to terminals in the West Complex. In October 2019, a fire on the rail swing bridge was caused by a spark from a railcar that ignited old creosote-treated wood that is part of the bridge's decking. A modern, expanded rail removable span bridge would allow for larger and heavier locomotives, reduce the additional train movements, allow larger train cars with greater capacity to accommodate the bridge weight restrictions, improve safety, and remove creosote-treated wood from within and above the mainstem San Joaquin River.

In addition to the rail swing bridge limitations, the Port's internal rail system has a series of constraints that result in system-wide bottlenecks. The lead track is also not long enough to serve existing trains and the part of the train that cannot fit causes blockages on the connecting track. Blockages on the lead track cause staging bottlenecks in the following two locations at the Port: 1) inbound cargo is delayed at the 700 Yard and where outbound staged railcars awaiting departure block the lead track; and 2) delays occur at the Port Yard when Central California Traction Company (CCTC) must sort its manifest trains, blocking the Port lead track for an average of 4 hours per day. The Port has also been constrained in the number of tenant railcars that can be stored at the Port and has asked prospective tenants to design storage tracks within their lease areas. Adding a track to the existing Port rail infrastructure and adding a rail classification yard in the West Complex would alleviate these bottlenecks and reduce travel times for CCTC's switching operations. Therefore, the Port will also address these constraints.

To meet the purpose, the following needs were identified for the Proposed Action and related actions:

- Increase efficiency of train operations between the East Complex and West Complex.
- Mitigate the potential risk of bridge closure, including from fires originating on creosote-treated wood ties and decking on the rail swing bridge.
- Allow for the movement of larger cargo types between the East Complex and West Complex.
- Eliminate outbound staging bottlenecks.
- Increase efficiency of train operations on the East Complex.
- Enable the Port to accommodate approved and anticipated tenant rail projections.
- Increase railcar storage capacity at the Port.

1.2 Proposed Action Location

The Proposed Action is located at the Port (Figure 1), within the City of Stockton's (City's) urban core, which is generally characterized by a mix of heavy industrial uses with limited landscape features, older residential neighborhoods, neighborhood commercial shopping centers, and a variety of other commercial and industrial parcels. The Port is west of Interstate 5 (I-5) and north of State Route (SR) 4. The land use in the Port is industrial, characterized by the presence of storage tanks, marine terminals, cement and grain silos, railroad facilities, large storage buildings, and stockpiles of various commodities. The City's *Envision Stockton 2040 General Plan* (2040 General Plan) designates Port lands as "Institutional," and the zoning designation of the Action area is primarily "Port" with limited areas that have zoning designations of General Industrial, Low-Density Residential, and undesignated

(BNSF Railway [BNSF] right-of-way; City 2021). Port areas are designated for the operation of port facilities, including wharves, dockage, warehousing, and related port facilities.

The Port's 600-acre East Complex is bounded by the San Joaquin River on the north and west, the Crosstown Freeway on the east, and SR 4 on the south. The East Complex is connected by bridges across the San Joaquin River to the West Complex. The Port's 1,400-acre West Complex, commonly known as Rough and Ready Island, is bounded by the San Joaquin River on the north and east and Burns Cutoff on the south and west. Rail connection to the West Complex currently occurs by a wood and steel truss, single-track swing bridge; vehicle access occurs by a four-lane roadway bridge at Navy Drive.

Multiple roadways provide access to businesses within the Port and connect to adjacent industrial, commercial, and residential areas (Figure 2). Roadways cross existing rail lines through a combination of at-grade and grade-separated crossings. West Washington Street crosses the Port rail lines at grade. South Fresno Avenue crosses in an underpass, connecting the Boggs Tract neighborhood to the Port and surrounding areas. The Crosstown Freeway crosses the railway by a multi-lane overpass bridge. Navy Drive crosses the rail lines in multiple places and includes underpasses and at-grade crossings. A separate Fyffe Avenue Grade Separation project is currently underway to construct a new roadway along West Fyffe Avenue and a 115-foot-long overcrossing that will span Navy Drive and the rail tracks in the West Complex. This future road alignment is also shown in Figure 2.

1.3 Background

California's freight railroad system consists of Class I railroads (BNSF and Union Pacific Railroad [UP]) that transport freight to and from the state and Class III railroads (i.e., "short line" railroads) that provide local rail movements. Freight rail is shipped by manifest and as part of unit trains. Manifest trains comprise mixed railcars from multiple sources; these railcars are coupled with other railcars and moved to various regional railyards where they are then assembled into blocks for common destinations. Unit trains have one type of cargo and are sent directly from origin to destination. The Port is serviced by BNSF and UP, with CCTC serving as the short line railroad and switcher at the Port. CCTC manages all rail operations within the Port, including delivering railcars and switching railcars for the Port's tenants and customers and managing the schedule for inbound and outbound trains. CCTC uses classification yards (or areas of track used to separate railcars) to sort and switch trains. CCTC operates 7 days per week, from 6:00 a.m. to 11:30 p.m., across two shifts. The inbound trains arrive in two distinct time windows (i.e., 10:00 a.m. to 3:00 p.m. for BNSF, and 10:00 p.m. to 6:00 a.m. for UP).

Inbound trains enter the Port on its lead track near the terminus of the Crosstown Freeway, between West Scotts Avenue and Navy Drive, and the Port's internal rail system connects multiple port terminals in the East and West Complexes (Figure 3). The lead track separates from the main rail line and allows Port-bound trains to branch off and enter the Port. Trains then enter the Port and travel either directly to the terminal or to a classification yard for sorting of manifest rail to be delivered to the terminals. Trains bound for the West Complex must travel over the existing rail swing bridge spanning the San Joaquin River. The Port services unit trains and manifest rail, with switching occurring at multiple locations within the Port.

1.4 Public and Agency Outreach and Coordination

CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts. Executive Order (EO) 13175, Consultation and Coordination with Indian Tribal Governments, requires inviting federally recognized Tribes to participate in NEPA and the Section 106 process as Sovereign Nations based on their potential ancestral tie to the Proposed Action area. USCG initiated consultation with the State Historic Preservation Officer (SHPO) under Section 106 on August 2, 2021. On August 19, 2021, the SHPO requested that the area of potential effects (APE) be expanded to include the entire historic district. On October 1, 2021, USCG sent the SHPO a revised APE including the entire district. The SHPO notified USCG that they had no objections to the revised APE on October 14, 2021. On March 22, 2022, USCG submitted a cultural resources assessment report to the SHPO, and consultation is ongoing.

USCG initiated consultation with the Native American Tribes under Section 106 of the National Historic Preservation Act (NHPA) on January 4, 2022, via certified mail. The Tribes that were contacted were recommended by the Native American Heritage Center, and include the federally recognized Tribes of Buena Vista Rancheria of Me-Wuk Indians, the California Valley Miwok Tribe, the Ione Band of Miwok Indians, the Tule River Indian Tribe, the United Auburn Rancheria, and the Wilton Rancheria, and the nonfederally recognized Tribes of Wuksache Indian Tribe/Eshom Valley Band, the Sheep Rancheria of Me-Wuk Indians of California, the North Valley Yokuts Tribe, and the Confederated Villages of Lisjan. On January 14, 2022, the Tribal Historic Preservation Department of the United Auburn Rancheria Tribe determined that the Proposed Action location fell outside of the Tribe's geographic area of traditional and cultural affiliation and opted not to comment on the Proposed Action. On March 31, 2022, the Wilton Rancheria Tribe Cultural Preservation Department informed USCG of their wish to participate in consultation. On April 14, 2022, USCG sent a letter to the Wilton Rancheria Tribe with the cultural resources assessment report attached and requested a meeting with the Tribe. Consultation is ongoing.

USCG initiated consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act on April 15, 2022.

The Port completed review of the Proposed Action under the California Environmental Quality Act (CEQA) in September 2021. As part of the CEQA review, the Port prepared and distributed for public review a separate environmental document. A public meeting was also held in June 2021. Over 2022 and 2023, the Port will obtain all required permits for the Proposed Action, which are expected to include the following:

- Rivers and Harbors Act, Section 10, and Clean Water Act, Section 404, Permit from the U.S. Army Corps of Engineers (USACE)
- Section 401 Water Quality Certification and National Pollutant Discharge Elimination System (NPDES) Permit from the Central Valley Regional Water Quality Control Board (RWQCB)
- Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW)
- Tidelands lease from the California State Lands Commission
- Encroachment Permit from the Central Valley Flood Protection Board
- Approval from Reclamation Districts 403 and 404
- City and San Joaquin County land alteration and drilling permits

USCG provided preliminary public notice of the Proposed Action on March 23, 2021, to solicit public comments on the proposal. The USCG notice requested that mariners comment on navigational access and safety issues and requested information from commercial and recreational vessel operators.

Pursuant to the requirements of NEPA (40 CFR 1506.6, 2021), this EA is subject to public review. USCG has invited and encouraged agencies, organizations, and members of the public with a potential interest in the Proposed Action to participate. USCG is distributing the Draft EA for a 30-day public review and comment period. The Notice of Availability announcing the availability of the Draft EA was published in *Coast Guard Local Notice to Mariners*. The Draft EA is available for review online at: https://go.usa.gov/xuGjD. This document was made available to interested parties, various agencies, and residents living within a 0.5-mile radius of the Proposed Action area.

2 Proposed Action and Alternatives

This EA evaluates the environmental impacts of the following two alternatives: 1) the Proposed Action, described in Section 2.1; and 2) the No Action Alternative, described in Section 2.2. Other alternatives were considered but not carried forward for analysis in this EA (Section 2.3); those alternatives either did not meet the stated purpose and need or included greater environmental impacts than the Proposed Action.

2.1 Proposed Action

2.1.1 Proposed Construction Activities

This section describes the construction activities to be completed as part of the Proposed Action, including bridge replacement and rail improvement elements (Figures 4 through 8). Construction would occur over approximately 3 years, as shown in Table 1. The periods shown in Table 1 reflect the most conservative estimates of construction timing.

2.1.1.1 Site Preparation

Proposed Action site preparation activities would include limited clearing, vegetation removal, and grading at the sites of track construction and in the equipment and material staging areas shown in Figure 9. Many staging areas were previously used for other nearby construction or consist of previously paved areas, so preparation is expected to be minimal. Clean imported gravel would be laid at the entrances to staging areas as an erosion control measure. Construction equipment and materials would be delivered by truck to staging areas near each phase of work.

2.1.1.2 Rail Swing Bridge Replacement

The Proposed Action would remove the outdated rail swing bridge that connects the East and West Complexes over the San Joaquin River and replace it with a double-track rail removable span bridge in the same location. The existing single-track swing bridge has creosote-treated wood ties and decking and a steel truss. When closed, the low chord existing bridge elevation is at 15 feet National Geodetic Vertical Datum of 1929 (NGVD29) with 100 feet of horizontal clearance between the center swing pier and the riverbank. It includes approximately 4,500 square feet of overwater cover.

A total of 235 existing in-water, 15-inch-diameter, creosote-treated timber piles would need to be removed. Of these, 97 in-water piles are part of the existing bridge foundations, including 57 for the central swing pier and 20 for each of the two piers at either end of the steel truss span. The

remaining 138 existing in-water piles are part of the swing span pier protection. The structural integrity of the existing piles is not known. Removal of piles and the existing concrete swing pier and abutments would first be attempted with a crane and vibratory hammer, but if full pile removal is not possible with this method, removal may require use of a cofferdam in select areas (cofferdams would not be placed across the entire channel) and then piles would be cut a minimum of 3 feet below the mudline. If piles associated with the central swing pier cannot be removed with a crane, removal may require use of a cofferdam and the foundation would be removed to at least a depth of -19 feet NGVD29. In addition to the in-water piles, there are 21 existing out-of-water timber piles of similar character—5 at the eastern abutment and 16 at the western abutment—that would need to be removed or cut off at the ground line. Removal of the bridge abutments and associated piles would require work on the levees on either side of the existing rail swing bridge. The front slope of the levee would remain in place, but it is conservatively assumed that the proposed bridge abutments may require backfilling behind the existing levee crown to reinforce it such that the proposed levee crown is moved back 25 to 30 feet within the vicinity of the bridge. It should be emphasized that the front slope of the levee would not be permanently changed. The Port will coordinate with Reclamation Districts 403 and 404 prior to any levee improvements, including implementation of slope stabilization methods such as riprap installation, as needed. Levee access roads would also need to be adjusted accordingly along with the construction of new railroad crossings. The existing bridge and all associated piles would be removed as part of the Proposed Action.

The proposed steel and concrete replacement rail removable span bridge would measure approximately 325 feet long, and the central span would have a minimum closed vertical clearance of approximately 12 feet above the mean high water surface. Based on sea level rise estimates for San Francisco, the elevation of the replacement bridge would be resilient to predicted medium- to high-risk sea level rise projections from 2025 through 2125 throughout the bridge's intended 100-year design life (California Coastal Commission 2018). The existing single-track rail swing bridge would be replaced by two single-track rail bridges—for a double-track rail removable span bridge—with center spans that would be removable in the case of an emergency (similar to the upstream Navy Drive Bridge). The replacement double-track rail swing bridge would consist of both structural steel and precast/prestressed concrete superstructures on concrete substructures. The bridge superstructure would be capable of being raised to a higher elevation at the end floor beams with hydraulic jacks, enabling installation of riser blocks on top of the pier caps. The bridge foundations are estimated to be supported by six 72-inch or twelve 48-inch driven steel pipe piles permanently installed in-water, as well as six 72-inch or twelve 48-inch steel pipe piles driven in uplands for the on-bank piers and 20 upland driven steel H-piles for the abutments. The specific number of piles may change based on the geotechnical recommendations, and as final design proceeds, with consideration for means and methods identified by the contractor. Approximately 96 temporary, 24-inch-diameter, steel pipe piles are anticipated to be temporarily installed up to 80 feet deep for construction and removed immediately following.

The double-track rail removable span bridge would include up to 12,000 square feet of overwater coverage or approximately 7,500 square feet of net additional overwater coverage when factoring in the existing overwater coverage of the current bridge. No lighting is proposed for the replacement rail removable span bridge, except as may be required to facilitate navigation in the channel.

To construct the abutments on the levees on both the West and East Complexes and connect to the tracks to the east and west, some levee impacts may be required. It may be necessary to drive 3 to 5 steel H-piles or pipe piles per track, per abutment through the levee at or near the crown.

Additionally, a portion of the back side of the levees may need to be reinforced with backfill behind the abutments, effectively moving the levee crown 25 to 30 feet back within the vicinity of the bridge. There may be temporary excavation of the front face of the levee, but it would be restored to its existing condition at the completion of the proposed abutment construction. The excavation would be expected to be approximately 20 feet wide by 10 to 15 feet deep per track for each abutment. The levee would be rebuilt and reinforced after construction of the abutments. Riprap protection would likely also need to be added on the foreslope of the levee in front of the bridge abutment.

Replacement of the rail swing bridge would require phased demolition and construction that is expected to span 3 years. In the first year, the bridge and approach tracks for Track LD01 would be constructed to the south of the existing in-service bridge. The replacement bridge would be opened to service followed by demolition of the existing bridge during the following year, and then the bridge for Track LD02 would be constructed in the third year. In-water construction would be limited to the approved in-water work window from July 1 to November 30, and therefore construction assumes 3 years to complete all in-water work. Overwater work is assumed to occur year-round. More details on construction phasing for the rail bridge replacement are summarized in Table 2, and each step is illustrated in construction sequence drawings in Appendix D. Construction phasing assumes some disruption to bridge access (estimated 8 to 12 hours) when Track LD01 is connected to the existing Port rail line.

Construction would remove the existing bridge superstructure, abutments, intermediate piers, center swing pier, and creosote-treated structural piers and protection piles. Removal depths will be coordinated with Reclamation Districts 403 and 404, Central Valley Flood Protection Board, and California State Lands Commission. The Proposed Action would result in a net reduction of in-water fill by removing approximately 1,100 square feet of existing creosote-treated pile structures, existing bridge foundations, and existing swing bridge supports from the water, and replacing them with approximately 170 square feet of in-water steel pipe piles associated with the replacement bridge.

Replacement of the rail swing bridge is expected to require the following heavy machinery: a pile-driving hammer, welder, plasma cutter, excavator, 180-ton and 300-ton cranes, bulldozer, roller, drill rig, dump truck(s), concrete pump truck, concrete truck(s), concrete vibration equipment, and one or more lifts. Construction would require excavation, pile driving, and pile removal; pile installation and removal may include vibratory hammer, impact hammer, or oscillation methods depending on the means and methods identified by the contractor. Bridge construction is estimated to include approximately 8,000 cubic yards of material that would need to be excavated and hauled off site and approximately 17,000 cubic yards of fill material, consisting of import borrow, structural backfill, and rock riprap.

Preliminary design conservatively assumes the following excavation may be needed for rail bridge replacement elements:

- 10 to 15 feet of excavation below existing grade in four 20-foot-wide segments of the levees to remove existing abutments and creosote-treated timber piles and to relocate the levees 25 to 30 feet landward of current levee locations for construction of four abutments (one at each bank for both bridge segments)
- 6 feet of excavation below existing grade for construction of end bents (to join the second bridge track to the main rail line)

- If piles associated with the existing concrete swing pier are not able to be removed with a crane, up to 20 feet of excavation and use of a cofferdam may be required
- Some cut below the mudline for placement of cofferdams if H-piles are used (excavated soil would be backfilled following placement of piles)
- Removal of soil within pile shafts if cast-in-steel shell piles are used

2.1.1.3 Lead Track Improvements

The Proposed Action would add a long lead double track (LLDT), Track LD02, to the existing Port rail infrastructure. The LLDT would start in the BNSF right-of-way, which is adjacent to West Scotts Avenue at the intersection with Garfield Avenue. The LLDT would continue west past South Fresno Avenue where a new rail underpass would be built in the BNSF right-of-way to accommodate the new tracks. The LLDT would pass under the existing Crosstown Freeway overpass; crash walls would be constructed around two existing support columns for SR 4 to provide column protection per Class 1 requirements. The LLDT would then turn north adjacent to the existing 700 Yard and continue through the East Complex adjacent to the existing lead line. No changes are proposed to any public at-grade crossings; however, modifications would be required to the private at-grade crossings on Port Road 13 and Stork Road.

Four new switches would be constructed where the LLDT and existing Port lead turn west to meet the Port Yard. Segments of multiple tracks would be shifted or removed to accommodate the construction of the LLDT, including segments of Tracks 808, 809, 810A, and 850. The alignment of the LLDT from the Port Yard to the connection to the replacement rail removable span bridge could include changes to one tenant's turnout and conveyance system. The proposed LLDT from beyond the 700 Yard switch to the existing Port lead switch would be approximately 4,000 linear feet. The second Port lead track through the East Complex would be approximately 1,500 linear feet. Grades of the proposed LLDT are not expected to exceed current grades for the Port lead track.

In the Port Yard, Tracks 1 and 2 would be converted to lead lines extending to the double-track rail removable span bridge. To accommodate this change, two new segments of yard track would be constructed within the Port Yard, south of the existing Port Yard tracks and adjacent to Port Road A. Three switches and short segments of existing tracks within the Port Yard would be shifted to accommodate the proposed yard track.

Excavation and grading would be conducted to prepare the rail underpass, as well as to level the areas of LLDT construction in preparation for track placement. Approximately 32,000 cubic yards of material would need to be excavated and hauled off site. Approximately 30,000 cubic yards of fill material, consisting of clean imported material and crushed surfacing base course (subballast), would be placed, followed by installation of the rail and ties.

Construction for the lead tracks is expected to take approximately 11 months, including track roadbed (excavation, backfill, final grading) and laying of track. During construction of the proposed LLDT, some disruption to existing rail operations and routes would be expected. More details on construction phasing for the rail improvements are illustrated in construction sequence drawings in Appendix E.

2.1.1.4 New McCloy Rail Classification Yard

In the West Complex, a new rail classification yard would be constructed between Fyffe Street and McCloy Avenue. The new McCloy rail classification yard would be built adjacent to existing Port

tracks and would include five new tracks, totaling approximately 17,300 track feet. Excavation and grading would be conducted to level the site and prepare it for track placement. Approximately 12,000 cubic yards of material may need to be excavated and hauled off site. Approximately 3,000 cubic yards of fill material, consisting of import borrow and crushed surfacing base course (subballast) would be placed, followed by installation of the rail and ties.

Construction for the proposed McCloy rail classification yard in the West Complex is expected to take approximately 12 months, including track roadbed work (excavation, backfill, final grading), laying track, and constructing reconnections to existing tracks.

2.1.2 Proposed Operations

As discussed in Section 1.1, the Port anticipates the need to accommodate 34 trains per week by 2026 based on tenant projections. However, without rail system improvements, the Port's internal rail network can only accommodate 28 trains per week, mainly because of existing blockages on the lead track. The rail system improvements proposed as part of the Proposed Action would eliminate the constraints and accommodate the projected growth (Table 3). In addition, system improvements would reduce blockages, allowing trains to move more efficiently from the external rail system and into the Port's rail network. Train travel and idling time once a train has entered through the Port's lead track would not change (travel time is expected to increase between 2021 and 2026 independent of the Proposed Action as trains get longer).

Many of the operational changes shown in Table 3 would be a result of the new LLDT, which would reduce overall rail congestion in the Port. The new LLDT would provide a parallel lead track that would allow arriving and departing trains to access Port areas and bypass congestion. When outbound staged cars in the 700 Yard spill over onto the existing Port lead, trains would be able to bypass the congestion and travel on the LLDT, which would eliminate a blockage from forming in this area. Having a second track would also allow for trains to arrive and depart simultaneously, thereby reducing the overall travel time and the potential for congestion on the lead tracks.

The new double-track rail removable span bridge would allow for train access to the West Complex in a safe and efficient manner. It would be designed to meet modern horizontal clearance standards and modern loading standards, including the capacity to handle 286,000- and 315,000-pound gross vehicle weight unit trains. The new operational improvements would help accommodate the larger and longer unit trains that are projected for the West Complex, continue to support the more efficient movement of cargo by rail instead of trucks, and prevent delays by allowing for more than one train to access the bridge simultaneously. The replacement bridge also would increase system resiliency; if a closure of the existing rail swing bridge were to occur, all cargo would need to move by truck. Constructing a new modern bridge provides for a more resilient rail system and ensures that trains would be able to access the West Complex under varying conditions.

The new McCloy rail classification yard would provide additional storage capacity for tenant railcars in the West Complex and reduce travel times for CCTC's switching operations but would not change the mainline operational capacity.

2.2 No Action Alternative

The CEQ's regulations implementing NEPA require inclusion of a No Action Alternative to serve as a baseline against which the impacts of the Proposed Action and any alternatives can be evaluated. Under the No Action Alternative, the existing rail swing bridge would not be removed and replaced,

and because the rail bridge is integral to the rail system improvements, no related rail system improvements would be constructed. Larger and taller railcars would not be able to reach the West Complex, and inefficiency in railcar filling by tenants would likely continue due to the rail size, clearance, and weight limitations of the existing bridge. The existing rail swing bridge is also susceptible to structural deficiencies that could lead to closure. If a rail bridge closure were to occur under the No Action Alternative, there would be no rail service to terminals in the West Complex.

Estimated train volumes under the No Action Alternative are shown in Table 3. The current system is only able to serve a maximum of 28 trains per week. Under the No Action Alternative, blockages on the lead track and staging bottlenecks would continue and potentially increase with additional projected train volumes at the Port. The Port would also continue to be constrained in the number of tenant railcars that can be stored at the Port, and prospective tenants would have to design storage tracks within their lease areas.

2.3 Alternatives Considered but Eliminated

During the alternative screening process, several options were considered for replacement bridge locations, types, and configurations as well as to address blockages on the lead track. Because of the need to address limitations of the existing outdated rail swing bridge and accommodate planned capacity needs of the rail infrastructure within the Port, off-site alternatives were not considered. The following alternatives were considered but screened out from further analysis based on the objectives presented in Section 1.1:

- **Fixed bridge:** Unlike a bridge with removable spans, a fixed bridge would not open for navigation or emergency purposes. Other than having no removable spans, this concept would generally have the same design and construction impacts as the removable span bridge (the Proposed Action). Because it would not meet the reasonable needs of current and prospective future navigation on the San Joaquin River, this alternative was rejected by USCG and eliminated from further analysis.
- **In-line single-track bridge replacement**: Replacing the rail bridge at its current location would have required the least amount of in-water work but would require a 2- to 4-week shut down of rail traffic for demolition and construction. It was eliminated from further consideration because it would not accommodate the projected rail volumes—as rail volumes to and from the West Complex grow, it is expected that there would be still delay times for trains waiting for the single-track replacement bridge to be clear—and during construction it would involve extensive impacts to operations from the extended closure.
- **In-line single-track bridge replacement with temporary shoofly**: This alternative would replace the rail swing bridge at its current location using a temporary shoofly to reduce the closure period to about 36 to 54 hours. A bridge substructure would be constructed adjacent to the existing rail swing bridge, upon which the temporary shoofly would be built to handle rail traffic during bridge demolition and replacement. After reopening the replacement bridge to rail traffic, the temporary shoofly would be demolished but the substructures would remain. This alternative would require slightly less in-water work than the Proposed Action but was eliminated from further consideration because it would not substantially reduce the amount of in-water work and would not accommodate the projected rail volumes.
- **Single-track bridge realignment adjacent to current location**: This alternative would replace the rail swing bridge approximately 25 feet from its current location. Because the

replacement bridge would be built while the existing bridge remained open, there would be no or minimal shut down of rail traffic required for construction. This alternative would require slightly less in-water work than the Proposed Action but was eliminated from further consideration because it would not accommodate the projected rail volumes.

- **Long lead West Complex and alternate bridge location**: This alternative would include an LLDT through the East and West Complexes that could either extend past Fresno Avenue or connect at an underpass of Navy Drive. It was considered with options to construct the replacement rail bridge across Burns Cutoff either west of the Port Expressway bridge or in the southwest corner of the East Complex. It was found to accommodate the projected train volumes and alleviate the lead track and bridge bottlenecks, but was eliminated from further consideration because of increased costs, required property acquisitions outside the Port, and the potential for new retaining walls or other features.

In addition to alternatives to the rail bridge, the following alternatives were considered to determine for rail system improvements:

- **Short lead East Complex**: This alternative would use an alternate double-track short lead configuration that would only require work on the Port's East Complex. It was eliminated from further consideration because modeling found it would not alleviate the Port's two major bottlenecks blocking the lead track.
- **Short lead West Complex**: This alternative would use an alternate double-track short lead configuration that would only require work on the Port's West Complex. While modeling pointed to some benefit from this alternative, it would not fully alleviate the bottlenecks on the lead track; therefore, it was eliminated from further consideration.

3 Affected Environment

Section 3 describes the existing conditions of the natural, built, and social environments that may be affected by the Proposed Action.

3.1 Biological Resources

Biological resources occurring in the study area were observed during a site visit conducted on March 23, 2021, to assess current habitat conditions, determine potential presence of any jurisdictional waters and wetlands, and evaluate the study area's potential to support special-status species or sensitive habitats (Anchor QEA 2021). A search of the California Natural Diversity Database (CNDDB) was conducted to identify recorded special-status species occurrences within the Stockton West U.S. Geological Survey (USGS) 7.5-minute quadrangle and surrounding quadrangles (Terminous, Lodi South, Waterloo, Stockton East, Manteca, Lathrop, Union Island, and Holt; CDFW CNDDB 2021). Fish species potentially present in the San Joaquin River were identified based on critical habitat and essential fish habitat (EFH) designations (50 CFR 226, 2009; NOAA 2009). A separate Biological Assessment, dated March 22, 2022, was prepared to fulfill consultation requirements under Section 7 of the ESA as well as EFH consultation requirements under the Magnuson-Stevens Fishery Conservation and Management Act (62 Federal Register 2343).

3.1.1 Habitat and Vegetation Communities

Except for the rail swing bridge, the Proposed Action footprint is within industrial or urban habitats, and vegetation is mostly limited to ornamental trees and ruderal grasses, shrubs, and other groundcover. Nonriverine water or wetland features are limited to several isolated topographical depressions, ditches, or artificial ponds. More detail on habitats and vegetation is provided in subsections 3.1.1.1 through 3.1.1.8.

3.1.1.1 McCloy Rail Classification Yard Area

The proposed McCloy rail classification yard would be located within the industrialized West Complex and constructed parallel to and south of existing rail lines (Figure 8). Within or immediately south of the McCloy rail classification yard are the existing McCloy Avenue roadway and roadway shoulders. West of the proposed McCloy rail classification yard is an undeveloped but disturbed area containing yellow star thistle (*Centaurea solstitialis*) and coyote brush (*Baccharis pilularis*) scrub habitat. Temporary construction staging would occur in this area. Other features adjoining the proposed McCloy rail classification yard include warehouse buildings to the south, a small triangular undeveloped area to the south between McCloy Avenue and Port of Stockton Expressway, and an undeveloped but disturbed parcel to the south across McCloy Avenue.

The proposed McCloy rail classification yard footprint is surfaced in concrete, asphalt, or compacted dirt. There is also a cobble-lined stormwater drainage feature south of the existing rail line parallel to McCloy Avenue. Patchy coverage of ruderal vegetation occurs throughout the length proposed for development; it appears that vegetation management, including herbicide spraying and mowing, occurs in this area. A linear row of mature 20- to-30-foot-tall landscaping trees is present along the length of the proposed McCloy rail classification yard, consisting of cedar (*Cedrus deodara*), cork oak (*Quercus suber*), Monterey pine (*Pinus radiata*), and Siberian elm (*Ulmus pumila*) species (Photograph 1). The undeveloped areas west and south of the proposed rail extension contain dense ruderal groundcover, grasses, and shrubs.

3.1.1.2 West Complex Rail Bridge Approach Area

The West Complex rail bridge approach would be located within the industrialized West Complex, just south of the existing inactive Port golf course and next to a retention basin being constructed as part of the Fyffe Avenue Grade Separation project (Figure 6). Most of the proposed rail alignment in the West Complex rail bridge approach area largely consists of barren disturbed earth, at least at the time of the site visit (Anchor QEA 2021) and overlaps with an existing active construction site for the Fyffe Avenue Grade Separation project (Photograph 2). In the West Complex rail bridge approach, the proposed rail alignment would be located adjacent to the existing rail line which is at grade until nearing the western bank of the San Joaquin River crossing, and the tracks would gradually rise through the support of a rock ballast levee to meet the grade of the main perimeter levee.

Apart from the disturbed, barren construction areas, vegetation within or next to the proposed rail alignment consists of Himalayan blackberry (*Rubus armeniacus*) brambles and non-native ornamental trees, such as camphor (*Cinnamomum camphora*) and black walnut (*Juglans hindsii*). Two small pond areas with standing water were observed within or near the proposed rail alignment. These features appear to have been constructed as temporary detention basins (Photograph 3).

Temporary construction staging would occur within the West Complex rail bridge approach area. Staging would be located adjacent to the existing rail lines, within the disturbed barren earth area

currently used for construction of the Fyffe Avenue Grade Separation project, and inland of existing San Joaquin River levees in areas containing similar disturbed construction or predominantly Himalayan blackberry bramble vegetation.

The inactive golf course supports numerous ornamental trees and vegetation that appear to be maintained with mowing. There are two artificially created ornamental ponds within the inactive golf course. The westernmost pond supports a ring of emergent vegetation, including cattail (*Typha latifolia*) and bulrush (*Schoenoplectus acutus*), around its shoreline; the water surface is covered with water fern (*Azolla* sp.). A horseshoe-shaped pond that lacks emergent vegetation and supports open-water habitat is found in the eastern portion of the inactive golf course. Except for the San Joaquin River habitat to the east, areas of the West Complex rail bridge approach are limited to roadways and developments to the east and the existing, barren, disturbed construction area to the south.

3.1.1.3 Rail Bridge Replacement Area

To accommodate the replacement bridge footings, the top of the levee may need to be excavated and set back approximately 25 to 30 feet, with all excavation occurring above ordinary high water (Figures 6 and 7). The rail bridge replacement area lacks dense canopy cover but contains groundcover or shrub vegetation typical of disturbed areas along with sparse coverage of native and non-native trees. At the western side of the rail line crossing, elderberry (*Sambucus mexicana*) shrubs and trees are found on the north bank among Himalayan blackberry, wild rose (*Rosa* sp.) and tobacco tree (*Nicotiana glauca*). On the eastern side of the rail line river crossing are ornamental palms, cottonwood (*Populus fremontii*), and non-native tree species, including Siberian elm. Himalayan blackberry brambles drape the bank to the river (Photograph 4). Non-native grasses occur on the eastern slope of the levee. Approximately 350 feet to the east of the river crossing, a cluster of elderberry shrubs occur on the north side of the rail line levee.

3.1.1.4 East Complex Rail Bridge Approach Area

The existing rail line descends from the levee on the eastern bank of the San Joaquin River crossing to meet the grade to the east where it connects with other rail spurs just west of Stork Road (Figure 6). The inland levee bank and slopes adjoining the rail line are colonized by grass and groundcover species common in disturbed areas. Non-native perennial grasses and coverage of red stemmed filary (*Erodium cicutarium*), willowherbs (*Epilobium* sp.), bromes (*Bromus* spp.), little mallow (*Malva parviflora*), and ice plant (*Carpobrotus edulis*) constitute the dominant vegetation at the site. Between the eastern levee and Stork Road, the proposed rail alignment area is surrounded by developments consisting of storage tanks, accessory buildings, pipelines, roadways, and paving, as well as a large sulfur stockpile (Photographs 5 and 6). Temporary construction staging would occur between the existing rail lines and the storage tanks, which is within the undeveloped but disturbed area with common grass and groundcover species.

3.1.1.5 Port Yard Improvements

The Port Yard improvements area would occur entirely within a highly industrialized and developed portion of the Port's East Complex (Figure 5 and Photograph 7). The proposed rail lines would be constructed next to existing rail lines along this length. This area is devoid of vegetation and developed with hard surfaces or ballast adjoining the existing roadways and rail lines. Surrounding features include Port warehouse buildings, storage tanks, accessory buildings, and roadways.

Temporary construction staging would also occur on the western end of the Port Yard improvements area within undeveloped areas surfaced in concrete or asphalt.

3.1.1.6 LLDT Improvements Between 700 Yard and Port Yard

The LLDT improvements between the 700 Yard and the Port Yard include an approximately 3,500-linear-foot long area located at the eastern edge of the Port's East Complex, approximately 300 feet west of Boggs Tract neighborhood residences (Figures 4 and 5). The proposed rail improvements would be constructed parallel to existing rail lines in this area over an approximate length of 2,500 linear feet. Three temporary construction staging areas would be located west of the existing rail lines. The proposed rail improvement and staging areas footprints are entirely developed with rail lines, adjoining compacted surfaces, or rail ballast (Photograph 8). Most of the alignment is devoid of vegetation except for sparse ruderal weeds and some adjoining patches of non-native grasses.

At the southern end of the LLDT improvements between the 700 Yard and the Port Yard area, just northwest of the Crosstown Freeway overpass, there are two notable vegetation communities. The first community is an apparent maintained urban forest planted with catalpa (*Catalpa bignonioides*) and mulberry (*Morus* sp.) ranging from 20 to 30 feet tall and fitted with aboveground flexible irrigation piping (Photograph 9). The second community is a detention basin planted throughout with cottonwood trees (Photograph 10). These vegetation communities occur next to the rail line.

Industrial Port developments and rail storage areas are located west of the LLDT improvement area and warehouse buildings, a barren but disturbed vacant parcel, and the two aforementioned vegetation communities are located east of the LLDT improvement area.

3.1.1.7 East Complex Central Staging Area

The East Complex central staging area consists of an approximately 5-acre area within the center of the East Complex next to Port Road 14. This area is barren and surfaced in compacted earth and asphalt and includes a small grove of medium-sized trees. Proposed Action activities in this area would be limited to temporary construction staging.

3.1.1.8 LLDT Improvements Adjacent to West Scotts Avenue

The area where LLDT improvements would be constructed approximately 100 feet south of Boggs Tract neighborhood residences, next to West Scotts Avenue and would be approximately 3,500 linear feet in length and would occur along West Scotts Avenue (Figure 4). Proposed rail improvements and temporary construction staging would occur in this area. This area includes existing above-grade rail lines running parallel to and south of the roadway. Vegetation growth on the rail line berm (Photograph 11) includes non-native annual grasses and weedy tree species, including tree of heaven (*Ailanthus altissima*).

The existing rail line splits into two spurs east of South Merced Avenue. The area between the two spurs appears to contain a seasonally inundated depression colonized with bromes, oats (*Avena* spp.), mustards (*Brassica* spp. and *Raphanus* spp.), and other common weeds (Photograph 12). The area south of the existing rail line contains a narrow corridor of vegetation similarly dominated by non-native annual grassland and common weeds. Beyond this vegetated corridor are commercial and industrial developments characterized by large warehouse buildings, storage areas, roadways, and concrete and asphalt surfaces.

3.1.2 Wetlands and Jurisdictional Waters

Potentially jurisdictional water and wetland features were identified during the March 23, 2021, site visit (Anchor QEA 2021). Each of these features are briefly described in this subsection.

- **San Joaquin River**: The river channel is approximately 325 feet wide in the area of the proposed rail bridge replacement. The riverbanks lack a wetland fringe (i.e., there is no emergent wetland vegetation at or near the high water mark). The river channel is a traditionally navigable water that would qualify as both a water of the United States and State of California.
- **Cobble-lined drainage ditch north of McCloy Avenue**: This fabricated ditch extends parallel to the existing rail tracks just north of McCloy Avenue. It was dry at the time of the site visit (Anchor QEA 2021) and devoid of vegetation. Because the ditch is artificial (not a wetland created by modification of surface waters of the state) and is subject to ongoing operation and maintenance (SWRCB 2019), it may not meet the definition of a wetland under Section 404 of the Clean Water Act or the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State that was adopted on April 2, 2019, by the State Water Resources Control Board.
- **Construction impoundments near the West Complex rail bridge approach**. Two small, ponded areas were observed in the vicinity of the existing construction area for the Fyffe Avenue Grade Separation project. The areas appear to have been created to temporarily store runoff or other water encountered during construction. The ponds and immediate surrounding areas were devoid of vegetation other than sparse grasses. The ponded areas are also unlikely to be waters of the United States or state for the same reasons as those described for the cobble-lined drainage ditch.
- **Detention basin with planted cottonwoods northwest of the Crosstown Freeway overpass**. This area contains a topographical depression that was dry at the time of the site visit (Anchor QEA 2021). A culvert outlet conveying drainage from an open drainage channel also outlets to this area. Based on these observed conditions, and the presence of potential wetland vegetation, this area may meet USACE wetland parameters for soils, hydrology, and vegetation. However, the site does not appear to have any nexus with navigable waters and therefore may only qualify as a water of the state.
- **Topographic depression between rail lines just east of South Merced Avenue**: This area contains a topographical depression that was dry at the time of the site visit (Anchor QEA 2021) but appears to be seasonally inundated. Vegetative cover, including bromes, oats, and mustards, was observed in this area. Similar to the aforementioned detention basin, if this area meets the USACE three-parameter wetland criteria, it would likely only qualify as a water of the state because it lacks connection to any traditionally navigable waters.

3.1.3 State or Federally Endangered or Threatened Species

The CNDDB identifies 27 special-status (candidate, threatened, or endangered under the federal ESA or California Endangered Species Act [CESA], state species of special concern, or CDFW fully protected species) wildlife species within the study area, as identified through a search of the

Proposed Action quadrangle and eight surrounding quadrangles (Appendix F; CDFW CNDDB 2021). Potential species occurrence was determined based on habitat requirements and on-site conditions.

The study area's developed condition and location within a highly industrial and urban area precludes the presence of most terrestrial special-status species, although habitat may be marginally suitable for several species (primarily nesting or foraging birds). This includes Swainson's hawk (*Buteo swainsoni*; CESA threatened), white-tailed kite *(Elanus leucurus*; CDFW fully protected), and Migratory Bird Treaty Act (MBTA) protected bird species. Other potentially present terrestrial or amphibious species include structure-roosting Yuma myotis bat (*Myotis yumanensis*), pale big-eared bat (*Corynorhinus townsendii pallescens*), Townsend's western big-eared bat (*C. townsendii townsendii*), pallid bat (*Antrozous pallidus*), Mexican free-tailed bat (*Tadarida brasiliensis*), western pond turtle (*Emys marmorata;* state species of special concern), and valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*; ESA threatened).

Fish species potentially present within the San Joaquin River were identified based on critical habitat and EFH designations (50 CFR 226, 2009; NOAA 2009). San Joaquin River waters are within designated critical habitat for delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss irideus*), and green sturgeon (*Acipenser medirostris*). San Joaquin River waters in the Proposed Action area are also considered EFH for Pacific salmon and groundfish and may provide habitat to Central Valley spring-run Chinook salmon (*O. tshawytscha*; CDFW 2019a; NMFS 2021). State-threatened longfin smelt (*Spirinchus thaleichthys*) and Marine Mammal Protection Act protected harbor seals (*Phoca vitulina*) may also inhabit San Joaquin River waters.

These potentially present species or categories of species are described in the following subsections.

3.1.3.1 Swainson's Hawk

Swainson's hawk is a long-distance migrant species. Central Valley populations winter primarily in Mexico and arrive at their Central Valley breeding grounds in mid-March to early April. Nests are generally found in scattered trees or along riparian systems next to agricultural fields or pastures. Egg laying generally occurs in April, and young are present in May and June. Most young have fledged the nest by the end of July and are relatively independent of parental protection; however, fledged young remain with parents until they depart in the fall for migration. Migration to wintering grounds generally occurs around September; however, some individuals or small groups may winter in California (Caltrans and Port 2013). There are 13 CNDDB-recorded occurrences of Swainson's hawks within a 3-mile radius of the Proposed Action footprint and three occurrences within a 1-mile radius (CDFW CNDDB 2021).

Swainson's hawks are regularly observed throughout the Port, including nesting in the inactive golf course area approximately 1,000 feet northwest of the bridge and in mature trees along the river near the shooting range approximately 2,200 feet southwest of the bridge. Nesting Swainson's hawks were monitored during construction of recent Port projects and no signs of disturbance from construction-related activities were documented. Mature trees within the Proposed Action area may provide nesting habitat to Swainson's hawk, and undeveloped areas may provide foraging habitat. Urbanized and developed conditions likely diminish the suitability of nesting and foraging habitat throughout the Proposed Action footprint. Areas most likely to provide Swainson's hawk nesting habitat include large trees, such as those occurring in the inactive golf course area. Swainson's hawk foraging near the Proposed Action footprint is most likely to occur in barren undeveloped areas, such as within the inactive golf course; within the undeveloped field south of McCloy Avenue; at the rail bridge replacement area banks and adjoining undeveloped areas; within barren parcels adjacent

to the LLDT improvements between the 700 Yard and the Port Yard; and within the maintained urban forest and cottonwood vegetated depression near the Crosstown Freeway overpass. Despite the relative suitability of these habitats compared to developed or hardscaped areas within the Port, habitat remains marginal, particularly compared to available open spaces such as nearby agricultural fields.

3.1.3.2 White-Tailed Kite

White-tailed kites nest and forage in a variety of settings. They hunt over grassland, savanna, cultivated fields, marshes, and riparian woodland and are also commonly observed foraging along freeway medians and edges. These kites prey primarily on voles and other small rodents but also eat birds, snakes, lizards, frogs, and large insects. They build stick nests in the tops of trees, preferentially near an open foraging area, and they typically forage within 0.5 mile of the nest during breeding season, which extends from February through October. The nearest white-tailed kite occurrence was recorded approximately 3 miles southeast of the Proposed Action area in April 2008 (CDFW CNDDB 2021). As with Swainson's hawk, mature trees may provide nesting habitat for white-tailed kite, and undeveloped barren or vegetated areas may provide suitable foraging habitat. Superior habitat for white-tailed kite is available outside of the Port.

3.1.3.3 Western Pond Turtle

Western pond turtle is a highly aquatic species found in ponds, marshes, rivers, streams, lakes, creeks, and irrigation ditches throughout central and coastal California up to 6,000 feet in elevation. Suitable habitat typically includes aquatic areas with rocky or muddy bottoms, aquatic vegetation, and basking habitat (e.g., logs, rocks, or riprap). The nearest western pond turtle occurrence was recorded approximately 7.5 miles southwest of the Proposed Action area in April 2005 (CDFW CNDDB 2021). Riverbank areas next to the rail bridge replacement area may provide suitable basking habitat for western pond turtle, although rail activity at the existing crossing likely diminishes the quality of habitat relative to nearby areas.

3.1.3.4 Roosting Bats

Of the 25 known bat species in California, 12 are designated as state species of special concern. Bats are classified as non-game mammals and are afforded protection under California Fish and Game Code. Roost sites occur within caves, mines, cliffs, rock crevices, tree hollows and crevices, stumps, leaf litter, foliage, and under exfoliating bark and on structures such as buildings and bridges, among other sites. Bats are typically active mid-February through late October, hibernating in the winter months when insect prey populations decrease due to cold temperatures. The nursery season generally extends from May to September, and hibernation occurs from November to March.

There are no CNDDB-recorded occurrences within the USGS quadrangle containing the Proposed Action area and surrounding eight quadrangles (CDFW CNDDB 2021). The wood substructure of the existing rail swing bridge may provide suitable roosting habitat for structure-roosting bats, including Yuma myotis, pale big-eared bat, Townsend's western big-eared bat, pallid bat, and Mexican free-tailed bat. Wood has thermoregulatory properties (i.e., retains heat longer) more suitable for roosting bats than concrete or metal. The bridge substructure provides ample roosting habitat but lacks crevices that afford further protection from weather and predation. Both ends of the bridge from the abutments (approximately 20 feet long) are primarily constructed of wood, including piles, substructure, the platform with railroad tiles and planks, and handrails. The bridge is constructed of wood piles capped with horizontal concrete bases, which support the wood platform and metal

trestle structure. No sign of bat inhabitance (e.g., roosting bats, guano, staining, carcasses) was observed during a bridge bat habitat assessment performed for the Proposed Action. The bridge likely does not support maternity roosts but could possibly be utilized as a day and night roost. Trees within the study area also provide marginal and limited habitat for bark- and foliage-roosting bats. No hollow trees or large snags were identified that may be suitable for cavity-roosting bats.

3.1.3.5 Valley Elderberry Longhorn Beetle

VELB is endemic to the riparian habitats in the Sacramento and San Joaquin valleys where it resides on elderberry plants. VELB are usually found on or close to its host plant. Throughout its range, VELB are estimated to inhabit 20% of all suitable elderberry shrubs. Elderberry shrubs are found in or near riparian and oak woodland habitats. The presence of exit holes in elderberry stems indicates previous VELB habitat use (USFWS 2017). The nearest VELB occurrence was recorded approximately 6 miles south of the Proposed Action area in April 1984 (CDFW CNDDB 2021). VELB may be present within elderberry plants in the Proposed Action area, including those observed on levees adjacent to the rail bridge replacement area.

3.1.3.6 Green Sturgeon (Southern Distinct Population Segment)

Subadult and adult green sturgeon inhabit nearshore oceanic waters, bays, and estuaries while also migrating to and from freshwater habitats. Freshwater occurrence of this species happens during the early life history stage (less than 4 years old) and later when adults return to freshwater to spawn (spawn age range of 10 to 15 years old). Spawning occurs in the spring and summer, as recorded in the upper Sacramento River and tributaries such as the Feather, Yuba, and American rivers. During the juvenile stage, green sturgeon can be found throughout the freshwater portions of their habitat the entire year. The San Joaquin River is within designated critical habitat for green sturgeon at the proposed rail bridge replacement location.

There is a small potential for southern distinct population segment (DPS) green sturgeon to be present in the Proposed Action area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019b) based on past historical conditions, monitoring data, and species characteristics. San Joaquin River waters at the Port area may also be frequented during the upstream migration of spawning adults and downstream migration, resting, and foraging of juveniles (Caltrans and Port 2013). The San Joaquin River in this area does not provide suitable spawning habitat for green sturgeon.

3.1.3.7 Delta Smelt

Delta smelt is a euryhaline fish with a habitat range extending from the lower reaches of the Sacramento and San Joaquin rivers, through the Sacramento-San Joaquin River Delta (Delta), into Suisun Bay. Delta smelt are a relatively small species (2 to 3 inches long) that typically have an annual life cycle, although some individuals may live up to 2 years. Prior to spawning, adult delta smelt tend to migrate upstream into the lower reaches of the Sacramento and San Joaquin River systems, where spawning occurs from approximately February through June, with the greatest spawning activity occurring in April and May. Females deposit adhesive eggs on substrates such as gravel, rock, and submerged vegetation. Eggs hatch in approximately 2 weeks, when planktonic larvae are passively dispersed downstream by river flow. Larval and juvenile delta smelt rear within the estuarine portions of the Delta for a period of approximately 6 to 9 months before beginning their upstream spawning movement into freshwater areas of the lower rivers. San Joaquin River waters within the rail bridge

crossing area are within designated critical habitat for delta smelt. The currently authorized work window for delta smelt is from July 1 to November 30.

Based on past monitoring data and this species' characteristics, delta smelt are highly unlikely to be present in the Proposed Action area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019b). The proposed rail bridge crossing location does not provide the shallow edge waters preferred by delta smelt during spawning.

3.1.3.8 Central Valley Steelhead (Central Valley Distinct Population Segment)

The Central Valley DPS of steelhead includes all populations in the Sacramento and San Joaquin rivers and their tributaries. The current distribution ranges from Keswick Dam in the Upper Sacramento River to the Merced River in the San Joaquin River basin, with distribution primarily limited by impassable dams. Anadromous adults make their upstream spawning migrations beginning in July (peaking in September and October) after residing in the ocean for 2 to 3 years. Spawning occurs from December through April. Spawning, incubation, and most rearing occurs farther upstream than the study area. Waters in the Proposed Action area are within designated critical habitat for this species. The currently authorized work window for steelhead is from July 1 to November 30.

Based on past monitoring data, there is a very small potential for this species to be present in the Proposed Action area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019b). The proposed rail bridge crossing area does not contain river bottom habitat suitable for spawning or incubation.

3.1.3.9 Chinook Salmon (Central Valley Spring-Run Evolutionarily Significant Unit)

The Central Valley spring-run evolutionarily significant unit of Chinook salmon is one of four distinct runs of salmon that spawn in the Sacramento-San Joaquin River system. Chinook salmon was historically the most abundant salmon species in the Central Valley. Populations remain in some tributaries of the Sacramento River, including Butte, Mill, Deer, Antelope, and Beegum creeks, and the Yolo Bypass. In general, spring-run Chinook salmon are found in the Suisun Marsh/North San Francisco Bay, Delta, Sacramento River, Feather River/Sutter Basin, Butte Basin, and North Sacramento Valley Ecological Zones (CDFG 1998). Spring-run Chinook salmon adults typically migrate upstream from April to October and spawn from August through October. Chinook salmon alevins have been collected from Suisun Bay in January and February. Larger parr juveniles have been found from April to June. Juvenile life stages are commonly found inshore, in willow water, and throughout estuarine habitat. Some Chinook salmon delay their downstream migration until the early smolt stage. Juvenile out-migration peaks from May to June (USACE 2015). The currently authorized work window for Chinook salmon is from July 1 to November 30.

Based on past monitoring data, this species is highly unlikely to be present in the Proposed Action area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019b). The proposed rail bridge crossing area does not contain river bottom habitat suitable for spawning or incubation.

3.1.3.10 Longfin Smelt

Longfin smelt, a small euryhaline and anadromous fish, was historically among the most abundant fish in the Delta. Spawning adults congregate at the upper end of Suisun Bay and in the lower and middle Delta, especially in the Sacramento River channel and adjacent sloughs (USACE 2015). As they

mature in the fall, adults found throughout San Francisco Bay migrate to brackish or fresh water in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin rivers. Based on the past monitoring data and this species' characteristics, longfin smelt are highly unlikely to be present in the Proposed Action area (USACE 2015; Anchor QEA 2019; CDFW 2019b). The proposed rail bridge crossing area does not provide suitable spawning habitat for this species.

3.1.4 Essential Fish Habitat

The waters in the proposed rail bridge crossing area are within the EFH for the Pacific Coast Salmon and Pacific Groundfish Fishery Management Plans (FMPs). The Pacific Coast Salmon FMP includes Chinook salmon and coho salmon (*O. kisutch*) and occasionally includes pink salmon (*O. gorbuscha)*, sockeye salmon (*O. nerka*), and chum salmon (*O. keta*). The Pacific Groundfish FMP is designed to protect habitat for more than 90 species of fish, including rockfish, flatfish, groundfish, some sharks and skates, and other species that associate with the underwater substrate (e.g., rocky and soft substrates). There is a low likelihood for transitory presence of Pacific Coast Salmon and Pacific Groundfish FMPs within the Proposed Action area.

3.1.5 Marine Mammal Protection Act Protected Species

Harbor seals are known to occur in the San Joaquin River near the Proposed Action area. Their presence is largely transitory because there are no rookeries or suitable haul-out sites at or near the proposed rail bridge crossing location. Habitat for harbor seals within the Proposed Action area is generally low quality relative to the greater Bay-Delta, which can be attributed to the disturbed condition of the San Joaquin River and the high level of vessel traffic in the Stockton Deep Water Ship Channel (DWSC) and near the Port.

3.1.6 Bald and Golden Eagle Protection Act Protected Eagles

The Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended, prohibits anyone without a permit from taking bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*). Bald eagles have only been occasional visitors and rarely or never breed in San Joaquin County, and their habitat requirements are well distributed throughout the county (SJCOG 2000). Golden eagles are more common in western North America, including California, but the Proposed Action area's developed condition and location within a highly industrial and urban area precludes the presence of golden eagle as well, although habitat may be marginally suitable for several species (primarily nesting or foraging birds).

3.1.7 Migratory Bird Treaty Act Protected Birds and Raptors

Several species of birds protected by the MBTA may occur at the Port. Although the lands within the Port are used for industrial purposes, MBTA-protected birds could nest in disturbed but barren areas within or near the Proposed Action footprint, such as within the inactive golf course, within the undeveloped field south of McCloy Avenue, at the rail bridge replacement area banks, within barren parcels adjacent to the LLDT improvements between the 700 Yard and the Port Yard, and within the maintained urban forest and cottonwood vegetated depression near the Crosstown Freeway overpass. MBTA-protected birds could also roost or nest in mature trees, particularly those within the inactive golf course, maintained urban forest, and cottonwood vegetated depression near the Crosstown Freeway overpass. MBTA-protected birds that have been observed at the Port include the following (Anchor QEA 2018): barn swallow (*Hirundo rustica*); bushtit (*Psaltriparus minimus*); belted

kingfisher *(Megaceryle alcyon*); house finch (*Haemorhous mexicanus*); cliff swallow (*Petrochelidon pyrrhonota*); white-tailed kite; Swainson's hawk; and common raven (*Corvus corax).*

3.1.8 Common Species

The Fish and Wildlife Coordination Act of 1934, as amended, requires federal agencies to consult with the USFWS, NMFS, and state agencies responsible for fish and wildlife resources for all proposed federal undertakings and nonfederal actions needing a federal permit or license that would impound, divert, deepen, or otherwise control or modify a stream or waterbody, and to make mitigation and enhancement recommendations to the involved federal agency. In addition to the species previously described in this section, common species that are anticipated to occur in the Proposed Action area are listed in the paragraphs below.

In the non-native annual grassland habitats within the study area California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), and California ground squirrel (*Otospermophilus beecheyi*) could potentially occur as common residential rodent species. The grasslands could provide foraging habitat for raptors such as the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*) and barn owl (*Tyto alba*). Passerines that reside in grassland habitats within the Central Valley include song sparrow (*Melospiza melodia*), mourning dove (*Zenaida macroura*), western gold finch (*Spinus tristis*), house finch, house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), American crow (*Corvus brachyrhynchos*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), Brewer's blackbird (*Euphagus cyanocephalus*), and western meadowlark (*Sturnella neglecta*). Commonly occurring reptiles expected on the site would include the western fence lizard (*Sceloporus occidentalis*) and common gopher snake (*Pituophis catenifer*).

The landscape trees in the study area, such as found at the southern extent of the project, could host resident species such as the California scrub jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), and bushtit.

The aquatic habitat along the San Joaquin River could support foraging great blue heron, great egret, black-crowned night heron (*Nycticorax nycticorax*), green heron (*Butorides virescens*), American coot (*Fulica americana*), and belted kingfisher (*Megaceryle alcyon*). Commonly occurring amphibians including the bullfrog (*Lithobates catesbeianus*) and Pacific tree frog (*Pseudacris regilla*) would be expected to live within the riverine habitat adjacent to the project area. Additionally, it is likely that largemouth bass (*Micropterus salmoides*), striped bass (*Morone saxatilis*), European carp (*Cyprinus carpio*), bluegill (*Lepomis macrochirus*), catfish (*Ameiurus* sp.), and sunfish (*Lepomis* sp.) occur within the river's water. Mammals that could potentially occur in the aquatic portion of study area may include American beaver (*Castor canadensis*) or river otter (*Lontra canadensis*) as a transient residents of the Delta region. Bats could forage over the water eating bugs including the Mexican free-tail bat and California myotis (*Myotis californicus*).

3.1.9 Special-Status Plant Species

There are 20 plant species considered rare, threatened, or endangered by the CNPS (a CNPS Rank 1 or 2 species) with recorded occurrences in the vicinity of the Proposed Action footprint (Appendix G; CDFW CNDDB 2021). Of these 20 species, two are state or federal endangered: palmate-bracted

bird's-beak (*Chloropyron palmatum*; federal and state endangered) and Delta button-celery (*Eryngium racemosum*; state endangered). Due to the lack of suitable habitat, none of the special-status plant species with recorded occurrences have the potential to occur within the Proposed Action area. No CNPS Rank 1 or 2 species were observed during the March 23, 2021, site visit (Anchor QEA 2021).

3.1.10 Invasive Species

EO 13112 (1999) requires federal agencies to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species cause. As stated in EO 13112, federal agencies should "(i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them." Invasive species can enter ports any number of ways; most commonly, they are introduced from ballast water and hull fouling. At the Port, the most common invasive species are water hyacinth (*Eichhornia crassipes*) and giant reed (*Arundo donax*). These plants, left untamed, deplete water, starve the Delta of sunlight and oxygen, and overtake endemic species' habitats. These species may occur in the Proposed Action area.

3.2 Cultural Resources

Cultural resources, also known as historic properties, are defined and analyzed under Section 106 of the NHPA and its implementing regulations under 36 CFR 800, 2004. Under Section 106, a historic property is "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" (NRHP; 36 CFR 800.16[l][1], 2004). Traditional Cultural Properties may also be historic properties. Under the Section 106 process, federal agencies must consider the effects of their undertakings on historic properties and must consult with interested and affected Native American Tribes and the SHPO on potential impacts to historic properties. The Proposed Action was reviewed under Section 106. The results are contained in a confidential report, which is summarized in Sections 3.2.1 and 3.2.2.

3.2.1 Cultural Context

The Delta is considered to have been occupied since the late Pleistocene and early Holocene, beginning around 11,000 years ago. However, alluvial processes have likely erased most early archaeological sites. The earliest documented sites in the region date to about 9,000 years ago and are thought to have been mobile communities focused on hunting and fishing. Warm and dry conditions in the mid-Holocene (about 7,000 to 3,000 years ago) are associated with a change in subsistence focus towards plant gathering; millingstones were common during this period, though communities are still thought to have been fairly mobile. Later in this period, a trend towards sedentary communities and economic diversification emerged. The late Holocene is characterized by a continued increase in economic diversity and sociopolitical complexity, with emphasis on long-distance trade. Cultures from this era corresponded with ethnographically described cultures (Chartkoff and Chartkoff 1984; Moratto 1984; Fagan 2003; Milliken et al. 2007).

The study area is in the traditional territory of the Yokuts Tribe and may also have been used or settled by Plains Miwok and Wintun peoples. Yokuts communities were organized into a number of Tribes united by a common language. They lived throughout the San Joaquin Valley and relied on the region's rich fishing and hunting resources. Native American communities were severely impacted by European contact (Milliken 1995). However, Yokuts and Miwok people have endured and are now members of several federally recognized Tribes (Kroeber 1976; Golla 2007).

The earliest European contact in the region dates to the late 1500s and was characterized by the establishment of Spanish missions and pueblos. Trappers from the Hudson's Bay Company also settled in the area that would become Stockton in the early 1800s, founding what is still known as French Camp. The new Mexican government took control of California in 1822 and began to distribute lands to private owners. In 1842, German immigrant Charles Weber passed through what would become Stockton; he settled there and established a store in 1847 (Wood 1973).

The gold rush that began in 1848 spurred a boom in the Stockton area, and the City incorporated in 1850. The Swamp Land Act of 1850 (also known as the Overflow Land Act) allowed for the transfer of wetlands from federal to state ownership, which began the process of reclaiming lands through drainage, dredging, levee construction, and fill placement. By 1913, levees were constructed that channelized the San Joaquin River and allowed for reclamation through filling of adjacent uplands (Garone 2011).

The Port was established in 1925. Dredging of the river began in 1930 but was carried out primarily from 1933 to 1940; the original navigational depth of 15 feet was deepened to 26 feet and the course was straightened. In 1927, the Port also began the construction of a belt line railway to facilitate the shipment of goods and products at the Port. The railway (now known as the Belt Line Railway) extended to the area that would become the Port's East Complex, including an on-berth rail spur at the eastern of two wharves. The Port's facilities opened for operation immediately afterward in 1933. The original Port area was the northern and western parts of what is now the East Complex. The early Port had a cotton compress, grain terminal, and molasses bins, a coal and iron storage area, warehouses for canned and other goods, a lumber terminal, and a cement storage facility.

In 1933, the City purchased an additional 104 acres on the north side of Rough and Ready Island and rezoned it for industrial development in association with the Port. The San Joaquin Railroad Bridge was constructed over the river to extend the Port's Belt Line Railway to this property, providing Rough and Ready Island with important railroad links to the three transcontinental railroad systems and increasing its value.

During the runup to World War II, the U.S. Army Air Forces developed the Stockton Ordnance Depot (renamed Stockton Ordnance Base in 1943 and then Sharpe General Depot, Stockton Annex in 1955) on the East Complex. Beginning in August 1941, the military acquired the property from the Port and other landowners, and constructed orderly rows of facilities for storage, rail lines, roads, structures for administrative functions, and a hospital. Parcels were acquired and facilities built between 1941 and 1944. Prisoners of war (POWs) were held at the depot during the war and immediately after while awaiting repatriation. Despite the name, ordnance does not seem to have been stored at the depot. All construction during World War II appears to have occurred south and east of the wharf areas (CMM 2016).

The U.S. Navy purchased nearly the entirety of Rough and Ready Island in 1944 and began construction of Naval Supply Annex Stockton to serve the expanding needs of the Pacific theater in World War II, prior to the war's end. As part of the facility's development, the island's northern

shoreline was straightened to its current configuration, creating the Stockton DWSC. Fill from the project was likely deposited on portions of the Proposed Action footprint. Spoils from periodic navigational dredging have also been historically deposited across the island for convenient disposal and land reclamation (Terracon 2018).

Initial Naval development included expanding the Belt Line Railway and building a street grid out from the existing main road (County Road 403, now Fyffe Avenue). Most of the base, including warehouses, housing, medical facilities, and utilities infrastructure, was constructed between August 1944 and June 1945. POWs were used as labor in constructing the base from spring 1945 onward and were said to have laid the drainage ditch system (Uribe & Associates 1996). Less than 2 months after the Naval Supply Annex Stockton was commissioned, the war ended on August 25, 1945. On the East Complex, the military decommissioned the Sharpe General Depot, Stockton Annex and began transferring parcels back to the Port, a process that was complete by 1956. The transfer included lands in the south and east portions of the East Complex that were previously agricultural and had not been part of the Port before the war (CMM 2016). The Naval Supply Annex Stockton remained in Department of Defense ownership through the 1950s and 1960s, and the facility continued to operate, primarily processing returning equipment and supplies. Activity declined after World War II, with the following two exceptions: 1) operations during the Korean War in the early 1950s; and 2) operation of the Naval Communications Station after 1960.

The levees around the island were improved twice after World War II. In 1950, a 30-foot channel was dredged and the levees around Rough and Ready Island were built up with the spoils. As part of this work, the San Joaquin Railroad Bridge was modified to its current form, circa 1953. The Naval Communication Station Stockton was constructed on Rough and Ready Island between 1956 and 1957 and operated from the Naval installation until 1965 (Uribe & Associates 1996; Terracon 2018). Naval Supply Annex Stockton was officially decommissioned in 1965. The Department of Defense approved transfer of ownership of the property on Rough and Ready Island to the Port in 1996. The Port of Stockton formally purchased the property from the United States government in 2010, and it became the Port's West Complex (Terracon 2018).

Findings from geotechnical studies at various locations around the Port are consistent with the area's environmental and cultural history. On the East Complex at Dock 2, geotechnical investigations revealed 5.5 to 10 feet of artificial fill (Kleinfelder 2019). On the West Complex, investigations for a nearby project to replace the nearby Navy Drive Bridge found 15 feet of fill above stratified clays and silty sands (Kleinfelder 2014). These sediments (possibly native sediments, but more likely dredge spoils) are about 1.0 foot to 3.5 feet above sea level. Native sediments would have been seasonally inundated.

3.2.2 Identified Historic Properties

According to a search of the California Historical Resources Information System, there are three previously recorded cultural resources in the Proposed Action area as follows: the Naval Supply Annex Stockton NHD, the Belt Line Railway (P-39-005115), and the San Joaquin Railroad Bridge (P-39-002864).

The Naval Supply Annex Stockton NHD has been determined eligible for listing in the NRHP under criteria A and C at the national level of significance. The San Joaquin Railroad Bridge and the portions of the Belt Line Railway located on Rough and Ready Island within the boundaries of the NHD have been determined eligible for the NRHP as contributing elements of the Naval Supply

Annex Stockton NHD because of their key role in the installation's creation and its operations from 1944 onward. The location of Naval Supply Annex Stockton was, in part, chosen because of the existing railway connections provided by the Port's Belt Line Railway and its existing railroad bridge spanning the San Joaquin River to Rough and Ready Island. The Belt Line Railway and San Joaquin Railroad Bridge were important components of Naval Supply Annex Stockton's transportation network and served the facility through its entire period of operation. The portions of the Belt Line Railway associated with the Port's East Complex and not located within the NHD have been evaluated as not NRHP-eligible (Bundy and Hetzel 2020).

3.3 Geology and Soils

3.3.1 Geologic Conditions and Seismicity

The Proposed Action footprint is largely topographically flat, although the proposed replacement rail crossing area includes levees with relatively steep slopes. Portions of the rail alignment are also elevated on berms. The area does not exhibit evidence of current erosion, and the rail bridge replacement area contains vegetation and riprap that likely provide slope stability. Elevated rail lines within the Proposed Action area similarly contain vegetated berms, and evidence of erosion was not observed.

There are two active known faults within 25 miles of the Action area—Great Valley 7 (17.1 miles) and Greenville Connected (23.9 miles)—and numerous other active and potentially active faults farther east and west of the site (USGS 2008). The Port is within a region with a moderately low level of earthquake hazard. Regions with this level of hazard are farther away from faults known to be active, and therefore can be expected to experience ground shaking less often and at a lower magnitude. Generally, earthquakes in these regions would damage only weaker masonry buildings, but stronger, very infrequent earthquakes could still cause strong ground shaking (California Department of Conservation 2016). Given the soil depths in the region, ground shaking would mostly affect taller structures (3 to 4 stories tall; County 2010).

Recent geotechnical investigations in the Port have identified potentially liquefiable soils, which may also be present in portions of the Proposed Action area. Geotechnical borings taken for the Navy Drive Bridge project located approximately 600 feet southwest of the rail bridge replacement site identified thick layers of potentially liquefiable soils within the top 60 feet of soil below the existing levee crown. Based on these findings, liquefiable soils may also be present in the vicinity of the proposed replacement rail crossing. However, similar soils characterized for a project on the West Complex near the proposed McCloy rail classification yard found that soils above the groundwater table primarily consist of interbedded layers of clays and silts, which are usually not susceptible to cyclic densification, indicating that the likelihood of earthquake-related settlement is likely low (H&A 2020). Inland portions of the Proposed Action footprint that are away from the levees are mapped as mostly containing soils with low liquefaction vulnerability (NRCS 2021).

3.3.2 Soils

As mapped by the Natural Resources Conservation Service, soils occurring in the West Complex portion mostly include Egbert-Urban land complex (partially drained, 0% to 2% slopes) and Merritt silty clay loam (partially drained, 0% to 2% slopes). Other soil types mapped as occurring over smaller areas within the West Complex include Jacktone-Urban land complex (0% to 2% slopes) and Yellowlark gravelly loam (2% to 5% percent slopes). Merritt silty clay loam is mapped as occurring

near the proposed replacement rail crossing and adjoining levee, while the other soil types occur inland of the levee. Soils mapped as occurring in the East Complex portion of the site include Yellowlark gravelly loam and Jacktone-Urban land complex. All of these soils are associated with fairly high water tables. Egbert-Urban land complex and Jacktone-Urban land complex are slow-draining soils, while Merritt silty clay loam and Yellowlark gravelly loam are fast-draining (NRCS 2021).

3.4 Hydrology and Water Quality

3.4.1 Surface and Stormwater

The proposed replacement rail crossing is located above the San Joaquin River that extends southward from the river's main channel. The San Joaquin River is approximately 325 feet wide in the area of the proposed rail bridge replacement. The river channel substrate in the Proposed Action area contains mud and silt, and water quality is characterized by low dissolved oxygen levels and high water temperatures during the late summer and early fall. Water quality monitoring and elutriate toxicity testing results from past Port maintenance dredging sediment characterization efforts have not indicated toxicity concerns (ERS 2012, 2013; Anchor QEA 2017) for sediments within the Proposed Action area.

On the West Complex, stormwater is conveyed through a system of open and channelized earthen stormwater drainage ditches. These ditches convey stormwater to a single pump-controlled discharge point that connects to a stormwater retention basin on the western end of the West Complex. When the basin reaches an elevated level, it is pumped into Burns Cutoff. On the East Complex, stormwater is conveyed via a system of drainage ditches and channels before being pumped into the stormwater retention basin immediately west of Navy Drive. Drainage ditches on the East Complex are generally open, with culverts beneath road crossings or other developments. If the retention basin reaches an elevated level, stormwater is pumped to the San Joaquin River (Port 2009).

The Port's Storm Water Development Standards Plan (Port 2009) covers new and substantial redevelopments of properties within three subareas to ensure compatibility with the California State Water Resources Control Board-issued Municipal Separate Storm Water Sewer System NPDES Permit. Port Storm Water Development Standards Plan review includes assessment of technical stormwater submittals from project proponents.

3.4.2 Flood Hazards

San Joaquin County maintains Flood Insurance Rate Maps, as required by the Federal Emergency Management Agency (FEMA). These Flood Insurance Rate Maps indicate the potential of flooding for various locations. Except for the proposed rail crossing over the San Joaquin River, the Proposed Action footprint is located in a "Zone X Other Flood Area," which indicates an area with 0.2% annual chance of flood or an area with 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, as well as areas protected by levees from a 1% annual chance of flood (FEMA 2009). The 100-year flood elevation at the proposed rail crossing is 10 feet North American Vertical Datum of 1988 (NAVD88) (FEMA 2009). Upstream dam failures could cause flooding in the Proposed Action area, which is within the dam inundation zone of three major dams (i.e., the New Malones, Camanche, and New Hogan dams; City 2018a). Failure of any of these dams would give residents about 7 hours to evacuate. Other major regional dams could also affect the City

but would have longer evacuation lead times (City 2018a). California Senate Bill 92 (2017) requires emergency action plans for all dams, except those classified as "low hazard."

The Proposed Action is protected by levee systems along the San Joaquin River and Burns Cutoff. Levee failure has a relatively small probability of occurrence. The Port is responsible for the levee system and has established an annual levee monitoring and inspection program intended to determine whether reinforcement of the structural integrity of the perimeter levee is required (Stockton Port District 2012). Levee monitoring occurs in collaboration with Reclamation Districts 403 and 404. FEMA has certified and accepted most of the levees within the City as meeting minimum standards (City 2007). Tsunamis and seiches are not considered to be significant threats in the Stockton area (City 2007).

3.4.3 Groundwater

The Proposed Action area occurs within the San Joaquin Valley Groundwater Basin, which is a subsection of the Greater Central Valley Basin. Groundwater in the area is recharged by local precipitation and through percolation from the surrounding surface waters. Groundwater overdraft conditions have existed in the San Joaquin County Basin since the 1920s, although elevations have recovered and stayed relatively constant since 1999 (Stockton Port District 2012).

Runoff on the West Complex drains through the drainage ditch system to the retention basin on the western end of the West Complex, while East Complex runoff is pumped to the stormwater retention basin immediately west of Navy Drive. Once runoff reaches one of these retention basins, it may percolate into the groundwater table. Runoff from the proposed rail bridge replacement and adjoining levee areas is conveyed directly to the San Joaquin River.

3.5 Hazardous Materials

3.5.1 Listed Hazardous Material Sites

Sites surrounding the Proposed Action potentially containing hazardous materials were identified through a search of the California Department of Toxic Substances Control (DTSC) EnviroStor (DTSC 2021) and State Water Resources Control Board GeoTracker (SWRCB 2021a) databases. Within a 1-mile radius of the Proposed Action footprint, the EnviroStor database lists 13 cleanup sites and the GeoTracker database identifies 74 cleanup sites with active, open, or unidentified statuses (with some sites occurring in both databases). These sites are described in the following list:

- Naval Computer and Telecommunications Station, San Diego Detachment Stockton (NCTS Stockton) is the former Naval outpost, which encompassed the Port's modern West Complex. NCTS Stockton managed Rough and Ready Island from the early 1950s until July 2002, when U.S. Navy operations ceased. The Department of Defense property on Rough and Ready Island was conveyed to the Port between 2000 and 2010. Portions of the West Complex are identified as existing hazardous materials sites due to soil and groundwater contamination related to Naval use of the site, including for heavy metals, organochlorine pesticides, petroleum and petroleum byproducts, polychlorinated biphenyls, polyfluorinated alkylated substances, polynuclear aromatic hydrocarbons, polynuclear aromatic hydrocarbons, semivolatile organic compounds, and volatile organic compounds. The contaminated portions of the West Complex have been divided into sites based on the nature and source of contamination. GeoTracker lists 35 West Complex sites within 1 mile of the Proposed

Action and EnviroStor lists 3 sites. The Proposed Action footprint would include only one West Complex former NCTS Stockton site—the Site 19 construction debris site. Site 19 contains stockpiles of soil and debris with known benzo(a)pyrene contamination; the stockpiles are the only known contamination on Site 19 (SWRCB 2021b). The western edge of the proposed McCloy rail classification yard would be on Site 19.

- The former Stockton Ordnance Depot includes 518.7 acres within the Port's East Complex, West Complex, and within a portion of Robert's Island that were used for military purposes from 1941 through 1973. A portion of the Proposed Action footprint would occur adjacent to the East Complex former Stockton Ordnance Depot area. No hazards or potential environmental liabilities from past use by the Department of Defense remain based upon records research, site inspections, and removal actions (Vincent 2012). However, the GeoTracker database still identifies the site as under investigation with explosives identified as the potential contaminant of concern.
- The Koppel Stockton Terminal is located at 2025 West Hazelton Avenue. Phytoremediation was initiated at this site in May 1998 for nitrate and ammonium contaminated groundwater, and additional trees were planted in March 2000. In 2014, the stormwater pond met the cleanup goals for soil and groundwater. This cleanup program site remains open.
- The Newark Group, Inc. Leaking Underground Storage Tank Case 2 is located at 800 West Church Street. Petroleum contamination was found in soil and groundwater after removal of site underground storage tanks. The site is under monitored natural attenuation, and as of 2021 is under RWQCB consideration for closure.

3.5.2 Potentially Hazardous Materials on Site

The portions of the Proposed Action area that are existing rail tracks are not known to have been used historically as a storage location (other than standard industrial hazardous materials related to the historical purposes of the site) or dump site for hazardous materials. However, the western edge of the proposed McCloy rail classification yard would extend into Site 19, which is a stockpile area for known contaminated soil from previous West Complex construction projects. The stockpiles are the only known contamination at Site 19. The remainder of the Proposed Action footprint includes vacant but disturbed parcels where temporary construction staging would occur and the San Joaquin River and adjoining levees where the replacement rail crossing would be constructed. These areas are not known to contain hazardous materials.

Port rail lines serve a variety of tenants that manage potentially hazardous commodities, including liquid bulk fuels, fertilizers, combustible solids, or caustic materials. The Port maintains contractual requirements for the use, handling, and storage of hazardous materials by all of its tenants, in part through the standard tenant terms and conditions listed in the Port's General Tariff No. 1 (Port 2020). Per General Tariff No. 1, tenants are required to notify the Port immediately of the presence of any hazardous materials on or below property leased from the Port, must "comply with all affirmative legal requirements concerning Hazardous Materials," and must provide the Port with an up-to-date list of all hazardous materials on leased property at least once per year and before any new hazardous materials are brought onto Port property (Port 2020). Rail transport of potentially hazardous materials managed by Port tenants is subject to BNSF or UP hazardous material plans; an overview is provided in the following paragraphs.

BNSF is a partner member of the Responsible Care program, a voluntary chemical safety and handling management system under the auspices of the American Chemistry Council. In addition, BNSF has several internal programs to address personnel safety and reduce releases of hazardous materials due to accidents (also called accident releases). A Hazardous Materials Emergency Response Plan is developed for every BNSF facility in the United States. BNSF works with customers to reduce non-accident releases by improving packaging and containment. In the event a problem does occur, their spill response program is designed to minimize impacts to the environment, the community, and BNSF operations; they deliver resources to the area of the spill in the shortest time possible. The program includes 200 emergency response personnel who are located throughout the BNSF system. All response personnel must complete annual responder training. This support team has responsibility for monitoring all emergency responses, mobilizing response and remediation contractors, and lending technical support when necessary. BNSF has also posted a toll-free emergency telephone number at every intersection of highway and rail crossings to provide the public with a way to contact BNSF immediately in an emergency. BNSF additionally participates in the Transportation Community Awareness and Emergency Response outreach program. BNSF provides hazardous materials awareness training to the communities where BNSF facilities are located. These programs, which include classroom and hands-on sessions, are designed to promote an understanding of safe transportation of hazardous materials by rail.

UP's Hazardous Materials Management (HMM) group consists of hazardous material experts focused hazardous material management. The HMM team members regularly inspect tank cars moving on the UP network and are responsible for training employees about hazardous materials safety. U.S. Department of Transportation-defined "hazmat employees" must be trained in the safe handling of hazardous materials. The HMM group develops the UP Hazardous Materials Emergency Response Plan, a performance-based plan that provides guidance about reporting a release and a list of training requirements for those responding to an incident. HMM team members reach out to fire departments on an annual basis to offer training or information to assist fire departments in their preparation for a potential incident. The response process used by the HMM group is designed to be incorporated into public response incident command structure. UP's Response Management Communication Center is an around-the-clock security response center where critical call dispatchers manage calls from the public, law enforcement, and others who are reporting emergencies and other incidents on UP's 32,000-mile network. The Center follows all regulations regarding notification of local, state, and federal agencies in the event of an accident and works closely with first responders throughout an incident. In addition, UP has approximately 30 highly trained hazardous materials responders. HMM response equipment includes firefighting trailers, foam caches, air monitoring equipment, and specialty tools. In the event of a hazardous material incident, UP is equipped to transfer any liquid or compressed gas from damaged tanks and clean and purge any damaged cars. The UP Site Remediation Group is responsible for remediation and closure with regulatory agencies.

3.6 Air Quality and Greenhouse Gases

3.6.1 Air Quality

The Proposed Action area is located within the San Joaquin Valley Air Basin (SJVAB), which is bordered by the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the South and is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the SJVAB portion of Kern. The climate within

the SJVAB is typical of inland valleys in California, with hot, dry summers and cool, mild winters. Daytime temperatures in the summer often exceed 100°F, with lows in the 60s. In winter, daytime temperatures are usually in the 50s, with lows around 35°F. Fog is common in the winter and may persist for days. Winds are predominantly up-valley (from the north) in all seasons, but more so in the summer and spring. Winds in the fall and winter are generally lighter and more variable in direction, but generally blow toward the south and southeast.

Because of the Central Valley's unique physical characteristics, the pollution potential in the area is very high. Surrounding elevated terrain, in conjunction with temperature inversions, frequently restricts lateral and vertical dilution of pollutants. Ozone (O_3), the major component of the Central Valley's summertime smog, is formed via chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_X) in the presence of ultraviolet radiation or sunlight. Abundant sunshine and warm temperatures in summer are ideal conditions for the formation of photochemical oxidants, leading to frequent photochemical pollution, or O_3. Tiny particles of solids or liquids (excluding pure water) that are suspended in the atmosphere are known as particulate matter (PM) and are classified according to their diameter in micrometers as either particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) or particulate matter less than 10 micrometers in diameter (PM_{10}). PM can be emitted directly (primary PM, such as dust or soot) or can form in the atmosphere through photochemical reactions or gaseous precursors (secondary PM). Much of the Central Valley's ambient PM_{10} and $PM_{2.5}$ is secondary PM that is formed in atmospheric reactions of NO_X. Due to the combined air pollution sources within the SJVAB and meteorological and geographical effects that limit dispersion of air pollution, the SJVAB can experience high air pollutant concentrations.

The U.S. Environmental Protection Agency (USEPA) enforces federal air quality regulations. The federal Clean Air Act of 1970, amended in 1990, authorized the establishment of National Ambient Air Quality Standards (NAAQS), set deadlines for their attainment, and established actions required of areas that exceed these standards. The air pollutants for which federal standards have been promulgated via NAAQS include O_3, carbon monoxide (CO), suspended PM, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead. PM emissions are regulated in the following two size classes: PM_{10} and $PM_{2.5}$.

The California Air Resources Board (ARB) has established air quality standards for California, known as the California Ambient Air Quality Standards (CAAQS), which similar to the NAAQS. The USEPA and ARB classify an area as attainment, unclassified, or nonattainment depending on whether the monitored ambient air quality data show compliance, lack of data, or noncompliance with the ambient air quality standards, respectively. The NAAQS and CAAQS relevant to the Proposed Action are provided in Table 4. Areas without monitoring data are considered unclassified and are generally treated as attainment areas.

The CAA mandates that air agencies in areas that exceed the NAAQS submit and implement a State Implementation Plan (SIP). The SIP must include pollution control measures that demonstrate how the standards will be met. California's air quality is monitored and regulated at the state level by ARB and at the local and regional level by air pollution control authorities known as Air Quality Management Districts (AQMDs). The role of the AQMD includes developing clean air plans to manage local attainment, which feed into the SIP. The Proposed Action area is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). As presented in Table 5, the San Joaquin Valley has been in attainment for CO since 1994 and reached attainment for the federal PM_{10} standard in 2008. The entire air basin is classified as nonattainment for the CAAQS 24-hour and

annual PM_{10} standards, the CAAQS annual $PM_{2.5}$ standard, and the CAAQS 1-hour and 8-hour O_3 standards. The SJVAB is also classified as nonattainment for the NAAQS 8-hour O_3 standard and the 24-hour and annual $PM_{2.5}$ standards (SJVAPCD 2022).

3.6.2 Greenhouse Gas Emissions

Global climate change results from greenhouse gas (GHG) emissions caused by several activities, including fossil fuel combustion, deforestation, and land use change. GHGs play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface, which otherwise escapes to space. Emissions of GHGs are responsible for the enhancement of the greenhouse effect and contribute to what is termed "global warming," a trend of unnatural warming of the Earth's natural climate. Global warming is the increase in average global temperatures of the Earth's surface and atmosphere. The natural balance of GHGs in the atmosphere regulates the Earth's temperature; without this natural greenhouse effect, the Earth's surface would be approximately 60°F cooler (USGCRP 2018). The greenhouse effect keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows for successful habitation by humans and other forms of life. Fossil fuel combustion removes carbon stored underground and releases it into the atmosphere. Increased concentrations of GHGs in the Earth's atmosphere increase the absorption of radiation and further warm the lower atmosphere. This process increases evaporation rates and temperatures near the surface.

The most prominent GHGs contributing to global climate change include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Certain refrigerants, including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and hydrofluorocarbons (HFCs), also contribute to climate change. Global warming potential (GWP) is a measure of how much a given mass of GHG emissions contribute to global warming. A relative scale is used to compare the gas in question to carbon dioxide (whose GWP is defined as 1). In this analysis, CH_4 is assumed to have a GWP of 21, and N_2O is assumed to have a GWP of 310. Refrigerants have GWPs ranging from 76 to 12,240. Consequently, using each pollutant's GWP, emissions of CO_2, CH_4, N_2O, CFCs, HCFCs, and HFCs can be converted into CO_2 equivalents, also denoted as CO_2e. Climate change is a global problem, and GHGs are global pollutants unlike criteria pollutants (such as O_3, CO, and PM) and toxic air contaminants, which are pollutants of regional and local concern.

Recent environmental changes linked to global warming include rising temperatures, shrinking glaciers, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (CCCC 2018; USGCRP 2018; IPCC 2021). In California, an assessment of climate change impacts predicts that temperatures will increase between 5.6°F and 8.8°F by 2100, based on low and high global GHG emission scenarios (CCCC 2018). Predictions of long-term negative environmental impacts in California include worsening of air quality problems; an increase in the frequency of heat waves; a reduction in municipal water supply from the Sierra snowpack; sea level rise; an increase in wildfires; damage to marine and terrestrial ecosystems; and an increase in the incidence of infectious diseases, asthma, and other human health problems (CCCC 2018).

3.7 Noise and Vibration

3.7.1 Noise

The Noise Control Act of 1972 (NCA) is a statute of the United States that establishes a federal program of regulating noise pollution with the intent of protecting human health and minimizing

annoyance of noise to the general public. The NCA also establishes a means for effective coordination of federal research and activities in noise control (USEPA 2022). Occupational Safety and Health Administration (OSHA) has established acceptable occupational noise exposure levels (29 CFR 1910.95, 2008). These regulations state that employees must not be exposed to occupational noise levels greater than 90 A-weighted decibels (dBA) without adequate hearing protection. If occupational noise levels exceed 85 dBA, the employer must establish a hearing conservation program as described under 29 CFR 1910.95(c-o), 2008. For occupational noise exposure levels greater than 90 dBA, the daily period of noise exposure must be decreased from 8 hours, as described in 29 CFR 1910.95(b), 2008.

Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to the human ear. Noise is most simply defined as unwanted sound. Sound is measured in decibels (dB) and accounts for variations such as frequency and amplitude using a relative scale adjusted to the human range for hearing (referred to as the dBA). More specifically, dBA measures sound reflective of how the average human ear responds to sound; human hearing typically ranges from 0 dBA (the threshold of hearing) to about 140 dBA (the threshold for pain). Table 6 presents typical sound levels of some familiar noise sources and activities.

Acceptable noise levels during the day are higher than during the night, and industrial land use in urban areas has a higher limit than residential land use in rural areas. The average healthy ear can barely perceive changes of 3 dBA; a change of 5 dBA is readily perceptible, and an increase (or decrease) of 10 dBA sounds twice (or half) as loud (Caltrans 2013). Noise can be generated by both mobile (i.e., cars, trucks, and rail) and stationary (i.e., construction equipment and operational machinery) sources. Mobile sources typically attenuate (reduce volume) at a rate of 3.0 to 4.5 dBA per doubling of distance, depending on the ground surface and obstructions between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, typically have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, typically have an attenuation rate of 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate of 6.0 to 7.5 dBA per doubling of distance.

Noise is measured using several measurements, including the following:

- Equivalent Sound Level (L_{eq}) is the constant noise level that would result in the same total sound energy being produced over a given period. It is useful for representing a varying sound source over time as a single number.
- Maximum Sound Level (L_{max}) is the maximum sound level.
- Statistical Sound Level (L_n, e.g., L_{min}, L_{90}, L_{50}, L_{10}) is the percentile-exceeded noise level, designated as L_n, describing the noise level that is met or exceeded by a fluctuating sound level n-percent of a stated time period. For example, L_{50} is the sound level that is equaled or exceeded for 50% of the time period (equivalent to 30 minutes in an hour), and L_{10} is the sound level that is equaled or exceeded for 10% of the time period (equivalent to 6 minutes in an hour).
- Day/Night Average Sound Level (L_{dn}) is the average noise level over a 24-hour period. The noise level measurements between the hours of 10:00 p.m. and 7:00 a.m. are artificially increased by 10 dB before averaging.

Existing noises in the Proposed Action area can be attributed to various stationary and mobile anthropogenic sources. Anthropogenic sources include ship traffic, tractor-trailer truck traffic, rail

activity, heavy industry, and agricultural processing equipment. Other less dominant sources of existing noise include nearby general neighborhood sounds, and local and regional roadway traffic on nearby roads and highways (i.e., I-5 and SR 4). Land uses that are sensitive to increases in ambient noise include residences, schools, libraries, and hospitals. Sensitive receptors that may be impacted by Proposed Action-generated noise or vibration include mobile homes located near Ryde Avenue and West Freemont Street approximately 2,800 feet north of the proposed rail bridge; single-family homes, a park, a community center, and a community garden, which are located in the Boggs Tract neighborhood at various distances north and east of the proposed LLDT; and a single-family home located at 1708 South Woodsbro Road, which is approximately 3,140 feet southwest of the proposed McCloy rail classification yard.

Ambient noise measurements were taken in the vicinity of the Proposed Action footprint to quantify the existing noise environment. Measurements included two long-term noise measurements (24 hours) and six short-term (1 hour) noise measurements. A long-term noise measurement was taken at South Ventura Avenue and West Hazelton Avenue (location LTNM1) between April 1 and April 2, 2021. This location is near the community garden that is surrounded by the Boggs Tract Park to the east, agricultural land uses to the west, and residential land uses to the north and south. The dominant sources of noise at LTNM1 included traffic on the Crosstown Freeway, passing trains, idling trucks in the parking lot of PS Bajwa, Inc. (located at 601 Ventura Street), and offgassing noise associated with an agricultural processing facility located northwest of PS Bajwa. A long-term noise measurement was also taken at the north end of North Ventura Street (location LTNM2) between April 2 and April 3, 2021, approximately 125 feet south of an existing rail yard. Noise levels measured at LTNM2 are considered representative of typical rail yard activities (i.e., rail engine noises, train building clang noises, rail squeals, and other miscellaneous activities).

Six short-term noise measurements were taken during daytime hours, three of which were taken from locations in the Boggs Tract neighborhood, which is north and east of the proposed LLDT. Noise levels at the measurement locations in the Boggs Tract neighborhood (locations STNM1 through STNM3) ranged between 52 dBA and 64 dBA hourly L_{eq}. The fourth short-term noise measurement was taken near a single-family residence located at 1708 South Woodsbro Road (location STNM4), where the hourly L_{eq} was 48 dBA. Two additional short-term noise measurements were taken on Port property at the site of the proposed McCloy rail classification yard (location STNM5, hourly L_{eq} of 62 dBA) and near a meeting hall approximately 450 feet north of the proposed rail bridge, which is south of the Lindley House (location STNM6, hourly L_{eq} of 49 dBA). The Lindley House is an on-site facility and is not treated as a sensitive receptor for this analysis; this noise measurement was taken for reference. Table 7 provides a summary of long-term and short-term noise measurement data. A detailed summary of sound level measurement data and field notes are provided in Appendix H.

3.7.2 Vibration

Groundborne vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. Each of these measures can be further described in terms of frequency and amplitude. Displacement is the distance that a vibrating point moves from its static position (i.e., its resting position when the vibration is not present). Velocity describes the instantaneous speed of the movement, and acceleration is the instantaneous rate of change of the speed. Although displacement is fundamentally easier to understand than velocity or acceleration, it is rarely used for describing groundborne vibration for the following reasons: human response to groundborne

vibration correlates more accurately with velocity or acceleration; the effect on buildings and sensitive equipment is more accurately described using velocity or acceleration; and most transducers used in the measurement of groundborne vibration actually measure either velocity or acceleration. For the Proposed Action's analysis, velocity was the fundamental measure used to evaluate the effects of groundborne vibration.

Vibration can be described using various metrics. The Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) uses peak particle velocity (PPV), defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity, to assess the potential for damage to buildings. PPV is usually expressed in the United States in inches per second (in/sec). FTA uses the vibration velocity level to assess vibration-related annoyance to people. The vibration velocity level expresses vibration in vibration decibels (VdB) rather than in/sec to compress the range of numbers required to describe vibration.

3.8 Transportation

Traffic analyses in California are overseen by the California Department of Transportation (Caltrans) and local jurisdictions. Caltrans developed the *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002) to provide a summary of goals and policies. San Joaquin Council of Governments (SJCOG) has developed a Regional Transportation Plan (RTP; SJCOG 2018), which guides the region's transportation development over a 20-year period and covers all modes of transportation. The RTP is updated every 3 years to reflect changes in available funding, economic, activity and population and to incorporate findings from corridor studies and major infrastructure investments. The projects included in the RTP are also assessed for their effect on air quality, as the RTP is used in the SIP to ensure states are meeting federal conformity standards. If a project is included in the RTP, its effect on regional conformity goals has been accounted for. The current RTP was adopted by the SJCOG Board of Directors.

The City assesses increases in traffic levels in addition to vehicle miles traveled (VMT) to adequately plan and manage traffic congestion on the City's roadways and intersections. Accordingly, traffic impact analyses are conducted for projects generating 100 or more vehicle trips during the morning or evening peak hours. The City is also in the process of developing regional VMT thresholds and guidance.

The California Public Utilities Commission (CPUC) has legal regulatory authority over rail safety within California, including operations and grade crossings throughout the state. CPUC is the state agency with exclusive jurisdiction over rail crossings in California. CPUC engineers evaluate the safety of rail crossings and review proposed construction where roadways or pathways cross railroad or rail transit tracks.

3.8.1 Regional Highway and Roadways

The Port is served by a number of regional freeways and highways, namely I-5, the Crosstown Freeway, and SR 4, with local roads serving the terminals and wharves. I-5, Fresno Avenue, Center Street, and El Dorado Street serve the major north-south movements of traffic in the study area; Washington Street, Navy Drive, and Charter Way serve the east-west flow of traffic in the area. Existing roadways are described as follows:

- I-5 provides local, regional, and statewide access to the Proposed Action area. It is an eight-lane freeway with a freeway-to-freeway interchange at the confluence of I-5 and SR 4.

- SR 4 is an east-west highway with four through-lanes. Immediately west of I-5, SR 4 is also called Charter Way, and is an east-west arterial with two lanes. Surrounding land uses are mainly industrial, with some commercial uses at major intersections. The second part of SR 4, known as the Crosstown Freeway, begins at Fresno Avenue, has an interchange with I-5, and continues east. This section of SR 4 is a divided freeway with two to four lanes in each direction, plus auxiliary lanes.
- Ort J. Lofthus Freeway is the Crosstown Freeway extension project that Caltrans opened in 2016, which extended the Crosstown Freeway west from Fresno Avenue to Navy Drive. The extension is elevated and crosses over Fresno Avenue, creating a grade separation that prohibits highway traffic from entering the Boggs Tract neighborhood at Fresno Avenue. It also crosses over the BNSF tracks and Port lead tracks near their junction with the BNSF tracks.
- Navy Drive is a four-lane roadway with a partial interchange, which integrates the Crosstown Freeway Extension with a direct route into the Port's West Complex that improves traffic flow, decreases idle times, and improves safety.
- Washington Street is a two-lane east-west collector and an arterial, which begins west at Navy Drive and terminates at the Weber Avenue intersection. Washington Street was previously the major east-west route through the Port area and the residential area east of the Port. However, following the opening of the Crosstown Freeway Extension, Washington Street from the railroad tracks west is now a private Port road.
- Fresno Avenue is a north-south roadway from north of Washington Street through the residential area south of Charter Way. The roadway is two lanes wide. Between Hazelton Avenue and Charter Way, Fresno Avenue is surrounded by mainly industrial land uses.

3.8.2 Rail Network

California's freight railroad system consists of Class I railroads (BNSF Railway and UP), which transport freight to and from the state over state lines, and Class III railroads, referred to as short line railroads, which provide local rail movements. Both UP and BNSF lines serve the Port. BNSF operates the Stockton Intermodal Facility on the southeast edge of the City, and UP operates a major intermodal facility and other terminal operations in Lathrop, California. In northern California, the Martinez Subdivision, Feather River Canyon, and Donner Pass routes serve the ports of Oakland and Stockton and are owned and dispatched by UP but serve BNSF through trackage right agreements.

Several short line railroads also operate in Stockton. CCTC, jointly owned by BNSF and UP, operates 52 miles of freight service between Stockton and Lodi and is the short line operator for the Port. CCTC connections are made with BNSF, UP, and the Stockton Terminal and Eastern Railroads, which runs from Stockton to Linden (City 2018a). The Port provides its own internal railway system with CCTC handling all switching and local movements within the Port; however, some tracks are owned and maintained by their respective customers.

3.8.3 Vessel Traffic

The Port is served by the Stockton DWSC within the San Joaquin River, which provides access to the Port from the San Francisco Bay. Vessel traffic in the study area includes commercial shipping and recreational vessels, as well as vessels to support periodic maintenance dredging operations. All

commercial deep draft vessels calling on the Port pick up a bar pilot at the offshore sea buoy before entering the San Francisco Bay.

3.9 Utilities and Infrastructure

3.9.1 Water Supply

Water service providers in the Stockton metropolitan area include the Stockton Municipal Utilities Department and the California Water Service (City 2018a). Approximately 22% of the City's water supply originates from groundwater wells, with the remaining water supply from treated surface water supplied by the Stockton East Water District (Cal Water 2016). The Delta Water Supply Project was completed in 2012 to provide the City with a reliable water supply to meet both current and future water needs (City 2020). California Water Service provides domestic water in the area. Non-potable water obtained directly from the San Joaquin River is used for most non-domestic Port development needs.

3.9.2 Wastewater

The Stockton Regional Wastewater Control Facility (located just off SR 4 on both sides of the San Joaquin River) provides secondary and tertiary treatment of municipal wastewater throughout the City. The Stockton Regional Wastewater Control Facility is a tertiary treatment facility that handles 55 million gallons per day. The facility serves the City and outlying San Joaquin County areas and currently processes an average of 33 million gallons per day (City 2019).

3.9.3 Solid Waste

Solid waste within the City and Port is transported and disposed of primarily in the privately owned Forward Landfill and the San Joaquin County-owned Foothill Sanitary Landfill and North County Landfill & Recycling Center. The City's *Envision Stockton 2040 General Plan Update and Utility Master Plan Supplements Draft Environmental Impact Report* indicates that all three landfills have sufficient capacity to serve the region's needs (City 2018b). The most recently reported remaining capacity and acceptable waste types for these facilities are listed in Table 8.

3.9.4 Electricity and Gas

The Pacific Gas and Electric Company services the Port with overhead electrical distribution lines and underground gas transmission lines.

3.10 Visual Resources

The Proposed Action area is located within the City's urban core, which is characterized by a mix of heavy industrial uses with limited landscape features, older residential neighborhoods, neighborhood commercial shopping centers, and a variety of other commercial and industrial parcels. In most of the areas surrounding the Proposed Action footprint, the Port leases property for a variety of industrial uses characterized by storage tanks, railroad facilities, large storage buildings, and stockpiles of various commodities. A residential area, the Boggs Tract neighborhood, is located north and east of portions of the proposed rail improvements. Regional land uses that affect the visual character include residential infill, agricultural lands, industrial and commercial facilities, and the San Joaquin River (serving industrial, recreational, and natural uses).

The visual landscape of both the East Complex and the West Complex includes largely industrial facilities, roads and railways, and barren parcels planned for development (Photographs 13 through 15). The areas adjacent to the proposed rail bridge include industrial buildings, existing railways, storage tanks, a vehicle parking lot, paved areas, barren land, a retention basin constructed by the Fyffe Avenue Grade Separation project, and the San Joaquin River. The proposed rail bridge site includes an approximately 15-foot-high levee adjacent to each side of the San Joaquin River (Photograph 15). Because the study area is primarily developed with industrial infrastructure, few natural features exist that would qualify as a scenic view or resource (SJCOG 2014). Vegetation is mostly limited to ornamental native and non-native trees and ruderal grasses, shrubs, and other groundcover.

Views throughout the Proposed Action area are largely obscured by industrial developments, rail lines, and railcars. The proposed rail bridge is visible to vehicles traveling on Navy Drive and to employees or visitors to adjacent facilities. The nearest residential area to the Proposed Action area, the Boggs Tract neighborhood, is located approximately 1 mile east of the proposed rail bridge, approximately 300 feet east of portions of the LLDT work between the 700 Yard and the Port Yard, approximately 100 feet north of the LLDT work in the BNSF right-of-way, and approximately 130 feet north of the rail underpass at Fresno Avenue. Residences along the north side of West Scotts Avenue are closest to portions of the Proposed Action area. The closest neighborhood to the proposed rail bridge is approximately 0.5 mile to the north, across the San Joaquin River.

3.11 Land Use

The City's 2040 General Plan (City 2018a) designates the Proposed Action area for the operation of Port facilities; the East Complex is designated as Industrial, and the West Complex is designated as Institutional. The zoning designation of the Proposed Action area and the surrounding area is primarily "Port," but includes limited areas that are zoned as General Industrial, Low-Density Residential, and undesignated zoning along the BNSF right-of-way (City 2021). The Port zoning district is consistent with the industrial land use designation of the General Plan. There are no residential uses within the Proposed Action area. However, the closest residential area, the Boggs Tract neighborhood, is located approximately 1 mile east of the proposed rail bridge, approximately 300 feet east of portions of the LLDT work between the 700 Yard and the Port Yard, approximately 100 feet north of the LLDT work in the BNSF right-of-way, and approximately 130 feet north of the rail underpass at Fresno Avenue; residences along the north side of West Scotts Avenue are the closest to portions of the Proposed Action. The Proposed Action would not require a conversion of land funded by the Land and Water Conservation Fund Act Land of 1964, which establishes a funding source for the acquisition or development of land to create new outdoor recreation opportunities.

3.12 Environmental Justice

Environmental justice is defined by the USEPA as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (USEPA 1998). This EA discusses environmental justice relative to minority populations and low-income populations. The environmental justice study area includes potentially affected populations residing within 0.5 mile of the Proposed Action footprint. This area was chosen because it captures any populations that would be most likely to be impacted by construction or operation of the Proposed Action.

Four census tracts and eight block groups intersect the 0.5-mile study area surrounding the Proposed Action footprint (see Table 9 and Figure 10). Census tracts are subdivisions of a county that average about 4,000 people. Block groups are subdivisions of a census tract that generally include 600 to 3,000 people (block groups are the primary geographic unit used in this assessment because they are the smallest area for which detailed population data are reported by the U.S. Census Bureau). Several of the census tracts and block groups that overlap the study area are large in area, because no people live within the Port and very few people live in the areas to the south and west of the Port's West Complex. Although the study area may only include portions of some of the intersecting block groups, population characteristics of each of the block groups in their entirety are included in the analysis because of difficulty subdividing block group data and because block groups can be indicative of the populations present in or using portions of the study area.

3.12.1 Minority Populations

This section identifies minority populations (defined in this EA as all people who list their racial status as a race other than white alone or list their ethnicity as Hispanic or Latino) in census block groups intersecting the study area. Race and ethnicity characteristics were compiled from the ACS 2015 to 2019 5-year estimates for block groups that intersect the study area (ACS 2019; Table 10). The same information was compiled for San Joaquin County and California for comparison and context. For this analysis, a block group is considered to have a minority population if the total minority percentage within the block group is 10% greater than the minority percentage of San Joaquin County.[1] San Joaquin County's minority percentage is 68%; thus, the threshold for a minority population in a block group is 74.8%. Table 10 depicts the minority percentages in block groups that intersect the study area and identifies block groups with minority populations above the threshold. Six of the eight block groups in the study area are considered to have minority populations relative to San Joaquin County (Figure 10).

3.12.2 Low-Income Populations

Low income is defined as 200% or less of the poverty level for the purposed of this EA. The 2019 federal poverty level for a four-person household was $25,750 (ASPE 2019). Numbers of low-income people were compiled from the U.S. Census Bureau's 2015 to 2019 ACS 5-year estimates for block groups that intersect the study area (ACS 2019), as well as for San Joaquin County and California for comparison and context (Table 11). From analysis of the 2015 to 2019 ACS 5-year estimates, the population of a block group is considered a "low-income population" if the percentage of people living at or below twice the poverty level is greater than the percentage for San Joaquin County.[2] San Joaquin County's low-income percentage is 36%; thus, the threshold for a low-income population in a block group intersecting the study area is 36%. Of the eight block groups considered, seven have a low-income percentage above this threshold, as shown in Table 11 and Figure 10.

3.12.3 Disproportionately Burdened Communities

This analysis also reviewed the California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0, which identifies California communities that are disproportionately burdened by

[1] The 10% threshold was determined based on review of the *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG 2016).

[2] The threshold was determined based on review of the *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG 2016).

multiple sources of pollution (California Office of Environmental Health Hazard Assessment 2021). CalEnviroScreen 4.0 analyzes data from 21 indicators of environmental, public health, and socioeconomic conditions. These indicators range from air and drinking water contaminants to pesticide use, toxic releases, cleanup sites, low birth weight infants, poverty, and unemployment. Table 12 outlines the overall percentiles for each of the census tracts within the study area. In general, the census tracts within the study area have greater levels of disproportionately burdened communities compared to other census tracts in California.

4 Environmental Consequences

Potential impacts presented in this chapter are generally described in terms of duration, intensity, and type:

- Duration describes the length of time that an impact would occur, either short- or long-term. Short-term impacts are those caused by construction activities or short-term changes in operations, after which impacted resources would return to or resume their previous conditions. Long-term impacts would last well beyond the construction period or the operational change, and impacted resources may not resume their previous condition.
- Intensity describes the degree, level, or strength of an impact. Intensity levels can be categorized as follows: No impact: The impact would occur below the lowest levels of detection; Minor: The impact would be slight, but apparent; or Significant: The impact would be substantial.
- Impact types can be either beneficial or adverse. A beneficial impact would be a positive change in the condition of the resource or a change that would move a resource toward a desired condition. An adverse impact would be a change that would move the resource away from a desired condition or would detract from its condition.

As noted in Section 1, this EA evaluates the environmental effects of USCG's issuance of a Bridge Permit that would result in removal and replacement of the Port's functionally obsolete rail swing bridge over the San Joaquin River as the federal action, as well as the related construction of a new lead track to increase the overall efficiency of train operations within the Port. While the federal action is restricted to USCG's approval of the bridge removal and replacement, this EA conservatively evaluates all construction and operations of the entire Rail Bridge Replacement and Rail Improvement Project.

4.1 Biological Resources

Potential impacts on special-status and common species and migratory fish and wildlife species were qualitatively evaluated based on the habitat preferences for various species known or suspected to be in the Proposed Action area, as well as the quantity and quality of existing habitat. Potential impacts were analyzed using recent data on the potential for these species to inhabit the study area, local observations, and professional expertise and judgment. Potential impacts on sensitive natural communities or habitats were evaluated by overlaying the Proposed Action construction and operational footprint on mapped designated communities or habitats. Potential impacts to jurisdictional waters and wetlands were quantified using the identification of these features during the March 23, 2021, site visit (Anchor QEA 2021) and GIS overlays of the Proposed Action footprint.

An impact to biological resources was considered significant in any of the following circumstances: if the population of a threatened, endangered, or candidate species is directly affected or its habitat lost or disturbed; if there is a net loss in value of a sensitive natural communities or habitats; and/or if there is a substantial loss (detectable over natural variability over a period of 5 years or longer) in the population or habitat of any wildlife or vegetation.

To distinguish between an insignificant and significant effect on a listed species or critical habitat, one key factor is whether the action is significant enough to result in a take. Take, as defined by the ESA, includes such activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct (ESA Section 3 [19], 1973). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering; harass is further defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3, 1973).

4.1.1 Impacts of the Proposed Action

4.1.1.1 Special-Status and Common Species

As described in Section 3.1, the upland portion of the Proposed Action area and surrounding areas are heavily urban or industrial and provide only marginal habitats or habitat features suitable for terrestrial special-status and common species. Mature trees in the Proposed Action area may provide suitable nesting habitat for Swainson's hawk, white-tailed kite, BGEPA and MBTA-protected bird species, or possibly bats and other common bird species, particularly in the area of the inactive golf course and the detention basin with planted cottonwoods northwest of the Crosstown Freeway overpass. Ground-nesting birds protected by the MBTA (including swallows) may also be present within or near the immediate construction footprint, particularly in disturbed but barren areas such as within the inactive golf course, within the undeveloped field south of McCloy Avenue, at the proposed rail bridge replacement area banks and adjoining undeveloped areas, within barren parcels adjacent to the LLDT improvements between the 700 Yard and the Port Yard, and within the maintained urban forest and cottonwood vegetated depression near the Crosstown Freeway overpass. Undeveloped areas within and near the proposed rail alignment may also provide foraging habitat for special-status and common bird species. Riverbank areas next to the proposed rail bridge replacement area may provide suitable basking habitat to the aquatic western pond turtle and various species of common amphibians, fish, and mammals. Elderberry bushes, including those observed at the proposed rail bridge replacement area, may provide habitat to VELB. As noted, terrestrial habitat within the Proposed Action footprint is generally of lower quality than surrounding areas (e.g., compared to agricultural fields south and west of the West Complex) due to Port and urban developments and activities.

Construction could directly or indirectly affect bird nesting, bird foraging, bat roosting, VELB, or western pond turtles. If present, nesting birds could be directly impacted by tree removal. Ground-nesting birds or western pond turtle could also be directly impacted (e.g., trampled or otherwise injured) if present within the immediate improvement or construction area. VELB could be directly impacted by elderberry shrub removal, if present. Removal of the bridge could reduce roosting areas for bats if present in the area. Potential indirect impacts from noise, vibration, or other temporary

construction effects include disturbance of tree nests, ground nests, or western pond turtle, if present.

The Proposed Action is unlikely to result in significant long-term adverse impacts to terrestrial or amphibious special-status and common species or their habitats. Permanent habitat loss would be marginal and limited to low-habitat-value areas next to existing, active rail lines within the industrialized Port area. Loss of trees would be minimal and likely confined to medium-sized (approximately 25 feet or less) ornamental species within the immediate alignment, such as the row of ash, cedar, and cork oaks along McCloy Avenue. Any loss of elderberry bushes suitable for VELB would be minimal and likely limited to the individual shrubs observed on the proposed rail bridge replacement area levees. Loss of levee habitat suitable for western pond turtle basking would be nominal and limited to the proposed bridge abutments and associated excavation—and there would be an environmental benefit from removal of existing creosote-treated piles and reduction in risk by removing the existing, aged rail swing bridge.

- **MM-BIO-1: Obtain Coverage under the SJMSCP or Conduct Nesting Bird Surveys; Bat Surveys and Avoidance Measures; Elderberry Surveys, Setbacks, and Compensation; and Western Pond Turtle Buffer Establishment.** To avoid impacts on potentially present special-status species, the Proposed Action will apply to obtain coverage under the *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)* (SJCOG 2000), a voluntary program that allows for participants to be issued streamlined ESA and CESA approvals (Incidental Take Permits) and to mitigate for impacts to certain special-status species. The Port will submit an application for coverage to the SJCOG (the agency that administers the SJMSCP) within 60 days of construction. SJCOG will review the Proposed Action, prepare a staff report, and submit the report to the SJMSCP Habitat Technical Advisory Committee, which determines whether the Proposed Action will be covered under the SJMSCP. Assuming the Proposed Action is approved for coverage, a SJCOG biologist will conduct a site visit to determine which incidental take minimization measures (ITMMs) included in the SJMSCP are applicable to the Proposed Action. SJCOG will then execute a final summary of applicable ITMMs. ITMMs will include surveys, monitoring, and applying temporary construction buffers, if determined appropriate by SJCOG. The Port will implement all required ITMMs identified by the SJCOG. Ground disturbance will not occur until the ITMMs have been satisfied.

  If the Proposed Action is not able to obtain coverage under the SJMSCP, the Port will implement the following avoidance and minimization measures specific to nesting birds (including swallows), bats, VELB, and western pond turtle:

  - For nesting birds, alternatives to SJMSCP coverage include surveys and avoidance measures consistent with CDFW's standard requirements. If equipment staging, site preparation, or other construction work is scheduled to occur between February 1 and September 15—the nesting season of protected raptors and other avian species—a CDFW-approved biologist will conduct a pre-construction survey of the Proposed Action area for active nests within 7 days prior to starting construction. The minimum survey area will be 250 feet for passerines, 500 feet for small raptors, and 1,000 feet for larger raptors. Surveys will be conducted during periods of peak activity (early morning or dusk) and will be of sufficient duration to observe movement patterns. If a lapse in work of 15 days or longer occurs, another survey will be performed before construction is re-

initiated. If any active bird nests are found, a buffer around the nest will be established by the biologist in coordination with CDFW. The buffer area will be fenced off from work activities and avoided until the young have fledged, as determined by the biologist. The biologist will monitor the active nest until the young have fledged, for at least 2 hours per day when construction activities are occurring to observe the behavior of the nesting birds. If the birds show signs of disruption to nesting activities (e.g., defensive flights or vocalizations directed toward contractor personnel, standing up from a brooding position, or flying away from the nest), the buffers will be expanded by the biologist until no further interruptions to nesting behavior are detectable.

- For swallows, alternatives to SJMSCP coverage include avoidance measures consistent with CDFW's standard requirements. Before nesting swallow season (February 1 to September 30), the Port, in consultation with CDFW, will install exclusionary devices on existing bridge structures to prevent the establishment of swallow nests within the footprint of the Proposed Action area. Exclusionary devices will be limited to solid materials and will not contain monofilament netting or similar material. Exclusionary devices will be inspected weekly while in place to ensure they are in good condition and functioning properly. During inspection, if exclusionary devices need repair, the Port will make repairs immediately upon discovery. Project activities will not be initiated or conducted if an active swallow nest is detected on site. The qualified biologist will conduct a survey of the bridges no more than 5 days prior to construction activity to ensure that no active nests are present. If any active nests are found, the qualified biologist will establish an appropriate buffer to comply with the Migratory Treaty Act of 1918 and Fish and Game Code 3503. The qualified biologist will increase the buffer if nesting birds show signs of unusual or stressed behavior as a result of project activities. The qualified biologist will have the authority to stop project work activities near the nesting birds if the nesting birds exhibit abnormal behavior, which may cause nest abandonment or the loss of eggs and/or young, until an appropriate buffer is established. To avoid encroachment, the buffers will be clearly marked for avoidance and remain in effect until the young have fledged or until the nest has been abandoned as confirmed by the qualified biologist.
- For bats, alternatives to SJMSCP coverage include surveys and avoidance measures consistent with CDFW's standard requirements. A qualified bat biologist will conduct daytime and evening acoustic surveys for bats within 14 days prior to beginning project construction or work at or within 50 feet of the bridges. If bats are identified on site, the qualified biologist will identify the species, estimated quantity present, roost type, and roost status, but will avoid disturbing bats during surveys. If foraging bats, active roosts, or other signs of bat activity (i.e., guano, urine staining) are identified on site, the qualified bat biologist will flag or mark all roosts and actively used features for avoidance. If complete avoidance is not possible (i.e., roosts within the bridge structures), then the qualified bat biologist will develop a Bat Mitigation and Monitoring Plan in consultation with CDFW. The Bat Mitigation and Monitoring Plan will include an assessment of all anticipated impacts to bats, including noise disturbance during construction, effective avoidance and minimization measures to protect bats, and

compensatory mitigation for permanent impacts to bats or their nesting or roosting habitat. Construction will commence only after the Bat Mitigation and Monitoring Plan is implemented.

- For VELB, alternatives to SJMSCP coverage include the following for areas with elderberry bushes identified in pre-construction surveys:
  - If elderberry shrubs are present in the Proposed Action area, a setback of 20 feet from the dripline of each elderberry bush will be established.
  - Brightly colored flags or fencing will be placed surrounding elderberry shrubs throughout the construction process.
  - For all shrubs without evidence of VELB exit holes that cannot be retained as described in the previous two bullets, the Port will count all stems of 1 inch or greater diameter at ground level during pre-construction surveys. Compensation for removal of these stems will be provided by the Port in coordination with USFWS and CDFW.
  - For all shrubs with evidence of VELB exit holes, the Port would undertake transplanting of elderberry shrubs displaying evidence of VELB occupation to VELB mitigation sites during the dormant period for elderberry shrubs (November 1 to February 15). For elderberry shrubs displaying evidence of VELB occupation that cannot be transplanted, compensation for removal of shrubs will be provided by the Port in coordination with USFWS and CDFW.
- For western pond turtle, alternatives to SJMSCP coverage will include establishing a 300-foot buffer area between any nesting turtle sites and the wetland located near the nesting site. These buffers will be indicated by temporary fencing if construction has or will begin before nesting periods are ended (the period from egg laying to emergence of hatchlings is normally April to November).

Implementation of mitigation measure MM-BIO-1 would reduce the potential exposure of special-status and common species to construction impacts to the extent feasible through completing surveys (MM-BIO-1) and establishing buffer zones (MM-BIO-1). With mitigation, the Proposed Action would result in short-term, minor, adverse impacts on terrestrial special-status and common species.

The proposed rail bridge replacement location may provide habitat to special-status and common fish species, including southern DPS green sturgeon, delta smelt, Central Valley spring-run evolutionarily significant unit Chinook salmon, Central Valley DPS steelhead, and longfin smelt. The Proposed Action area additionally includes designated critical habitat for southern DPS green sturgeon, delta smelt, and Central Valley DPS steelhead, and EFH for the Pacific Coast salmon and Pacific groundfish FMPs. However, the Proposed Action area does not include any spawning habitat for these species or species associated with these FMPs, and their presence in the area would likely be transitory.

Pile removal, pile driving, and associated excavation may temporarily disturb benthic sediments and increase turbidity and suspended sediment levels in the immediate vicinity of the construction footprint. Turbidity resulting from construction may affect marine organisms and aquatic wildlife during various life stages by affecting respiration (clogging gills), reducing visibility and the ability to forage or avoid predators, and altering movement patterns (due to avoidance of turbid waters). Suspended sediments have been shown to affect fish behavior, including avoidance responses,

territoriality, feeding, and homing behavior. Generally, bottom-dwelling fish species are more tolerant of suspended solids, and filter feeder fish species are more sensitive. Motile organisms can generally avoid unsuitable conditions in the field.

Increases in turbidity and suspended sediment levels from construction would be substantially less significant than similar effects from regular USACE and Port maintenance dredging in the vicinity. The USACE Waterways Experiment Station Technical Report DS-78-5, *Effects of Dredging and Disposal on Aquatic Organisms*, states that: "Most organisms tested are very resistant to the effects of sediment suspensions in the water, and aside from natural systems requiring clear water such as coral reefs and some aquatic plant beds, dredging induced turbidity is not a major ecological concern" (Hirsch et al. 1978). Proposed turbidity and suspended sediment effects to fish from pile driving or other bottom-disturbing activities are expected to be less than the minor effects from regular USACE and Port maintenance dredging in the vicinity.

Pile driving or other channel-disturbing activities have the potential to release sediment-associated metals and other pollutants by dispersion within the resulting sediment plume. Water quality monitoring and elutriate toxicity testing results from past Port maintenance dredging sediment characterization efforts on the main body of the San Joaquin River have not indicated toxicity concerns (ERS 2012, 2013; Anchor QEA 2017) for sediments in the vicinity of the Proposed Action area. Therefore, impacts to fish from uptake of pollutants in disturbed sediment are not anticipated.

Construction has the potential to result in accidental spills if improperly managed. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be introduced into the system either directly or through surface runoff. Contaminants may be toxic to fish or cause altered oxygen diffusion rates and acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival.

Underwater noise from construction, particularly from pile installation, has the potential to adversely affect fish that could be present. This may include mortality, injury, or behavioral impacts if fish are present in proximity to the pile-driving source. The area within which fish have the potential for physical injury associated with increased sound pressure levels during pile driving would be confined by the narrow channel and meandering channel geometry (sound wave propagation stops when the shoreline is encountered); this area of the river would likely be relatively small in comparison to the size of the San Joaquin River.

In-water construction for the Proposed Action, primarily pile driving, may temporarily impede localized movement or migration of special-status and common fish (if present) within the San Joaquin River. Passage within the portion of the San Joaquin River overlapping with the Stockton DWSC and Burns Cutoff would remain unaffected, and fish would remain able to move upstream and downstream along migration corridors. Nominal effects on localized fish movement would also occur if cofferdams are required, but these effects would be confined to the small area of pile removal or installation.

Benthic habitat can provide important foraging areas for special-status and common species, especially for steelhead, Chinook salmon, green sturgeon, and longfin smelt, which forage in the benthos. Because delta smelt feed in the water column, benthic habitat is less important for this species. During construction, benthic habitat would be largely unavailable for fish foraging. Following sediment-disturbing activities such as pile driving, disturbed areas are usually recolonized quickly by benthic organisms (Newell et al. 1998). Some permanent loss of benthic habitat would also result from installation of piles (estimated maximum of 413 square feet). Recent examination of benthic

invertebrate communities in the Stockton and Sacramento DWSCs shows strong dominance of Asian clams (*Corbicula fluminea*; USACE 2015), which are a less-favorable prey species. Additionally, the benthic environment in the Proposed Action area has been severely impacted by historic Port and military operations, USACE operations, maintenance dredging of the Stockton DWSC, and urban development throughout the City. Affected benthic habitat is therefore unlikely to offer high-quality foraging opportunities to special-status and common species.

Although minor loss of low-quality benthic habitat would occur, it is anticipated that the additional encrusting habitat provided by the proposed piles would offset any loss of foraging opportunities. Minor shading increases may have a net benefit by allowing fish to thermoregulate in the absence of canopy vegetation. The Proposed Action would also remove existing creosote-treated piles, which would provide an environmental benefit.

The following mitigation measures would be implemented during construction to reduce potential impacts on aquatic special-status and common species:

- **MM-BIO-2: Obtain and Implement NPDES Construction Stormwater General Permit.** A NPDES Construction Stormwater General Permit will be obtained for the Proposed Action, which will require the development of a construction Stormwater Pollution Prevention Plan (SWPPP). The construction SWPPP will include best management practices including or similar to use of barriers (e.g., netting or sandbags) to prevent pollutants from entering the water, equipment inspection for spills, and maintenance and implementation of material spill prevention and cleanup plans. The construction SWPPP will ensure that contaminants are not accidentally introduced into the waterway.
- **MM-BIO-3: Conduct In-Water Construction During Established Window.** All in-water work will be conducted during the annual CDFW-, NMFS-, and USFWS-approved work window, which is expected to span from July 1 to November 30.
- **MM-BIO-4: Employ Soft-Start Techniques, Use Noise Attenuation Device, and Conduct Underwater Noise Monitoring During Impact Pile Driving**. During construction, the Port will implement soft-start techniques for impact pile driving, which is industry standard and will be required per regulatory permits. Soft-start techniques include bringing pile driving or other loud equipment online slowly, providing any fish that are potentially present with the opportunity to disperse from the Proposed Action area. The Port will also employ a bubble curtain or similar noise attenuation methodology during all impact hammer use. To verify that conditions meet the assumptions used in the analysis, the Port will prepare an underwater noise monitoring plan, obtain agency approval of the plan, and conduct noise monitoring during impact hammer use.
- **MM-BIO-5: Compliance with Permitting Requirements for In-Water or Riparian Habitat Work.** For work with the potential to affect jurisdictional waters and wetlands, the Port will conduct a delineation of wetlands and waters and will comply with permitting requirements from USACE, RWQCB, and CDFW to avoid and minimize impacts to jurisdictional waters and riparian habitats. For any unavoidable impacts, compensation for impacts to jurisdictional waters will be provided at agency-approved mitigation ratios, including compensation for permanent fill (1:1 ratio) and compensation for temporary impacts to fish habitat through purchasing aquatic habitat credits at the Shin Kee Mitigation Bank (anticipated to be between 0.3 and 0.6 acre-credit), which is expected to start selling habitat and wetland

credits in 2022/2023. Work occurring in stream-dependent riparian habitats will also occur in compliance with permitting requirements from CDFW. The Port will implement erosion control measures, design staging and refueling areas, and require equipment inspections and maintenance to avoid impacts on riparian areas.

Mitigation measures MM-BIO-2 and MM-BIO-5 would reduce the potential for pollutant inputs to the waterbody that could adversely impact special-status and common aquatic species. Mitigation measures MM-BIO-3 and MM-BIO-4 would reduce the potential exposure of special-status and common aquatic species to construction impacts, as described in the following paragraphs.

For construction during the established in-water construction window (MM-BIO-3), delta smelt and longfin smelt are not anticipated to be present in the Proposed Action area and would therefore not be affected by impact pile driving noise during this period. Salmonids are similarly unlikely to be present during the construction window. Although some steelhead may migrate early, their likelihood of occurring in the Proposed Action area during the in-water construction window remains very low and would be confined to the latter portion of the construction window. There is a small potential for green sturgeon to be present in the Proposed Action area during and outside the construction window, and there is very low risk for green sturgeon injury from pile driving.

For the in-water pile types anticipated for the Proposed Action, use of an impact hammer for installation of up to six 72-inch-diameter steel piles would generate the highest potential levels of underwater noise. It is possible that smaller-sized piles could be used instead of the 72-inch-diameter steel piles; this will be confirmed as the Proposed Action design advances. Use of an impact hammer for pile installation, rather than vibratory installation, may be required to avoid potential structural impacts to the adjacent existing rail swing bridge (which must remain in operation during construction of the replacement bridge) that could occur from vibratory installation of 72-inch piles.

Vibratory installation of these large piles would require a specialized large hammer, which could cause concerning levels of vibration that could impact the adjacent bridge. Other piles to be installed would be of smaller diameter and installed with a standard vibratory hammer (with potential for limited amounts of impact proofing) or installed in the dry. Up to one pile would be installed every 4 days, with pile driving only during daylight hours (a maximum of 12 hours a day), over a work duration of approximately 24 days. The most significant underwater noise impacts would therefore be limited to this brief approximately 24-day duration, with potential for limited additional periods of impact proofing for smaller piles. During the remaining periods of construction, pile driving would consist of vibratory pile driving for which there is no established injury criteria for fish (Caltrans 2020). Conservative estimates of underwater noise for the largest potential piles for the Proposed Action using sound attenuation (MM-BIO-4) are provided in Table 13. The distance at which underwater noise would attenuate to threshold levels for fish is provided in Table 14. These calculations are based on conservative assumptions for impact pile driving using the best available data from a similar project in the Caltrans Compendium and calculated using the NMFS Pile Driving Acoustic Impacts Worksheet (Caltrans 2020).

As shown in Table 14, the peak sound threshold, representing potential instantaneous fish injury, would not be exceeded at 10 meters up- or downstream from the pile driving location. The cumulative sound exposure level (cSEL) metric, which represents potential fish injury due to accumulative effects of noise, may be exceeded within 214 meters of the activity (green sturgeon in the Proposed Action area would be adults and thus greater than 2 grams). The Port recognizes that

CDFW considers compensatory mitigation to be required for projects that have the potential to exceed this threshold and would therefore purchase fish habitat credits to offset this temporary impact (as detailed in MM-BIO-5) in accordance with a range of recent mitigation proposals that have been coordinated with CDFW. However, it is also important to consider the effects of cumulative underwater noise exposures related to mortality, physiology, and behavior, including the effects of exposure to multiple impacts from pile driving and strike intermittency. One issue in this regard is whether exposure to a very frequent sequence of high-level underwater sound pressure has a different effect than exposure to a sequence that allows some "recovery" time for fish (Caltrans 2020). During impact driving, the strike duration would be greater than during typical impact driving (e.g., one strike every few seconds, compared to several per second). The estimated 1,250 strikes per day for the Proposed Action would not occur in rapid succession, but in small periods of activity throughout a full day of construction. This allows for fish recovery time between strikes and allows more time for fishes to respond behaviorally to underwater noise.

Another aspect of cumulative exposure that needs consideration is the potential effect on a fish that is exposed to pile driving and then exposed again to pile driving sound pressure several hours, days, or weeks later. Fish are typically not stationary; therefore, they would be expected to move in and out of the Proposed Action area. Green sturgeon are extremely rare in the Proposed Action area and unlikely to be present. If present and subject to increased underwater noise once, it is unlikely that they would return within hours, days, or even weeks during the same construction activity. However, the current NMFS impact assessment method, which is implemented with the NMFS calculator tool, assumes that fish are stationary throughout any pile-driving activities and that fish do not transit through the Proposed Action area or even move to different locations within the threshold zones. This results in an overestimate of the potential impact to migratory fishes when considering the cSEL metric. Though specific research has not been conducted for green sturgeon, peer-reviewed research for pallid sturgeon (*Scaphirhynchus albus*), lake sturgeon (*Acipenser fulvescens*), shortnose sturgeon (*A. brevirostrum*), and Atlantic sturgeon (*A. oxyrinchus*), all within the same genus or family as green sturgeon and with similar physiologies, suggests that fishes in the sturgeon family do not accumulate physiological injury that could result in mortality at a cSEL of 208 dB, and that sturgeon are likely to avoid impact pile driving and would not remain in an area long enough to experience physiological effects. This provides empirical evidence that the cSEL metric of 187 dB is not a scientifically supported criterion for assessing the potential for pile-driving noise to impact sturgeon, and in fact, sturgeon are not likely to accumulate injury from cumulative exposure until a cSEL of 207 dB is reached (Halvorsen et al. 2012; Jacobs et al. 2016; Krebs et al. 2016; Popper et al. 2016). Furthermore, green sturgeon have a physostomous (open) swim bladder that has been empirically shown to result in fewer effects from noise exposure than other fishes with a physoclistous (closed) swim bladder, suggesting that the cSEL criterion is again overly conservative when applied to sturgeon (Halvorsen et al. 2012).

Though green sturgeon may be present in the Proposed Action area within the area that injury could theoretically occur due to cumulative exposure to underwater sound above the 187 dB cSEL regulatory threshold, the threshold for sturgeon is overly conservative and not scientifically supported. It is also extremely unlikely that sturgeon would remain in the Proposed Action area throughout a full period of impact pile driving because sturgeon typically behaviorally respond to pile driving by exiting the area. Other NMFS regions acknowledge migration and ongoing movement by fish and therefore do not use the cSEL criteria in consultations outside of California, Oregon, and Washington. The best available science regarding sturgeon physiological response to underwater

noise and behavioral response to pile driving suggest that the cSEL metric is overly conservative. A reasonable worst-case scenario of impact pile driving for the Proposed Action would not cause negative impacts, injury, or mortality to green sturgeon.

The use of soft-start techniques, use of noise attenuation devices, and conducting noise monitoring during all impact pile driving (MM-BIO-4) would further reduce the potential for fish to be present and subject to physical injury within the relatively small area of construction impacts anticipated for the Proposed Action.

As part of the Proposed Action, creosote-treated piles would be removed from the San Joaquin River, which is designated under the ESA as critical habitat for green sturgeon (southern DPS), delta smelt, and steelhead (Central Valley DPS). Critical habitat is made up of physical and biological features (PBFs), which are also termed primary constituent elements and are essential for the conservation of the species. Additional relevant information on these PBFs is as follows:

- Specific to green sturgeon critical habitat, NMFS designated seven unoccupied areas (per Section 3(5)(A)(ii) of the ESA) that may be essential for the conservation of the species (NMFS 2009a). Reaches on the San Joaquin River, including the Proposed Action area around the rail swing bridge, are considered unoccupied by green sturgeon, but were designated anyway because they may contribute to the future viability and spatial distribution of the species. In freshwater riverine areas, the PBFs are food resources, substrate type or size, water flow, water quality, migratory corridors, water depth, and sediment quality. The water quality and sediment quality PBFs stipulate water with "acceptably low levels of contaminants […] that may disrupt normal development" and sediments "free of elevated levels of contaminants (e.g., elevated levels of selenium, PAHs, and organochlorine pesticides) that can result in adverse effects on any life stages" of the species (NMFS 2009b). NMFS describes how bioaccumulation of contaminants from feeding on benthic species is a concern for the growth, reproductive development, and reproductive success of green sturgeon, and how exposure to contaminants in the water column may result in reduced egg size and abnormal gonadal development (NMFS 2009b).
- For delta smelt, PBFs include water of suitable quality and depth to support survival and reproduction (e.g., temperature, turbidity, lack of contaminants; 59 Federal Register 65256, "Endangered and Threatened Wildlife and Plants; Critical Habitat Determination for the Delta Smelt"). The Recovery Plan for the Sacramento-San Joaquin Native Fishes (USFWS 1996) notes that contaminants are a major concern for native fishes and toxic substances are the fifth most important factor in the decline of delta smelt.
- For steelhead, PBFs include migratory corridors with water quality conditions that support adult and juvenile survival, rearing sites with water quality and forage opportunities that support juvenile development, and natural cover such as shade (NMFS 2014). The Recovery Plan (NMFS 2014) for steelhead also describes contaminants as a concern for fish populations in the region.

Creosote-treated piles may leach chemicals into the sediments and water column throughout the time they are in the water. These piles are a source of contamination, particularly polycyclic aromatic hydrocarbons (PAHs), in aquatic environments and contribute to issues such as mortality, developmental abnormalities, and bioaccumulation of contaminants in fishes. Removal of 235 in-

water creosote-treated piles as a part of the Proposed Action represents a functional lift of the sediment quality and a permanent increase in the quality of the designated critical habitats in the Proposed Action area.

With implementation of mitigation measures MM-BIO-2 through MM-BIO-5, the Proposed Action would result in both short-term, minor, adverse impacts and short-term, minor, beneficial impacts on special-status and common aquatic species.

4.1.1.2 Sensitive Natural Communities

The Proposed Action includes construction on the San Joaquin River levees to construct the proposed rail bridge replacement. This area contains sparse coverage of riparian vegetation including elderberry, tobacco tree, cottonwoods, Siberian elm, and Himalayan blackberry. Some vegetation removal would likely occur incidental to construction of the proposed crossing including excavation of the levee to accommodate the replacement bridge abutments.

The Proposed Action would occur within areas designated as critical habitat for southern DPS green sturgeon, delta smelt, and Central Valley DPS steelhead and within EFH for the Pacific Coast salmon and Pacific Coast Groundfish FMPs. Permanent habitat impacts would be limited to negligible loss of low-quality benthic habitat and minor increase in shading. Temporary impacts would be minimal, including those related to water quality impacts, underwater noise, impediment of localized movement, loss of benthic habitat, and increased vessel traffic.

The Proposed Action would result in adverse impacts to riparian habitat from construction of the proposed rail bridge replacement, and potential adverse impacts to critical habitat or EFH for aquatic species during project construction. Adverse construction impacts to aquatic habitat could occur from pile driving (noise impacts, turbidity increases, benthic habitat loss, localized movement impacts) and potential pollutant inputs from construction.

Mitigation measures MM-BIO-2, MM-BIO-3, MM-BIO-4, and MM-BIO-5 would be implemented to reduce potential impacts. Implementing MM-BIO-2 and MM-BIO-5 would reduce the potential for pollutant inputs to the San Joaquin River, which could adversely impact critical habitat or EFH. MM-BIO-5 would further ensure that any potential impacts to riparian habitat are avoided. Implementing MM-BIO-3 would ensure that construction impacts occur when species associated with certain critical habitats and EFH are least likely to be present, while MM-BIO-4 would allow any species present to flee from the impact area.

With implementation of mitigation measures MM-BIO-2 through MM-BIO-5, the Proposed Action would result in short-term, minor, adverse impacts on sensitive natural communities.

4.1.1.3 Wetlands and Jurisdictional Waters

The Proposed Action would entail permanent fill and shading of the San Joaquin River, a navigable water, from construction of the proposed rail bridge replacement. Temporary impacts to the San Joaquin River would also occur during construction. Wetland vegetation was not observed on the levees adjacent to the proposed rail bridge replacement area; and therefore, impacts to wetlands would not occur in association with this proposed improvement.

The proposed rail alignment may encroach upon two potential wetland features that would likely be under RWQCB jurisdiction. This includes the detention basin with planted cottonwoods northwest of the Crosstown Freeway overpass and the topographic depression between the two existing rail lines just east of South Merced Avenue. Each of these features exhibited signs of wetland hydrology

(topography and drainage features) and potential wetland vegetation. If determined to be wetlands, they would likely qualify only as waters of the state as they lack a nexus to traditional navigable waters needed to qualify as waters of the United States. Construction next to these areas could also result in adverse impacts if improperly managed (e.g., from runoff or erosion).

Based on the analysis presented above, the Proposed Action may result in loss of potential wetlands that may be under RWQCB jurisdiction. Mitigation measures MM-BIO-2 and MM-BIO-5 would be implemented to reduce potential impacts. Implementing these measures would reduce the potential for pollutant inputs to potential wetland features. MM-BIO-5 would further ensure that any RWQCB or other agency requirements for addressing potential impacts to wetlands are implemented. With implementation of mitigation measures MM-BIO-2 and MM-BIO-5, the Proposed Action would result in long-term, minor, adverse impacts on wetlands and jurisdictional waters.

4.1.1.4 Migratory Fish and Wildlife Species

Although the Proposed Action is along the Pacific Flyway, an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coast states and provinces of North America, its developed nature and small riparian corridor along the San Joaquin River likely preclude migratory bird species from using it as a stopover during their migration.

The proposed rail bridge replacement area is not within any nursery sites for special-status and common fish species, and the Proposed Action would not substantially impede migration within the San Joaquin River or other waters. Although construction would temporarily impede localized movement of fish in the San Joaquin River, fish movement throughout the portion of the San Joaquin River that overlaps with the Stockton DWSC and Burns Cutoff would remain unimpeded.

Construction may impede localized movement of resident migratory fish. Mitigation measures MM-BIO-3, MM-BIO-4, and MM-BIO-5 would be implemented to reduce potential impacts. Implementing MM-BIO-3 would ensure that construction occurs when special-status and common fish species are least likely to be present, thereby further reducing any impacts on localized movement. Implementing MM-BIO-4 would ensure that any fish present are able to flee the area of impact in adjoining waters where movement would not be affected by construction noise. MM-BIO-5 may provide additional protections movement of wildlife. With implementation of mitigation measures MM-BIO-3 through MM-BIO-5, the Proposed Action would result in short-term, minor, adverse impacts on migratory fish and wildlife species.

4.1.1.5 Invasive Species

The Proposed Action is not anticipated to result in the spread of invasive species. Additionally, the Port has worked with a local aquatic plant harvester since 2016 to help clear invasive species and is committed to continuing these efforts. Therefore, there would be no adverse impacts on invasive species as part of the Proposed Action.

4.1.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. The existing 235 creosote-treated piles would remain in place, possibly continuing to leach chemicals (including PAHs) into the sediments and water column. Sediment quality and critical habitat quality in the Proposed Action area would remain as is. This would be considered a long-term, minor, adverse impact on biological resources.

4.2 Cultural Resources

The Proposed Action would have a significant impact if it were to result in an adverse effect on a historic property without providing mitigation as agreed upon in consultation with the SHPO and other consulting parties, as described in 36 CFR 800.5, 2004. Examples of adverse effects include physical destruction or alteration of all or part of a property, loss of a property's NRHP eligibility, removal of a property from its historical location, neglect of a property which causes its deterioration, or changing the character of the property's use or of physical features within the property's setting. The Proposed Action was reviewed under Section 106. The results are contained in a confidential report and are summarized in the following subsections.

4.2.1 Impacts of the Proposed Action

4.2.1.1 Archaeology

Precontact archaeological resources may be encountered where ground disturbance associated could occur in native sediments with archaeological potential. Historical archaeological resources could also be encountered within historic-age fill. Upland ground disturbance for the Proposed Action would be mostly at or adjacent to existing rail and would be generally less than 2 feet below the existing ground surface. This ground disturbance is expected to occur completely within existing fill, as demonstrated by geotechnical testing and landform history. Deeper ground disturbance is expected in two areas: at the installation of the replacement rail bridge (up to 15 feet below the surface) and at the location of the new rail underpass at South Fresno Avenue (up to 6 feet below the surface).

Archaeological literature and previous consultation with Tribes indicate that the margins of natural river channels have elevated archaeological potential. The bridge area is such a location. However, it has been heavily disturbed by placement of the existing bridge and previous construction of the levee, as well as buried utility installation. At the bridge upland excavation locations, geotechnical work indicates that thick fill is present over low-lying native soils that would have been seasonally inundated. Natural levee soils have been extensively disturbed or completely removed. There is little potential to encounter archaeological materials.

At the South Fresno Avenue location, soils have been extensively disturbed by the existing underpass and rail siding. South Fresno Avenue was moved to the west and the overpass was reconstructed in a new location when the Crosstown Freeway was constructed in the 1970s. The area is highly disturbed and likely heavily filled. Intact native sediments are unlikely to be encountered.

In-water ground disturbance would also occur for the proposed rail bridge construction. Any submerged archaeological site or submerged historic resource that has remained in state waters for more than 50 years is presumed to be a significant historical resource. Though there are no recorded shipwrecks or other submerged cultural resources in the Proposed Action area, the Proposed Action has some potential to encounter unrecorded submerged resources. Title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tidelands and submerged lands of California is vested in the state and under the jurisdiction of the California State Lands Commission (Public Resources Code 6313).

If archaeological materials are encountered during construction, the Proposed Action would comply with state and federal requirements regarding identification, evaluation, and mitigation of impacts to

significant archaeological sites, as well as consultation with Tribes and agencies. In this scenario, the Proposed Action would have long-term, minor, adverse impacts on archaeological resources.

4.2.1.2 Historic Resources

The Proposed Action would include demolition of the existing Port of Stockton San Joaquin River Bridge and changes to the portions of the Belt Line Railway within the NHD. Both the bridge and railway have been determined eligible for listing in the NRHP as contributing elements of the NRHP-eligible Naval Supply Annex Stockton NHD.

The removal of the bridge is considered an adverse effect to the NHD under Section 106 because it includes the complete removal of a contributing element to and diminishes the integrity of the NHD. Under Section 106, this would be considered an adverse effect to the NRHP-eligible historic district.

As a contributing element of the Naval Supply Annex Stockton NHD, the Belt Line Railway within the NHD is considered to include the railyard parallel to Fyffe Avenue on the South side, including the designated classification yard at its west end, and the rail spurs that extend to the many warehouses, transit sheds, and storage areas throughout the NHD. In 1996, the NRHP eligibility determination identified 39.95 miles of trackage as part of this contributing resource (Uribe & Associates 1996). The Proposed Action would be a change from existing conditions of the Belt Line Railway, and therefore would be considered an adverse effect to the NHD under Section 106. However, it is not expected to diminish the integrity of the historic district or result in significant changes to the setting, landscape, or other features of the NHD that contribute to its significance.

As part of the ongoing Section 106 consultation with the SHPO, USCG is developing mitigation for adverse effects resulting from the Proposed Action. With implementation of SHPO-approved mitigation, significant impacts would be avoided. The Proposed Action would result in long-term, minor, adverse impacts on historic resources.

4.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. There would be no impact on cultural or archaeological resources.

4.3 Geology and Soils

Impacts to or associated with geological and soil conditions were qualitatively evaluated based on the potential for the Proposed Action to temporarily or permanently alter the geology and soils of the area. In addition, because geological hazards such as earthquakes happen independently of the Proposed Action, the potential for damage to the infrastructure to be constructed as part of the Proposed Action or increased risks to the public or the environment due to geologic and seismic hazards were also qualitatively evaluated. An impact would be considered significant if it would cause substantial erosion or loss of soil or topsoil or expose people or elements of the built environment to increased risks or unstable geologic conditions.

4.3.1 Impacts of the Proposed Action

The Proposed Action is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. In the event of a major earthquake, San Joaquin County could experience strong ground shaking, which has the potential to damage buildings and structures. Damage to the Port rail system and associated infrastructure would be possible but unlikely in the event of a large earthquake. The

proposed rail improvements would be constructed or installed in adherence with applicable building and seismic standards. Therefore, construction and operation of the Proposed Action would not increase risks to the public or the environment in the event of an earthquake.

Most of the Proposed Action area contains flat topography and existing prepared subgrades with low potential for slope failure, landslides, or lateral spreading. The proposed rail improvements would mostly be constructed in existing developed or disturbed areas, including areas with existing subgrades that have been previously prepared for construction in connection with the original installation of rail lines and associated infrastructure. Some soils mapped as occurring in the Proposed Action area may be susceptible to liquefaction or subsidence. Fill soils potentially susceptible to subsidence are also common. Additional compaction of subgrade soils and installation of base and foundation would occur as necessary to accommodate the proposed improvements, which would reduce the susceptibility of site soils to liquefaction or other seismic stability hazards as compared to existing conditions. In addition, most of the proposed rail improvements would occur in areas with relatively flat topography, with the exception of short rail sections on elevated berms. As noted, existing elevated rail areas have been previously prepared for development and construction in these areas would occur in compliance with applicable building and seismic standards.

According to recent geotechnical investigations, liquefiable soils may be present in the area of the proposed replacement rail bridge crossing and the LLDT rail underpass at Fresno Avenue. The proposed replacement rail crossing includes levee excavation and installation of bridge abutments and other crossing infrastructure. The LLDT improvements include grading and subgrade preparation. Proposed improvements would be constructed in compliance with applicable seismic standards. The following mitigation measures would be implemented during construction to avoid levee stability impacts, identify and implement stabilization measures in the area of the proposed rail underpass at Fresno Avenue, and reduce potential impacts from liquefication hazards:

- **MM-GEO-1: Reclamation District Coordination.** The Port will coordinate with Reclamation Districts 403 and 404 prior to any levee excavation and will implement any Reclamation District recommended measures for levee failure or flood abatement and avoidance.
- **MM-GEO-2: Geotechnical Investigation and Reinforcement Measures**. The Port will perform a geotechnical investigation in the vicinity of the rail underpass at Fresno Avenue. The geotechnical investigation will identify design measures to minimize or avoid potential soil or geologic hazards including but not limited to liquefaction, which will be implemented by the Port.

The Proposed Action area is largely flat and therefore unlikely to experience substantial soil erosion during operations. Relatively steep slopes are present on levees in the proposed replacement rail bridge crossing area, and portions of the proposed rail alignment would be constructed on elevated berms. Improvements in these areas and throughout the Proposed Action footprint would follow the applicable City and County Grading Regulations and design parameters from the 2019 California Building Code and American Society of Civil Engineers, including measures to ensure slope stability and avoid erosion. Construction would require excavation that could erode soils if improperly managed.

With implementation of mitigation measures MM-BIO-2, MM-BIO-5, MM-GEO-1, and MM-GEO-2, impacts on geology, soils, and seismicity would be reduced. Mitigation measures MM-BIO-2 and MM-BIO-5, which entail obtaining required permit approvals and implementing avoidance measures

including erosion controls, would be implemented to avoid erosion impacts during construction. Topsoil that would be removed during grading or other surface preparation does not serve agricultural purposes or other valuable functions. MM-GEO-1 entails coordination with Reclamation Districts 403 and 404 to avoid levee stability impacts from construction, and may include installation of rock riprap, compaction grouting and deep soil mixing, construction setbacks, or other design measures to address potential seismic hazards affecting levee stability. MM-GEO-2 entails conducting a site-specific geotechnical investigation in the area of the rail underpass at Fresno Avenue to identify and implement stabilization and reinforcement measures such as support piles with pile casings or slurry reinforcement.

With implementation of mitigation, the Proposed Action would result in long-term, minor, adverse effects on geology and soils.

4.3.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. There would be no impact on geology and soils.

4.4 Hydrology and Water Quality

Impacts to or associated with hydrology and water quality were qualitatively evaluated based on the potential for the Proposed Action to temporarily or permanently alter hydrology or impact water quality. An impact would be considered significant if it were to cause violation of water quality standards, result in the release of toxic substances to water, substantially decrease groundwater supplies or interfere with groundwater recharge, or substantially alter drainage patterns.

4.4.1 Impacts of the Proposed Action

4.4.1.1 Water Quality

Construction activities associated with the Proposed Action would include excavation and grading of soils throughout the Port and construction above and adjacent to the San Joaquin River. These activities could pose the potential for water quality impacts during construction. Pile removal, pile driving, and associated excavation may temporarily disturb benthic sediments and increase turbidity and suspended sediment levels in the immediate vicinity of the construction footprint. Proposed turbidity and suspended sediment effects are expected to be less than the minor effects from regular USACE and Port maintenance dredging in the vicinity.

Proposed Action operations may require use, storage, and management of common industrial materials such as lubricants and fuels. The risk for these hazards is low because the quantities of these industrial materials would be limited, and any use of such materials would be per manufacturer procedures compliant with relevant regulations. There would not be a substantial increase in use of common industrial materials compared to baseline conditions.

Mitigation measures MM-BIO-2 and MM-BIO-5 would be implemented avoid or minimize water quality impacts during construction. MM-BIO-2 and MM-BIO-5 would ensure implementation of spill controls, erosion controls, or similar actions that would minimize or avoid adverse water impacts from construction. MM-BIO-5 would also minimize or avoid construction water quality impacts to other potentially jurisdictional waters or wetlands.

Construction activities would not occur in areas known to be contaminated. A portion of the Proposed Action (the western edge of the proposed McCloy rail classification yard) would extend onto the Site 19 hazardous materials site. As described in Section 3.5.1, Site 19 is a stockpile area for known contaminated soil from previous West Complex construction projects. The stockpiles are the only known contamination at Site 19, and they are located west of the Proposed Action footprint. The Proposed Action would comply with the Land Use Covenant (LUC) in place for Site 19, including preparation of a Soil Management Plan (SMP) for DTSC approval prior to any earthwork, avoiding or minimizing the potential for water quality impacts associated with known hazardous material sites.

Mitigation measure MM-HAZ-1 would be implemented to reduce potential impacts. MM-HAZ-1 would ensure the Proposed Action would comply with the LUC in place for Site 19, including preparation of an SMP for DTSC approval prior to any earthwork, avoiding or minimizing the potential for water quality impacts associated with known hazardous material sites.

With implementation of mitigation, the Proposed Action would result in short-term, minor, adverse effects on water quality.

4.4.1.2 Flood Hazards

The Proposed Action area is within the dam inundation zone for several dams, and levee systems protect the proposed bridge location from inundation. There is a low probability for failure of existing dams and levees, and existing inspection and response plans are in place to address these hazards. The 100-year flood elevation at the proposed rail crossing is 10 feet NAVD88 (FEMA 2009), and the rail crossing central span would have a minimum closed vertical clearance of approximately 12 feet above the mean high water surface, which means that the rail crossing would be resilient to flood hazards. The upland portion of the Proposed Action is not within a FEMA-designated flood hazard area. Therefore, the Proposed Action would not exacerbate risks related to flood hazards or the risk of stormwater contamination during flooding, and there would be no effects on flood hazards.

4.4.1.3 Groundwater

The Proposed Action footprint occurs within the developed East and West Complexes, in areas surfaced with existing rail lines, compacted dirt, or other low to moderately permeable surfaces. The additional rail lines would add nominal areas of impermeable surfaces but would have little or no effect on groundwater recharge. Underdrains would be installed along the rail lines to collect and transport rain runoff away from the rail embankment. Stormwater runoff from existing and proposed rail lines would continue to sheetflow away from the slightly elevated rail lines before either percolating directly into the groundwater table or being conveyed to the larger stormwater conveyance system for eventual discharge to the San Joaquin River or return to the groundwater table. Similarly, stormwater within the area of the proposed replacement rail crossing would continue to be conveyed to the San Joaquin River.

Construction of the proposed McCloy rail classification yard would involve placement of import borrow and crushed surfacing base course (subballast) fill, which would reduce permeability but would not render the ground impermeable. Small impermeable concrete pads may also be installed. The decrease in permeability from the McCloy rail classification yard would not interfere substantially with overall groundwater recharge; water would still infiltrate through areas with new fill, any runoff would be conveyed to the existing stormwater retention basins, where percolation into the groundwater table would continue to occur.

Riprap placed on the excavated levee slopes would have a nominal effect on stormwater runoff but would not affect groundwater recharge. Stormwater would penetrate gaps in the riprap or would sheetflow directly into the San Joaquin River, thereby being available for groundwater recharge.

In consideration of the Proposed Action's minor effects on permeable surfaces and the continued conveyance of stormwater throughout the Port's existing drainage systems, the Proposed Action would result in short-term, minor, adverse impacts pertaining to groundwater recharge.

4.4.1.4 Drainage Patterns

The Proposed Action would have little or no effect on drainage patterns throughout its footprint. Although there would be a nominal increase in impermeable surfaces or decrease in surface permeability from new track installation and construction the McCloy rail classification yard, stormwater would continue to drain into the Port's system of stormwater ditches and channels and into the West and East Complex retention basins.

The existing channelized systems have sufficient capacity to accommodate the Proposed Action's nominal increase in stormwater. Given the relatively flat topography under existing and proposed conditions, and presence of vegetation on elevated rail line slopes, nominal increases in stormwater runoff are unlikely to result in substantial siltation or erosion, and the Port regularly maintains the drainage system throughout the East and West Complexes.

Replacement of the rail bridge and associated levee construction would have little or no effect on drainage patterns. The proposed crossing would not impede or redirect flows in the San Joaquin River. Levee excavation would occur above the ordinary high water elevation, and similarly would not affect drainage patters. Installation of riprap would not substantially affect runoff compared to existing conditions.

The Proposed Action may require incidental installation of storm drains, rail line underdrains, or other minor stormwater conveyance infrastructure, which would tie into the existing Port stormwater conveyance systems. Any such improvements would be designed and implemented in compliance with the Port's Storm Water Development Standards Plan (Port 2009) to ensure that adverse water quality or drainage impacts are avoided.

In consideration of the minor effects on localized drainage patterns, the Proposed Action would result in short-term, minor, adverse impacts.

4.4.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. The existing 235 creosote-treated piles would remain in place, possibly continuing to leach chemicals (including PAHs) into the sediments and water column. The Proposed Action would have long-term, minor, adverse impacts on hydrology and water quality.

4.5 Hazardous Materials

Impacts pertaining to hazardous materials were assessed based on the potential for risk associated with hazardous materials that may be used as part of the Proposed Action, the potential for the Proposed Action to affect existing hazardous material conditions recorded on and off site, existing and planned emergency action plans, siting relative to sensitive receptors, and any wildfire hazards. The Proposed Action would have a significant impact if it would create a significant hazard to the

public or the environment. Examples of significant harm would involve the release of hazardous materials into the environment or creation of unmitigable new paths for human exposure to hazardous materials, violation of applicable laws or regulations regarding hazardous materials and/or solid waste management, impairment of emergency response plans, or an increase in the risk associated with wildfires.

4.5.1 Impacts of the Proposed Action

The Proposed Action would result in an increase in rail transport (six trains per week by 2026), and potentially a commensurate increase in transport of hazardous materials such combustible or caustic commodities. Rail transport of any hazardous materials would be subject to hazardous material plans and procedures implemented by BNSF and UP, and regional emergency response plans would also remain applicable. Tenant compliance with General Tariff No. 1 mandating hazardous material inventories and management per legal requirements would continue to occur. The minor increase in weekly trains would not affect tenant or Port compliance with these plans and procedures, or otherwise create a significant hazard to the public or the environment through routine transport of hazardous materials.

Potentially hazardous building materials may be encountered during demolition and construction, which could be hazardous to the environment or persons if improperly managed. This may include creosote-treated piles, asbestos, or lead paint. Removal of creosote-treated piles could pollute the San Joaquin River, and creosote can be toxic to aquatic organisms. Construction workers can be exposed to lead during the removal, renovation, or demolition of structures painted with lead pigments. Workers may develop a variety of ailments from substantial lead exposure, such as neurological effects, gastrointestinal effects, anemia, and kidney disease. Asbestos exposure can occur during removal, renovation, or demolition of asbestos containing materials such as insulation for pipes, floor tiles, and building materials. Breathing asbestos fibers can result in asbestosis (buildup of scar-like tissue in the lungs), loss of lung function, lung cancer, mesothelioma, and even death. These hazards are typically addressed through OSHA regulations, and risk of exposure can be evaluated through pre-construction hazardous material surveys.

Construction and operation of the Proposed Action may also require the use, storage, and management of common industrial materials such as lubricants, fuels, and hydraulic fluids. Spilled industrial materials can pose a hazard to construction workers, as well as to the environment, including potentially impacting water quality in the San Joaquin River. Public and environmental risk from these materials is low because the quantities of these industrial materials would be limited, and any use of such materials would be per manufacturer procedures compliant with relevant regulations. There would not be a substantial increase in use of common industrial materials. Compliance with OSHA regulations would avoid or minimize the potential for worker exposure to hazardous materials. Equipment used during construction could create a risk of spills that could pose a hazard to construction workers or impact water quality in the San Joaquin River. Impacts would be avoided through implementation of mitigation measures MM-BIO-2 and MM-BIO-5, which include spill control measures to minimize the risk of hazards during construction.

A portion of the Proposed Action (the western edge of the proposed McCloy rail classification yard) would extend onto the Site 19 hazardous materials site, which is a stockpile area for known contaminated soil from previous West Complex construction projects. The stockpiles are the only known contamination at Site 19. Construction in Site 19 would take place to the east of the

stockpiles and would not affect the stockpiles. As discussed in Section 3.5, Site 19 has an LUC in place over the entirety of the site. Compliance with this LUC requires preparation of an SMP for DTSC approval prior to any earthwork. Construction activities on Site 19 could pose a significant hazard if workers or the environment were to be exposed to contaminated soils. The following mitigation measure would be implemented to reduce the potential impacts:

- **MM-HAZ-1: Work Restrictions at Site 19**. Prior to construction work requiring earthwork in Site 19, the Port will prepare an SMP covering the Site 19 work and submit it to DTSC for approval. Ground disturbance in Site 19 will not begin until DTSC has approved the SMP. Construction work, including ground disturbance or excavation, on Site 19 will not extend into the stockpile portion of the site.

The Port, BNSF, and UP have emergency response or evacuation plans in place which would apply to the Proposed Action. Construction and operation of the Proposed Action would not interfere with emergency plan implementation or effectiveness.

With implementation of mitigation, the Proposed Action would result in short-term, minor, adverse effects on hazards and hazardous materials.

4.5.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. The existing 235 creosote-treated piles would remain in place, possibly continuing to leach chemicals (including PAHs) into the sediments and water column. The Proposed Action would result in long-term, minor, adverse impacts related to hazards and hazardous materials.

4.6 Air Quality and Greenhouse Gases

The Proposed Action would have a significant impact if it would exceed General Conformity Rule *de minimis* thresholds. Potential GHG emissions are also discussed in this section.

The General Conformity Rule (Section 176(c) of the Clean Air Act) applies to a federal action in a nonattainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants caused by the federal action equal or exceed certain *de minimis* rates. A federal agency cannot issue a permit for, or support an activity within, a nonattainment or maintenance area unless the agency determines it will conform to the most recent SIP. By requiring an analysis of direct and indirect emissions, USEPA intended the regulating federal agency to make sure that only those emissions that are reasonably foreseeable and that the federal agency can practicably control subject to that agency's continuing program responsibility will be addressed. The General Conformity regulations incorporate a stepwise process, beginning with an applicability analysis. The regulating federal agency must apply the applicability requirements of 40 CFR 93.153(b), 2021, to the federal action to evaluate whether, on a pollutant-by-pollutant basis, a determination of General Conformity is required. If the regulating federal agency determines that the General Conformity regulations do not apply to the federal action, no further analysis or documentation is required. If the General Conformity regulations do apply to the federal action, the regulating federal agency must conduct a conformity evaluation in accordance with the criteria and procedures in the implementing regulations, publish a draft determination of General Conformity for public review, then publish the final determination of General Conformity.

In 2016, the CEQ released final guidance for federal agencies on how to consider the impacts of their actions on global climate change as part of their NEPA reviews, "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews" (Goldfuss 2016). The guidance was withdrawn on March 28, 2017, under Executive Order 13783. The guidance was reestablished under the Biden administration and is currently under review for revision and update. The draft guidance encourages federal agencies undertaking NEPA review to follow the "rule of reason" and use their "expertise and experience" (Goldfuss 2016) to decide whether and to what degree an agency will analyze particular effects of GHG emissions. The draft guidance does not set standards or significance thresholds. In the absence of an adopted GHG standard, USCG is not proposing a new GHG standard for GHG emissions anticipated to result from the Proposed Action but, consistent with the guidance, is considering climate change and GHG emissions.

4.6.1 Impacts of the Proposed Action

4.6.1.1 Air Quality

As described in Section 1, the Proposed Action requires a permit from USCG to complete several key elements. Approval of the existing bridge removal, site preparation activities at the proposed rail bridge, and rail bridge replacement makes up the federal action. While the federal action is restricted to those distinct elements, to be conservative, all emissions associated with construction and operations of the larger project were quantitively evaluated. Details of the air quality and GHG analysis are provided in Appendix I.

General Conformity applies to areas designated as nonattainment or maintenance for NAAQS and in such areas, a project is exempt from the conformity rule if emissions are less than the applicability rates thresholds established by the conformity rule. If the total of the direct or indirect emissions caused by the Proposed Action equal or exceed the conformity de minimis thresholds shown in Table 15, a conformity determination needs to be made.

Total construction emissions for 2023, 2024, and 2025 and operation emissions of the Proposed Action were compared to the *de minimis* thresholds, as shown in Tables 15 and 16.

Construction: Construction would occur largely within the Port's rail system. Construction emissions would be generated by construction equipment and worker vehicles. Construction is expected to occur over 3 years in various areas of the Port. The initial phase of construction would include site preparation activities at all sites. Some work elements related to the rail bridge replacement, LLDT construction, and McCloy rail classification yard construction would occur simultaneously. All equipment is conservatively assumed to be diesel-fueled, and construction activities are assumed to occur during the hours of 6:00 a.m. to 9:00 p.m. Emissions are summarized in Table 16; as shown, impacts would be under significant levels.

Several mitigation measures have been included to further reduce the potential for emissions and provide trackable measures that can be incorporated into construction contracts, where applicable. The following mitigation measures would be implemented during construction to further reduce the potential for impacts to air quality:

- **MM-AQ-1: Construction Idling Reductions**. The Port will require construction contractors to minimize heavy-duty construction idling time to 2 minutes where feasible. Exceptions include

vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or vehicles in a queue waiting for work.

- **MM-AQ-2: Use of Tier 4 Engines During Construction**. All land-based construction equipment will use USEPA Tier 4 Final engines, except for specialized equipment or when Tier 4 engines are not available. In place of Tier 4 engines, off-road diesel-powered heavy equipment will incorporate retrofits such that emission reductions are achieved equal to or exceeding that of a Tier 4 engine.

The Proposed Action would result in short-term, minor, adverse impacts on air quality during construction.

Operations: The Port currently serves 21 trains per week with an expected growth to 34 trains per week by 2026 based on tenant projections. However, absent the proposed rail improvements, the Port's rail system would be constrained to a maximum of 28 trains per week. The operational air quality assessment considers the emissions change between constrained operations in 2026 (without the proposed rail system improvements) and operations in 2026 (with system improvements). The air quality assessment analyzes the emissions from rail movements within the Port both with and without the Proposed Action.

There are two types of rail carriers in the Port: the Class I mainline carriers (BNSF and UP) and the Class III short line carriers or "switchers" (CCTC at the Port). Class I carriers were assumed in this analysis to have an average of two locomotives while Class III carriers were assumed to have one locomotive. Class I carriers are assumed to make two trips while in the Port's rail system: one inbound and one outbound trip to deliver cars from the regional rail network to the Port. Class III carriers are assumed to make one to two trips within the Port's rail system to sort and deliver railcars to terminals.

To model emissions, hours of operation were allocated to the destination location and locomotive type by number of trips and distance traveled within the Port. The "2026 Conditions without Proposed Action" scenario assumes that the rail system continues to be constrained to 28 trains and the lead track blockages continue. The "2026 Conditions with Proposed Action" scenario assumes that there would be an additional six trains, with two going to the East Complex and four going to the West Complex. Modeled operational emissions using these assumptions are summarized in Table 17.

The total of direct and indirect emissions of NOx, VOC, CO, SOx, PM10, and PM2.5 from the federal action and related work are less than the general conformity de minimis threshold emission rates shown in Table 15. Operation of the Proposed Action would result in a reduction of regional emissions of all applicable air pollutants and would not cause a localized exceedance of an air quality standard. Therefore, the general conformity regulations do not apply to these pollutants, and no additional conformity evaluation need be made for these pollutants.

The following mitigation measure would be implemented to further reduce the potential for long-term impacts to air quality:

- **MM-AQ-3: Evaluate Vegetative Barriers**. The Port will evaluate areas to potentially include vegetative barriers along the lead track, specifically in the area between the track and residential communities on West Scotts Avenue.

The Proposed Action would result in long-term, minor, adverse impacts from operations on air quality.

4.6.1.2 Greenhouse Gases

Details of the air quality and GHG analysis are provided in Appendix I. As discussed in Section 4.6, in the absence of an adopted GHG standard, USCG will not propose a new GHG standard for GHG emissions anticipated to result from the Proposed Action. Construction and operational assumptions are consistent with those noted in Section 4.6.3.1. Calculations of potential GHG emissions (CO_2e) from construction activities are provided in Table 18. Implementation of mitigation measure MM-AQ-1 (Construction Idling Reductions) would also reduce GHG emissions during construction. GHG emissions from operations are shown in Table 18.

The Proposed Action's GHG emissions would result in long-term, minor, adverse impacts.

4.6.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. The rail system bottlenecks and blockages that currently constrain rail movements at the Port and structural deficiencies on the existing rail swing bridge would remain. Future rail congestion may result in increased emissions from locomotive idling in absence of the Proposed Action. It is likely that the Port would not be able to accommodate projected increases in train volumes, especially in the event of a closure of the rail swing bridge. The Port would have to find alternatives to meet planned capacity needs, which could result in increases in GHG emissions. The No Action Alternative would result in long-term, minor, adverse impacts.

4.7 Noise and Vibration

The Proposed Action would have a significant noise impact if it would substantially increase the ambient noise levels of the area, include the use of equipment with unusual noise characteristics, or have noisy activity continue past normal working hours, during both construction and operation of the Proposed Action.

Construction activities typically require the use of numerous pieces of noise-generating equipment. Construction activities are assumed to occur during the hours of 6:00 a.m. to 9:00 p.m. A list of compiled noise levels associated with commonly used construction equipment is provided in Table 20. The Federal Highway Administration Roadway Construction Noise Model (FHWA 2006) was used to estimate construction noise associated with each Proposed Action element by phase, as received at the nearest sensitive receptors. As a conservative measure, for each construction noise model scenario, it was assumed that all equipment within each phase would operate continuously on the same day. Noise sources were assumed to be located within the center of each specific construction are because the center represents the approximate average location that equipment would operate (i.e., center of the nearest and farthest regions of each site within which equipment would be expected to operate). To evaluate the Proposed Action's construction noise with FTA Construction Noise Criteria, the 8-hour L_{eq} and the 30-day average L_{dn} were calculated using Roadway Construction Noise Model output (L_{eq}) and existing measured hourly data from location LTNM1 (South Ventura Avenue and West Hazelton Avenue). Worst-case construction L_{eq} values were assigned to construction hours, and existing measured noise levels were applied to non-construction hours. Details of the construction noise modeling scenarios, including assumptions of equipment usage rates, and output are provided in Appendix H.

The Port currently serves 21 trains per week, with an expected operational growth to 34 trains per week by 2026 based on tenant projections. However, absent the proposed rail improvements, the Port's rail system would be constrained to a maximum of 28 trains per week. The operational noise assessment considers the emissions change between constrained operations in 2026 (without the proposed system improvements) and improved operations in 2026 (with system improvements).

FTA has established vibration impact assessment criteria for use in evaluating vibration impacts associated with developments in close proximity to rail lines (FTA 2018). The FTA vibration impact criteria for vibration velocity (VdB) are based on maximum overall levels for a single event. The impact criteria for groundborne vibration are shown in Table 21. Note that there are criteria for frequent events (more than 70 events of the same source per day), occasional events (30 to 70 vibration events of the same source per day), and infrequent events (less than 30 vibration events of the same source per day). The frequency of rail usage for the Proposed Action would be in the "infrequent" category. The applicable threshold for groundborne vibration related to passing trains is 80 VdB or 0.04 PPV for residential uses.

4.7.1 Impacts of the Proposed Action

As described in Section 1, the Proposed Action requires a permit from USCG to complete several key elements. Approval of the existing bridge removal, site preparation activities at the proposed rail bridge, and rail bridge replacement makes up the federal action. While the federal action is restricted to those distinct elements, to be conservative, noise and vibration associated with construction and operations of the larger project were quantitively evaluated. For the purposes of this analysis, three phases of construction were evaluated for potential construction noise impacts: rail bridge replacement, LLDT construction, and construction of the new McCloy rail classification yard.

Construction: Construction activities would occur intermittently over a 60-week period and would result in intermittent and temporary increases to ambient noise levels. Noise levels would vary, primarily depending on the construction phase, equipment type, duration of equipment use (i.e., percent use per hour and hours per day), distance between the noise source and receptor, and presence or absence of intervening buildings, topography, or noise barriers. The loudest construction activity during rail bridge replacement would be construction of the temporary work platforms. The closest sensitive receptors to this activity are located along West Fremont Street, near Ryde Avenue, approximately 2,800 feet north of the rail bridge replacement. Existing noise levels in the vicinity of these receptors are approximately 66 dBA L_{eq} during daytime hours, and noise levels may reach up to 60 dBA L_{eq}/63 L_{dn}.

The loudest construction activity during LLDT construction would be construction of the new rail underpass at Fresno Avenue, adjacent to the existing underpass south of the intersection of West Scotts Avenue and South Fresno Avenue. Construction equipment associated with underpass construction would include a crane, a pile driver, a generator, a loader, air compressors, and fork-lifts. A pile driver would be the loudest piece of equipment (101 dBA at 50 feet), followed by a crane (81 dBA at 50 feet). The closest residential property line is 120 feet north of construction of the new rail underpass at Fresno Avenue (the closest residence is approximately 130 feet from this point). Noise levels associated with construction of the underpass, which includes pile driving, may reach up to 86 dBA L_{eq}/82 L_{dn} at the nearest residential property line. The nearest sensitive receptor to construction of the new McCloy rail classification yard is a single-family home located approximately

3,140 feet to the southwest. Construction noise at this location is expected to reach up to 55 dBA L_{eq}/63 L_{dn}. Table 22 presents the results of the construction noise analysis.

Construction would result in temporary increases in truck traffic along haul routes for off-hauling excavated and demolished materials and for delivering materials to the site. Construction materials and trucks removing debris for the rail bridge replacement would travel southeast from the site on Navy Drive to SR 4/West Charter Way to access I-5. There are no noise-sensitive land uses along this route. Construction materials and trucks removing debris for the McCloy rail classification yard construction would arrive and depart the West Complex along McCoy Avenue and then along the Port of Stockton Expressway to access SR 4. There are no sensitive receptors located along these haul routes.

During construction of the proposed LLDT, approximately 32,000 cubic yards of material would be hauled off site and approximately 30,000 cubic yards of fill material would be hauled on site, resulting in up to 3,750 truck trips or 750 average daily trips (assuming trips are evenly split over a 5-day work week). The existing daytime noise measurement near the intersection of West Scotts Avenue and South Fresno Avenue was 52 dBA L_{eq}. The L_{dn} associated with 750 truck trips per day was modeled using Federal Highway Administration methodology (FHWA 1979, 1995). Construction truck noise can be expected to reach up to 70 dBA L_{dn} at a distance of 25 feet from the centerline of the roadway.

The City prohibits construction between the hours of 10:00 p.m. and 7:00 a.m. but does not include construction standards. As noted, an L_{dn} of 81 dBA or higher is considered "unacceptable" in industrial settings for new construction. However, the Proposed Action is intended to support existing infrastructure and therefore would not be considered new construction.

For construction activities, an assessment was also completed to determine the potential for construction-related vibration to result in structural damage. The assessment of the potential for structural damage was based on the Caltrans groundborne vibration threshold criteria of 0.25 PPV, the threshold beyond which older structures may sustain building damage (Caltrans 2020). Ground vibration levels produced by typical construction equipment can reach up to 0.64 in/sec) PPV for a pile driver, 0.21 in/sec PPV for a vibratory roller, and 0.003 in/sec PPV for small bull dozers, each at a distance of 25 feet. The nearest structure to proposed pile driving activities is approximately 130 feet north of the new rail underpass at Fresno Avenue near West Scotts Avenue and South Fresno Avenue. At this distance, groundborne vibration levels may reach up to 0.05 in/sec PPV, below the 0.25 in/sec PPV threshold for older structures. All other equipment would generate lower levels of vibration well below 0.25 in/sec PPV, as received at the nearest existing structures. The construction-related vibration would not exceed FTA thresholds.

Several noise and vibration-related mitigation measures have been included to further reduce the potential for impacts during construction, especially during construction of the LLDT. These include the following:

- **MM-NOI-1: Equipment Noise Limitations**. Generators will not exceed 70 dBA at a distance of 50 feet; dozers will not exceed 80 dBA at a distance of 50 feet. Verification will be provided to the City prior to approval of grading plans.
- **MM-NOI-2: Stationary Equipment Limitations**. Generators, compressors, and other noisy stationary equipment will be placed as far away from occupied residential properties as is practicable.

- **MM-NOI-3: Construction Staging Limitations.** Construction staging will not be located within 70 feet of occupied residential properties.
- **MM-NOI-4: Dozer and Excavator Limitations**. Use of dozers and excavators will be limited where feasible within 70 feet of residential property lines.
- **MM-NOI-5: Develop and Implement a Construction Truck Route Map**. A construction truck route will be developed that avoids sending trucks north of West Scotts Avenue on South Fresno Avenue. Additionally, the route will minimize the number of truck trips accessing the proposed LLDT and underpass sites via West Scotts Avenue by using the existing access road south of the rail line, within the rail right-of-way.
- **MM-NOI-6: Quiet Pile-Driving Technologies**. "Quiet" pile-driving technology (such as pre-drilling of piles, use of vibratory or sonic pile drivers, and use of more than one pile driver to shorten the total pile driving duration) will be employed where feasible, in consideration of geotechnical and structural requirements and conditions. Pre-drilling piles does not generate high impact-type noises, as emitted during impact pile driving. Noise emissions from pre-drilling activities typically are from diesel engines and occasional clangs from auger equipment. Where and when feasible, piles driven by a vibratory hammer generally do not generate measurable off-site noise beyond typical construction noises. The Port may elect to limit impact pile driving to only a portion of the total piles driven at the Proposed Action site, and, if possible, use limited impact pile proofing, only in combination with a vibratory installation process. Other technologies that may reduce impact pile-driving noise include inserting wood blocks between the pile and driver and using acoustic blankets that are suspended around the location of the pile strike.
- **MM-NOI-7: Timing Restrictions**. The Port will require that the construction contractor limit the timing of pile-driving activity to result in the least possible disturbance. The City of Stockton Municipal Code allows for construction 7 days per week between the hours of 7:00 a.m. and 10:00 p.m. However, as a mitigation measure, the Port will limit the times and days of pile-driving activities (i.e., between the hours of 9:00 a.m. and 5:00 p.m. and limit the work to only occur on weekdays). Imposing these additional limits may reduce the potential for disturbance of nearby residences during times of day and/or hours of day when noise-sensitive receptors may have higher sensitivities to impact-type noises.

The Proposed Action would result in short-term, minor, adverse construction-related noise and vibration impacts.

Operations: Train travel on the new LLDT has the potential to increase noise levels at sensitive receptors located north and east within the Boggs Tract neighborhood. The predicted future rail noise level, as modeled with FTA's CREATE Rail model (FTA 2006), is 64 dBA L_{dn} at 94 feet (the distance from the rail line to the nearest noise-sensitive residential receptors). A predicted level of 64 dBA L_{dn} would not exceed the City's 65 dBA L_{dn} exterior noise standard and is not expected to exceed the 45 dBA L_{dn} interior noise standard at typical residential structures (i.e., typical residential construction provides at least 20 dB of exterior to interior noise reduction).

The vibration level associated with rail operations on the new alignment was calculated using FTA methods at the closest sensitive receptor, a single-family residence located north of the portion of the proposed LLDT that would run parallel to West Scotts Avenue. Using FTA methods, freight train

operational vibration levels were predicted to reach up to 75 VdB. Existing groundborne vibration levels are estimated at 73 VdB based on current rail usage. Therefore, groundborne vibration levels at the nearest sensitive receptor are projected to increase by 2 VdB during operation of the new LLDT. This vibration increase would not exceed FTA thresholds.

The Proposed Action would result in long-term, minor, adverse operational noise and vibration impacts.

4.7.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. Future rail congestion may result in increased noise from locomotive idling in absence of the Proposed Action. The No Action Alternative would result in long-term, minor, adverse impacts.

4.8 Transportation

The transportation analysis focuses on additional transportation mode trips generated as a result of the Proposed Action, and whether this increase can be accommodated with existing infrastructure. A significant impact would occur if the Proposed Action would conflict with a program, plan, ordinance, or policy addressing the circulation system; substantially increase traffic or transportation-related hazards; or result in inadequate emergency access.

4.8.1 Impacts of the Proposed Action

Except for the initial movement of any construction materials to the Proposed Action area at the start of construction and eventual movement from the area at the end of construction, the Proposed Action would not affect roads or highways. Washington Street, Navy Drive, SR 4, and Harbor Street all provide primary access to the Proposed Action area from the interstate highway system and are all designated to accommodate construction trucks. Construction would result in minimal trips; any construction deliveries and staging would be limited to the routes designed and designated to accommodate commercial trucks carrying heavy loads.

No new on-road trips would be generated by operation of the Proposed Action. Because it would increase the efficiency of rail operations within the Port, the Proposed Action would reduce the number of vehicles on the road that would be needed to transport goods. Operation of the Proposed Action would not conflict with the City's 2040 General Plan or any other plans, ordinances, or policies, and would not require preparation of a traffic study.

During construction, some temporary disruptions to existing rail operations and routes are expected. Because the replacement rail removable span bridge would be built parallel to the existing rail swing bridge, and the existing rail swing bridge would continue to operate while the replacement bridge is under construction, minimal disruptions to rail services to the West Complex are expected. Construction phasing assumes some disruption to bridge access (estimated 8 to 12 hours) when Track LD01 is connected to the existing Port rail line. During construction of the proposed LLDT, some disruptions to existing rail operations and routes are expected. Construction plans and schedules would be coordinated with CCTC, as well as the Class I railroads to minimize disruptions.

The Proposed Action would address the current constraints and result in system-wide efficiencies, leading to safer and more efficient operations. The new LLDT would provide a parallel lead track that would allow arriving and departing trains to access Port areas and bypass congestion. When

outbound staged cars in the 700 Yard spill over onto the existing Port lead, trains would be able to bypass the congestion and travel on the LLDT, which would eliminate a blockage from forming in this area. Having a second track would also allow for trains to arrive and depart simultaneously, thereby reducing the overall travel time and the potential for congestion on lead tracks. The replacement double-track rail removable span bridge would allow for train access to the West Complex in a safe and efficient manner. The replacement bridge would be designed to meet modern horizontal clearance standards and modern loading standards, including the capacity to handle 286k and 315k unit trains. The new operational improvements would help accommodate the larger and longer unit trains that are projected for the West Complex, continue to support the more efficient movement of cargo by rail instead of trucks, and prevent delays by allowing more than one train to access the bridge simultaneously. Track geometry and operational considerations have been coordinated with CCTC, as well as the Class I railroads (UP and BNSF) affected by the proposed improvements. The Proposed Action would not sharpen any existing curves through which the trains in the Port currently operate.

Temporary access restrictions would be required during some stages of bridge demolition and construction, resulting in short-term impacts to vessel traffic. The portion of the river near the bridge is not a popular recreational boat use area due to the proximity of the Port's industrial berths. Temporary construction areas would be appropriately marked for safety using navigational aids, and recreational users would have ample alternate recreational opportunities nearby in Burns Cutoff or other portions of the San Joaquin River during construction restrictions temporarily required for the Proposed Action. The replacement rail bridge central span would have a minimum closed vertical clearance of approximately 12 feet above the mean high water surface; therefore, there would be no long-term vessel traffic impacts.

The Port has developed an emergency response plan to address emergency needs Port-wide and maintains its own Police Department, which is responsible for providing security protection of Port tenants on a 24-hour basis. The closest fire station to the Proposed Action area is approximately 3.5 miles to the east of the site at 110 West Sonora Street. There are two additional fire stations located at 3499 Manthey Road and 1501 Picardy Drive, approximately 4 miles south and northeast of the Proposed Action area, respectively. Construction and operation of the Proposed Action would not block any emergency access routes or increase the need for emergency services.

Based on the analysis above, the Proposed Action would result in both short-term, minor, adverse transportation impacts and short-term, minor, beneficial transportation impacts.

4.8.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. The rail system bottlenecks and blockages that currently constrain rail movements at the Port would increase over time and structural deficiencies on the existing rail swing bridge would remain. It is likely that the Port would not be able to accommodate projected increases in train volumes, especially in the event of a closure of the rail swing bridge. The Port would have to find alternatives to meet planned capacity needs, which could cause transportation impacts. The No Action Alternative would result in long-term, minor to significant, adverse impacts.

4.9 Utilities and Infrastructure

Impacts to utilities were qualitatively evaluated based on the potential for the Proposed Action to require new construction, modification, or expansion of utility facilities. The Proposed Action would have a significant impact if it would result in substantial and long-term interruption of utility service, a need for utilities in excess of existing facilities and local capacity, or conflict with any statutes or regulations.

4.9.1 Impacts of the Proposed Action

The Proposed Action would not require relocation or construction of any new water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, nor would it require connection to Port water supply infrastructure. Any requirement for water on site during construction (for example, for dust control) would be temporary and intermittent.

The Proposed Action would not result in an increase in wastewater, nor would it require new water or wastewater treatment facilities. Stormwater from the Proposed Action footprint would be conveyed to the Port's existing stormwater drainage system, and the no additional runoff beyond existing conditions would enter the system as a result of the Proposed Action.

Demolition of the existing rail swing bridge would produce steel, creosote-treated wood, and soils that would require disposal. In addition, the Proposed Action would require excavation and disposal of materials for construction of the replacement bridge, LLDT, and rail underpass at Fresno Avenue. All construction would be completed within the parameters of applicable federal, state, and local utility regulations.

Therefore, the Proposed Action would have short-term, minor, adverse impacts on utilities and infrastructure.

4.9.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. There would be no impact on utilities and infrastructure.

4.10 Visual Resources

Impacts to visual resources were qualitatively evaluated based on the potential for the Proposed Action to temporarily or permanently alter the visual quality of the Proposed Action area. The Proposed Action would have a significant impact if it would cause a landscape to change in a manner that permanently and significantly degrades an existing viewshed, alter the character of a viewshed by adding incompatible structures, or create new sources of light or glare.

4.10.1 Impacts of the Proposed Action

The existing visual character in the study area is not considered scenic, nor are there any identified scenic vistas within the Proposed Action area. Permanent visual changes resulting from the Proposed Action would occur from replacing the rail swing bridge and the addition of new rail lines and an additional rail underpass at Fresno Avenue; however, proposed site conditions would be consistent with the existing visual character of the area and its surroundings, which includes other rail lines and bridges among heavy industrial uses. The Proposed Action would accommodate a modest increase in rail calls at the Port, which would be consistent with existing conditions within the industrialized

area. The Proposed Action would demolish the existing steel and wood single-track rail swing bridge. The new steel and concrete double-track rail removable span bridge would have a different visual character than the existing bridge; however, this visual change would only be visible to vehicles traveling on Navy Drive and employees of businesses that are adjacent to the bridge.

Many of the short-term construction activities would be obscured from view from nearby roadways and residences by on-site and adjoining developments. Construction for the LLDT earthwork and trackwork in the BNSF right-of-way adjacent to West Scotts Avenue, including construction of the additional rail underpass at Fresno Avenue, would be visible to some residents of the Boggs Tract neighborhood. This portion of the work is conservatively estimated to occur over approximately 4 months. While it would be visible to some residents of the Boggs Tract neighborhood, construction would not alter the visual character of the Proposed Action area and surroundings due to its location within an industrialized area.

Any lighting required for construction would be directed onto the Proposed Action footprint and would be the minimum necessary for safety purposes. No new permanent sources of light or glare would be constructed.

Based on this analysis, the Proposed Action would have short and long-term, minor, adverse impacts on visual resources.

4.10.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. There would be no impact on visual resources.

4.11 Land Use

Impacts to or associated with land use were qualitatively evaluated based on the potential for the Proposed Action to alter land uses, designations, and zoning of land in and around the Proposed Action area. The Proposed Action would have a significant impact if it physically divided an established community or conflicted with an applicable land use plan, policy, or regulation.

4.11.1 Impacts of the Proposed Action

Most of the Proposed Action area is zoned as "Port" and designated as Industrial or Institutional. Construction would also occur in limited areas within the BNSF right-of-way adjacent to West Scotts Avenue, in perimeter areas of undeveloped privately owned property west of Ventura Avenue, and potentially within City and San Joaquin County rights-of-way adjacent to Ventura Avenue and West Scotts Avenue, respectively. Modifications to existing road underpasses and overpasses would not impact access to or result in any divisions of the nearby Boggs Tract neighborhood, which is an established community.

Development and operation of the replacement rail bridge and increasing the efficiency of train operations to accommodate projected rail volumes is consistent with the existing zoning and land use designations described in Section 3.12. Accordingly, the Proposed Action would be consistent with applicable land use plans and policies.

Based on this analysis, the Proposed Action would have no impacts on land use.

4.11.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. No construction would occur, and existing operations would continue. There would be no impact on land use.

4.12 Environmental Justice

This analysis considers potential significant adverse impacts identified for other elements of the environment in assessing the potential for environmental impacts to disproportionately affect environmental justice populations of interest. Where mitigation measures that could avoid, minimize, or reduce impacts below significance levels, these were also considered. Project impacts that would be effectively mitigated are not anticipated to result in disproportionate impacts on environmental justice populations of interest.

4.12.1 Impacts of the Proposed Action

The Proposed Action would have the following effects on people and residential communities located near the Proposed Action area:

- Emissions would be generated by construction equipment, worker vehicle trips, and energy used on site over the 3-year construction period. Mitigation measures would be implemented to reduce the potential for air quality impacts, including reducing idling, using USEPA Tier 4 Final engines, and potentially installing vegetative barriers.
- Construction would result in intermittent and temporary increases to ambient noise levels. The loudest construction activity during rail bridge replacement would be construction of the temporary work platforms and the loudest construction activity associated with underpass construction would be a pile driver. Mitigation measures would be implemented to reduce noise impacts, including placing limitations on equipment noise, using quiet pile driving technologies, and restricting the time of certain construction activities.
- Pile driving could cause groundborne vibration below FTA levels but that may be felt at nearby residential properties.
- Permanent visual changes would occur from replacing the rail bridge and the addition of new rail lines and rail underpass at Fresno Avenue; however, these conditions would be consistent with the existing visual character of the Proposed Action area, which includes other rail lines and bridges. Many of the short-term construction activities would be obscured from view by on-site and adjoining developments.
- Construction for the LLDT earthwork and trackwork in the BNSF right-of-way adjacent to West Scotts Avenue would be visible to some residents of the Boggs Tract neighborhood. This portion of the work is estimated to occur over approximately 4 months. Construction would not alter the visual character of the Proposed Action area and surroundings due to its location within an industrialized area.
- Construction activities may include lighting; however, any lighting would be directed onto the Proposed Action footprint and would be the minimum necessary for safety purposes. No new permanent sources of light or glare would be constructed.

No significant environmental impacts were identified for any of the resource areas. Although the Proposed Action could have minor impacts on adjacent properties that contain environmental justice

populations of interest, these impacts are not expected to have disproportionate impacts on those communities.

4.12.2 Impacts of the No Action Alternative

Under the No Action Alternative, the existing facilities would continue to operate. Existing rail system bottlenecks would continue to occur, and the bridge would continue to be susceptible to structural deficiencies that could lead to closure; however, these impacts are primarily felt by the Port and its tenants. Impacts of the No Action Alternative are not expected to have disproportionate impacts to environmental justice populations.

5 Cumulative Effects

NEPA requires that EAs analyze potential cumulative effects of federal actions. As defined in 40 CFR 1508.7, 2021, a cumulative impact consists of "the impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other action." While USCG's federal action is restricted to the existing bridge removal, site preparation activities at the rail bridge, and rail bridge replacement, to be conservative, this analysis evaluates the potential cumulative effects of the entirety of the Proposed Action.

To analyze cumulative impacts, a cumulative impacts region for which impacts of the Proposed Action and other past, proposed, and reasonably foreseeable actions would be cumulatively recorded or experienced must be identified. Actions considered in the cumulative analysis are identified in Table 23. As shown in Table 23 and Figure 11, 25 present or reasonably foreseeable future related actions (approved or proposed) were identified within the general vicinity of the Proposed Action that could contribute to cumulative impacts. These actions were selected because they are located in the Port or are located in the immediate Proposed Action area (generally within the City). Actions on the list were analyzed to determine whether they may have the potential to result in related impacts to those of the Proposed Action (e.g., air quality impacts from the use of construction equipment or new sources of combustion) when considered in conjunction with the Proposed Action.

As detailed in Sections 5.1 through 5.12, the Proposed Action, in conjunction with other past, present, and reasonably foreseeable future related actions, does not have the potential to result in significant cumulative impacts because its independent impacts and the impacts of related actions combined do not create impacts significantly greater than those of the Proposed Action alone.

5.1 Biological Resources

Construction of the Proposed Action would result in short-term, minor, adverse impacts and short-term, minor, beneficial impacts on special-status species and short-term, minor, adverse impacts on sensitive natural communities, wetlands and jurisdictional waters, and migratory fish and wildlife that could be present in the area. Mitigation measures MM-BIO-1 through MM-BIO-5 would reduce the Proposed Action's impacts on biological resources. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. Actions 23 and 24 would avoid significant biological resources impacts and would not be constructed near the Proposed Action. Actions 23 and 24 would also be required to comply with federal and state regulations protecting biological resources. In general, there is feasible mitigation

to ensure that impacts on biological resources, including special-status species and habitats and jurisdictional waters, are fully mitigated to ensure no net loss of habitat functions. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on biological resources.

5.2 Cultural Resources

If archaeological materials are encountered during construction, the Proposed Action would comply with state and federal requirements regarding identification, evaluation, and mitigation of impacts to significant archaeological sites, as well as consultation with Tribes and agencies. With implementation of SHPO-approved mitigation, the Proposed Action would result in long-term, minor, adverse impacts on historic resources. Only actions 23 and 24 in Table 22 would occur on the West Complex, and neither action would affect the integrity of the historic district or result in significant changes to the setting, landscape, or other features of the NHD that contribute to its significance. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on cultural resources.

5.3 Geology and Soils

Liquefiable soils may be present near the proposed replacement rail bridge crossing and the LLDT rail underpass at Fresno Avenue. Proposed improvements would be constructed in compliance with applicable seismic standards, permits, and approvals. Impacts would be reduced through implementing erosion controls, coordinating with Reclamation Districts 403 and 404 to avoid levee stability impacts, and conducting a site-specific geotechnical investigation in the area of the rail underpass at Fresno Avenue. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be projects 23 and 24. Projects 23 and 24 would avoid significant geology and soils impacts and would not be constructed near the Proposed Action. All actions in Table 23 would be required to be constructed in adherence with applicable design standards relating to geology and soils. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on geology and soils.

5.4 Hydrology and Water Quality

The Proposed Action would result in short-term, minor, adverse impacts on water quality associated with in-water and upland construction activities, groundwater, and changes to drainage patterns. Impacts would be reduced through implementing erosion controls, complying with approvals related to protecting water quality, and preparing an SMP for DTSC approval prior to any earthwork in known hazardous material sites. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. These actions would avoid significant hydrology and water quality impacts and would not be constructed near the Proposed Action. All actions in Table 23 would be required to be constructed in adherence with applicable federal, state, and Port requirements pertaining to hydrology and water quality. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on hydrology and water quality.

5.5 Hazardous Materials

The Proposed Action would result in short-term, minor, adverse impacts on hazards and hazardous materials. Impacts would be reduced through preparing an SMP for DTSC approval prior to any

earthwork in known hazardous material sites. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. These actions involve remediation of contaminated soils in compliance with DTSC requirements. Potential impacts from hazardous materials on site would likely be localized, and any transport or disposal of materials would occur per federal, state, and local regulations. Additionally, these actions would not be constructed near the Proposed Action. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on hazardous materials.

5.6 Air Quality and Greenhouse Gases

The Proposed Action would result in short- and long-term, minor, adverse impacts on air quality and GHG emissions. Impacts would remain under established significance thresholds. Impacts would be reduced by requiring construction idling reductions and use of Tier 4 engines during construction, as well as installing vegetative barriers along the lead track. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. Some actions in Table 23 would operate concurrent with operation of the Proposed Action. All actions would require review under either or both CEQA and NEPA and SJVAPCD approval for construction and operation, which involves a comprehensive and cumulative assessment of impacts. Additionally, the Proposed Action would alleviate the rail system bottlenecks and blockages that currently constrain rail movements at the Port, thus reducing rail congestion and the potential for increased emissions from locomotive idling that could have otherwise been the result of other actions in Table 23. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on air quality.

5.7 Noise and Vibration

The Proposed Action would result in short-term, minor, adverse noise and vibration impacts. Impacts would remain under established significance thresholds. Impacts would be reduced through requiring construction equipment noise and construction staging limitations, developing and implementing a construction truck route map, and implementing quiet pile driving technologies and construction timing restrictions. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. These actions would avoid significant noise impacts and would not be constructed near the Proposed Action. They would also be required to comply with local noise regulations. Additionally, the Proposed Action would alleviate the rail system bottlenecks and blockages that currently constrain rail movements at the Port, thus reducing rail congestion and the potential for increased noise from locomotive idling that could have otherwise been the result of other actions in Table 23. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on noise and vibration.

5.8 Transportation

The Proposed Action would result in short-term, minor, adverse impacts and short-term, minor, beneficial impacts on transportation. Construction impacts would be associated with temporary vessel traffic restrictions in the San Joaquin River. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. These actions would not involve construction in the San Joaquin River; these actions would be required to comply with Caltrans and local transportation regulations. Additionally, the Proposed

Action would alleviate the rail system bottlenecks and blockages that currently constrain rail movements at the Port, thus reducing rail congestion that could have otherwise affected other actions in Table 23. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on transportation.

5.9 Utilities and Infrastructure

The Proposed Action would result in short-term, minor, adverse impacts on utilities and infrastructure associated with bridge demolition, soil excavation, and associated materials disposal. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24. These actions would not result in significant impacts on utilities and infrastructure and would be required to comply with local regulations and requirements. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on utilities and infrastructure.

5.10 Visual Resources

The Proposed Action would result in short- and long-term, minor, adverse impacts to visual resources associated with temporary construction activities being visible to some residents of the Boggs Tract neighborhood and the replacement rail bridge aesthetic. The actions in Table 23 would generally not be under construction at the same time as the Proposed Action; the only exceptions may be actions 23 and 24, which would not be visible by the Boggs Tract community. None of the actions in Table 23 would result in significant impacts on visual resources or impacts in the vicinity of replacement rail bridge. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable impacts on visual resources.

5.11 Land Use

The Proposed Action would have no impacts on land use, which precludes it from contributing to potential cumulative impacts.

5.12 Environmental Justice

The Proposed Action would not have disproportionate impacts on adjacent properties that contain environmental justice populations of interest. Many of the mitigation measures outlined in this EA would function to reduce the potential for disproportionate impacts on communities that contain environmental justice populations. Certain actions in Table 23 may have potentially significant environmental impacts, but, aside from actions 23 and 24, none would be under construction at the same time as the Proposed Action. These actions would not result in disproportionate impacts on environmental justice communities from construction. With regard to operations, the Proposed Action would alleviate the rail system bottlenecks and blockages that currently constrain rail movements at the Port, thus reducing rail congestion and the potential for increased emissions and noise from locomotive idling that could have otherwise been the result of other actions in Table 23. Therefore, the Proposed Action and actions listed in Table 23 would not have cumulatively considerable disproportionate impacts on environmental justice populations.

6 Environmental Significance of the Proposed Action

The Proposed Action would result in minor adverse impacts to the following resource areas: biological resources, cultural resources, geology and soils, hydrology and water quality, hazardous

materials, air quality, noise, transportation, utilities and infrastructure, and visual resources. Most of these adverse impacts would be short-term. In addition, the Proposed Action would have long-term beneficial impacts by removing 235 in-water creosote-treated piles from the San Joaquin River.

As described in Section 1.4, USCG is (or will be) coordinating with the following federal and state regulatory agencies to ensure compliance with applicable regulations: USACE, USFWS, NMFS, and SHPO. Native American Tribes and other potential parties of interest will be notified of the availability of this EA and provided an opportunity to comment.

7 Document Preparers

The authors who contributed to developing this EA are listed in Appendix J.

8 References

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