June 2021
Port of Stockton Rail Bridge Replacement and Rail Improvements Project

ANCHOR QEA

Initial Study/Mitigated Negative Declaration

Prepared for Port of Stockton

June 2021
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Initial Study/Mitigated Negative Declaration

Prepared for
Port of Stockton
2201 West Washington Street
Stockton, California 95203

Prepared by
Anchor QEA, LLC
130 Battery Street, Suite 400
San Francisco, California 94111

Project Number: 200377-01.01

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ABBREVIATIONS

2040 General Plan	*Envision Stockton 2040 General Plan*
AB	Assembly Bill
AB 32	California Global Warming Solutions Act of 2006
BMP	best management practice
BPS	best performance standard
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CAP	City of Stockton Climate Action Plan
CAPP	Community Air Protection Program
CARB	California Air Resources Board
CCTC	Central California Traction Company
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH_4	methane
CISS	cast-in-steel shell
City	City of Stockton
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalence
CPUC	California Public Utilities Commission
Crosstown Freeway	Ort J. Lofthus Freeway
CSLC	California State Lands Commission
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
EFH	essential fish habitat
EIR	Environmental Impact Report

EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMP	Fishery Management Plan
FTA	Federal Transit Administration
GHG	greenhouse gas
GWP	global warming potential
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HMM	Hazardous Materials Management Group
I-5	Interstate 5
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
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
L_n	percentile exceeded noise level
LOS	Level of Service
LUC	Land Use Covenant
MBTA	Migratory Bird Treaty Act
mph	miles per hour
MRZ	mineral resource zone
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCTS Stockton	Naval Computer and Telecommunications Station, San Diego Detachment Stockton
NGVD 29	National Geodetic Vertical Datum of 1929
NHD	National Historic District
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone

OSHA	Occupational Safety and Health Administration
PM	particulate matter
PM_{10}	particulate matter 10 microns or smaller in diameter
$PM_{2.5}$	particulate matter 2.5 microns or smaller in diameter
Port	Port of Stockton
PPV	peak particle velocity
PRC	Public Resources Code
ROG	reactive organic gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SJCOG	San Joaquin Council of Governments
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SIP	state implementation plan
SMC	City of Stockton Municipal Code
SMP	soil management plan
SO_x	sulfur oxide
SR 4	California State Route 4
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
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
UST	underground storage tank
VdB	vibration decibels
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled

1 Introduction

1.1 California Environmental Quality Act Process

This Initial Study/Mitigated Negative Declaration (IS/MND) was prepared by the Port of Stockton (Port) to identify the potential environmental impacts of the Rail Bridge Replacement and Rail Improvements Project (proposed project) under the California Environmental Quality Act (CEQA; 13 Public Resources Code [PRC] 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). The proposed project involves replacing an existing rail bridge with a new expanded rail bridge, constructing a new lead track, associated modifications to road underpasses and overpasses, and constructing a new rail classification yard. The Port is the lead agency for the proposed project under CEQA.

One of the main objectives of CEQA is to disclose the potential environmental effects of proposed activities to the public and decision-makers. CEQA requires that the potential environmental effects of a project be evaluated prior to implementation. This IS/MND includes a discussion of the proposed project's impacts on the existing environment, including the identification of avoidance, minimization, and mitigation measures.

Under CEQA, the lead agency is the public agency with primary responsibility over approval of a proposed project. The Port has directed the preparation of an environmental document that complies with CEQA and will consider the information in this document when determining whether to approve the proposed project. The preparation of initial studies is guided by Section 15063 of the CEQA Guidelines, whereas Sections 15070 through 15075 guide the process for the preparation of a Negative or Mitigated Negative Declaration. Where appropriate and supportive to an understanding of the issues, reference will be made to the statute, the CEQA Guidelines, or appropriate case law.

This IS/MND meets CEQA content requirements by including a project description; descriptions of the environmental setting, potential environmental impacts, and mitigation measures for any potentially significant impacts; and discussion of the proposed project's consistency with plans and policies.

1.2 Lead Responsible and Trustee Agencies

The CEQA Guidelines identify "the lead agency as the public agency which has the principal responsibility for carrying out or approving a project" (14 CCR 15367). The Port is the CEQA lead agency for the proposed project and has the primary responsibility for carrying out the proposed project.

Projects or actions undertaken by the lead agency (in this case, the Port) may require subsequent oversight, approvals, or permits from other public agencies. Other such agencies are referred to as

responsible agencies and trustee agencies. Pursuant to CEQA Guidelines Sections 15381 and 15386, as amended, responsible and trustee agencies are defined as follows:

- A **responsible agency** is "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term 'Responsible Agency' includes all public agencies other than the Lead Agency which have discretionary approval authority over the project" (CEQA Guidelines Section 15381).
- A **trustee agency** is "a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California" (CEQA Guidelines Section 15386). Trustee agencies have jurisdiction over natural resources held in trust for the people of California but do not have a legal authority over approving or carrying out a project. CEQA Guidelines Section 15386 identifies the following four agencies as potential trustee agencies for projects subject to CEQA:
  - California Department of Fish and Wildlife (CDFW), regarding fish and wildlife, native plants designated as rare or endangered, game refuges, and ecological reserves
  - California State Lands Commission (CSLC), regarding "state owned 'sovereign' lands such as the beds of navigable waters and state school lands"
  - California Department of Parks and Recreation, regarding "units of the State Park System"
  - University of California, regarding "sites within the Natural Land and Water Reserves System"

Table 1 summarizes the expected relevant regulatory agencies, their expected jurisdiction (i.e., trustee or responsible agency), and their statutory authority as related to the proposed project. The jurisdiction of these agencies will be confirmed through subsequent coordination.

Table 1
Regulatory Agencies and Authority

Regulatory Agency	Jurisdiction	Statutory Authority/Implementing Regulations
U.S. Coast Guard	Responsible agency	Permitting authority for work to construct or modify a bridge across a navigable waterway of the United States.
U.S. Army Corps of Engineers	Responsible agency	Reviews and authorizes in-water work under the Clean Water Act and Rivers and Harbors Act. The proposed project is expected to require permits under the Rivers and Harbors Act and may require a permit under the Clean Water Act.

Regulatory Agency	Jurisdiction	Statutory Authority/Implementing Regulations
Office of Historic Preservation	Responsible agency	Consults with federal lead agencies under Section 106 of the National Historic Preservation Act with state and federal lead agencies regarding impacts on cultural resources that are either listed, or eligible for listing, on the National Register of Historic Places. The proposed project is expected to require Section 106 consultation with the State Historic Preservation Officer.
California Department of Fish and Wildlife	Responsible agency	Reviews and submits recommendations in accordance with CEQA. Reviews and authorizes in-water work and work in riparian areas under the California Fish and Game Code. The proposed project is expected to require a Streambed Alteration Agreement.
California State Lands Commission	Responsible agency	Manages Public Trust lands and issues tidelands leases for use or development. The proposed project is expected to require a new or amended tidelands lease.
Central Valley Flood Protection Board	Responsible agency	Reviews and approves work that involves cutting into levees, wholly or in part within any area for which there is an Adopted Plan of Flood Control.
Central Valley Regional Water Quality Control Board	Responsible agency	Reviews projects for authorization under the Porter-Cologne Water Quality Control Act and Clean Water Act Sections 401 and 402. The proposed project is expected to require a 401 Water Quality Certification and an NPDES Construction General Permit.
Reclamation District 403	Responsible agency	Reviews work on or near West Complex levees. The proposed project is expected to require approval from Reclamation District 403.
Reclamation District 404	Responsible agency	Reviews work on or near East Complex levees. The proposed project is expected to require approval from Reclamation District 404.
San Joaquin Council of Governments	Responsible agency	Reviews and approves projects obtaining coverage under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). The proposed project is expected to apply for coverage under the SJMSCP.
City of Stockton Building Department	Responsible agency	Reviews and approves grading and land alteration permits.
San Joaquin County Planning/Development Services Department	Responsible agency	Reviews and approves grading and land alteration permits.

1.3 Public Participation, Consultation, and Coordination

Public participation is an integral part of the CEQA process. Public participation facilitates two-way communication between the public and the lead agency (the Port) decision-makers, ensuring that public concerns and input are considered in the final decision. The Port's public participation process ensures that interested persons are informed about discretionary decisions and have the opportunity

to provide input. The Port also consults with public agencies in a variety of ways when developing CEQA documents, including direct agency outreach and distribution of documents.

1.3.1 Regulatory Guidance Related to Public Outreach and Coordination

1.3.1.1 Assembly Bill 52

Assembly Bill (AB) 52 became effective on July 1, 2015, requiring lead agencies to consider the effects of projects on tribal cultural resources and to conduct notification and consultation with federally and non-federally recognized Native American tribes and the Native American Heritage Commission (NAHC) early in the environmental review process. Two Native American tribes, the Buena Vista Rancheria of Me-Wuk Indians of California and the Wilton Rancheria Tribe, have requested consultation on CEQA documentation for projects at the Port. The Port notified these two tribes—as well as the Tule River Indian Tribe, Confederated Villages of Lisjan, Muwekma Ohlone Indian Tribe of the SF Bay Area, and the Northern Valley Yokuts Tribe—of the proposed project by email on May 28, 2021, and by letter on June 2, 2021, and requested a search of NAHC's Sacred Lands Information File.

1.3.1.2 Assembly Bill 617

AB 617 (C. Garcia, Chapter 136, Statutes of 2017) requires the California Air Resources Board (CARB) to develop an air toxic monitoring plan for the state focusing on community air monitoring at the highest priority locations, considering factors such as the presence of sensitive receptors like schools and hospitals, whether the community is disadvantaged, and whether there is a high degree of exposure to toxic air contaminants (TACs) and criteria air pollutants. In response to AB 617, CARB has established the Community Air Protection Program (CAPP). The goal of CAPP is to reduce exposure in communities most impacted by air pollution. CAPP works with local air districts to implement monitoring networks and address emission sources. Three AB 617 communities have been identified in the San Joaquin Valley, including the Southwest Stockton Community. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is working closely with community residents, community businesses, and other key stakeholders, including the Port, to reduce exposure to harmful air pollutants in selected communities. Through the implementation of the AB 617 legislation, SJVAPCD, with input from the community, will be deploying additional community-specific air quality monitoring to better understand the impacts of local sources of pollution and developing community-specific emission reduction programs. The Port is a member of the AB 617 Community Steering Committee and intends to be active in developing strategies to protect public health and the environment.

1.4 Incorporation by Reference

As permitted in Section 15150 of the CEQA Guidelines, CEQA lead agencies may reference all or portions of another document that is a matter of public record or is generally available to the public. Information from documents that have been incorporated by reference is briefly summarized in the appropriate sections of this IS/MND, along with a description of how the public may obtain and review these documents. The documents that are incorporated by reference in this IS/MND are summarized in Sections 1.4.1 through 1.4.3. Documents that are incorporated by reference are available for review at the internet links provided in the following sections or during working hours from 8:00 a.m. to 5:00 p.m., Monday through Friday at the Port, at 2201 West Washington Street, Stockton, California 95201.

1.4.1 City of Stockton 2040 General Plan

The City of Stockton's (City's) *Envision Stockton 2040 General Plan* (2040 General Plan; State Clearinghouse [SCH] number 2017052062; City 2018a), which is available online at http://www.stocktongov.com/files/Adopted_Plan.pdf, is appropriate to incorporate by reference because the 2040 General Plan establishes the land use designations for the project site with which the proposed project is consistent. The 2040 General Plan identifies most of the areas surrounding the project site as Industrial/Port Use and specifically identifies the project areas on the East Complex as Industrial and areas on the West Complex as Institutional. The 2040 General Plan also guides the maintenance, design, and operation of transportation resources in Stockton, including streets and highways within the project area, and sets regional noise standards based on land use designations.

1.4.2 City of Stockton Municipal Code

The City of Stockton Municipal Code (SMC), which is available online at https://qcode.us/codes/stockton/, is appropriate to incorporate by reference because the City designates Landmarks and Historic Sites under SMC Title 16, Division 7, Chapter 16.220. Landmarks are artifacts, natural features, or structures notable for one or more of the following: archaeological interest; architectural artistry, style, or type; association with a historic event or person; association with the heritage of the City, State, or Nation; visual characteristics; relationship to another landmark; or integrity as a natural environment. Port resources have been identified as having significant historical or cultural significance. SMC Title 16, Division 5, Chapter 16.130 provides protection for heritage oaks in Stockton.

1.4.3 City of Stockton Climate Action Plan

The City's Climate Action Plan (CAP; SCH number 2012042065; City 2014), which is available online at http://www.stocktonca.gov/files/Climate_Action_Plan_August_2014.pdf, is appropriate to incorporate by reference because the CAP provides goals and associated measures in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment. Consistent with SJVAPCD, the

CAP relied on a goal of 29% reduction in greenhouse gas (GHG) emissions from business as usual by 2020. As described in the CAP (City 2014), the City will "revisit this plan in the future to examine whether there exist additional options to further reduce GHG emissions, and whether such options might be feasible in improved economic conditions" beyond 2020. An updated community GHG inventory is planned during fiscal year 2021 to 2022 (City 2021a).

2 Project Description

The Port is proposing to replace a functionally obsolete rail bridge and construct a new lead track to increase the overall efficiency of train operations within the Port. Construction of the proposed rail improvements would occur largely within the Port's rail system. 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 right-of-way adjacent to Ventura Avenue and West Scotts Avenue, respectively. The proposed project includes replacing an existing rail bridge between the East and West Complexes with a new expanded rail bridge, 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.

2.1 Project Location and Environmental Setting

CEQA Guidelines Section 15063(d)(1) requires that an Initial Study identify the environmental setting. This setting is used to determine environmental impacts. As described in Section 2.1, the environmental setting is the Port's existing rail network, including the volume of rail that is expected under existing physical conditions. The environmental setting as it relates to individual resource topics is described in Section 3.

The proposed project 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. The Port is west of Interstate 5 (I-5), and generally 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 2040 General Plan designates Port lands as "Institutional," and the zoning designation of the project area is primarily "Port" with limited areas that have zoning designations of General Industrial, Low-Density Residential, and undesignated (BNSF right-of-way) (City 2021b). Port areas are designated for the operation of port facilities, including wharves, dockage, warehousing, and related port facilities. Figure 1 shows the Port's regional location.

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Figure 1
Study Area and Vicinity
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

The proposed project includes elements on both the Port's East Complex and West Complex. 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 State Route (SR) 4 on the south. The East Complex is connected by bridges across the San Joaquin River to the West Complex, commonly known as Rough and Ready Island after the U.S. Department of the Navy transferred its interest and use to the Port. The Port's 1,400-acre West Complex 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. The existing rail bridge between the East and West Complexes was built more than 85 years ago; the bridge now has outdated rail size and weight limitations, and over time has become susceptible to structural deficiencies that could lead to closure. If a rail bridge closure were to occur, there would be no rail service to terminals in the West Complex.

Multiple roadways provide access to businesses within the Port and connect to adjacent industrial, commercial, and residential areas. 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. Figure 2 shows the road network within and around the Port. A 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.

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Figure 2
Existing Road System
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

2.2 Project Background

2.2.1 Freight Rail

California's freight railroad system consists of Class I railroads (BNSF Railway [BNSF] and Union Pacific Railroad [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. Freight rail is shipped both by manifest and as part of unit trains. Manifest trains are made up of mixed rail cars from multiple sources; these rail cars are coupled with other rail cars 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 UP and BNSF with Central California Traction Company (CCTC) serving as the short line railroad and switcher at the Port. CCTC manages all rail operations within the Port including delivering rail cars and/or switching rail cars 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 rail cars) 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 (10:00 a.m. to 3:00 p.m. for BNSF and 10:00 p.m. to 6:00 a.m. for UP).

2.2.2 Port of Stockton's Existing Rail Network

Inbound trains enter the Port on the Port's 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. The lead track is the track that 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 bridge spanning the San Joaquin River. The Port services both unit trains and manifest rail with switching occurring at multiple locations within the Port. Figure 3 shows the existing Port rail system in the East and West Complexes.

2.2.2.1 Current Rail System Constraints

The Port's rail system currently serves 21 trains per week. Weekly train volumes are expected to increase to 34 trains per week by 2026 based on tenant projections. 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 rail cars. Some tenants at the Port partially fill rail cars 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 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 rail 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 bridge was caused by a spark from a rail car that ignited old creosote-treated wood that is part of the bridge's decking. A modern, expanded rail 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 bridge limitations, the Port's 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 two locations at the Port: 1) inbound cargo is delayed at the 700 Yard where outbound staged rail cars awaiting departure block the lead track; and 2) delays occur at the Port Yard when 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 rail cars 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.

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Figure 3
Existing Port Rail System
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

2.3 Project Objectives

Pursuant to the CEQA Guidelines and 14 CCR 15124, a "statement of the objectives sought by the proposed project" is to be provided as part of the project description. The purposes of the proposed project are to replace the outdated rail 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 projected increases in future train volumes. To meet the project purposes, the following objectives were identified for the proposed project:

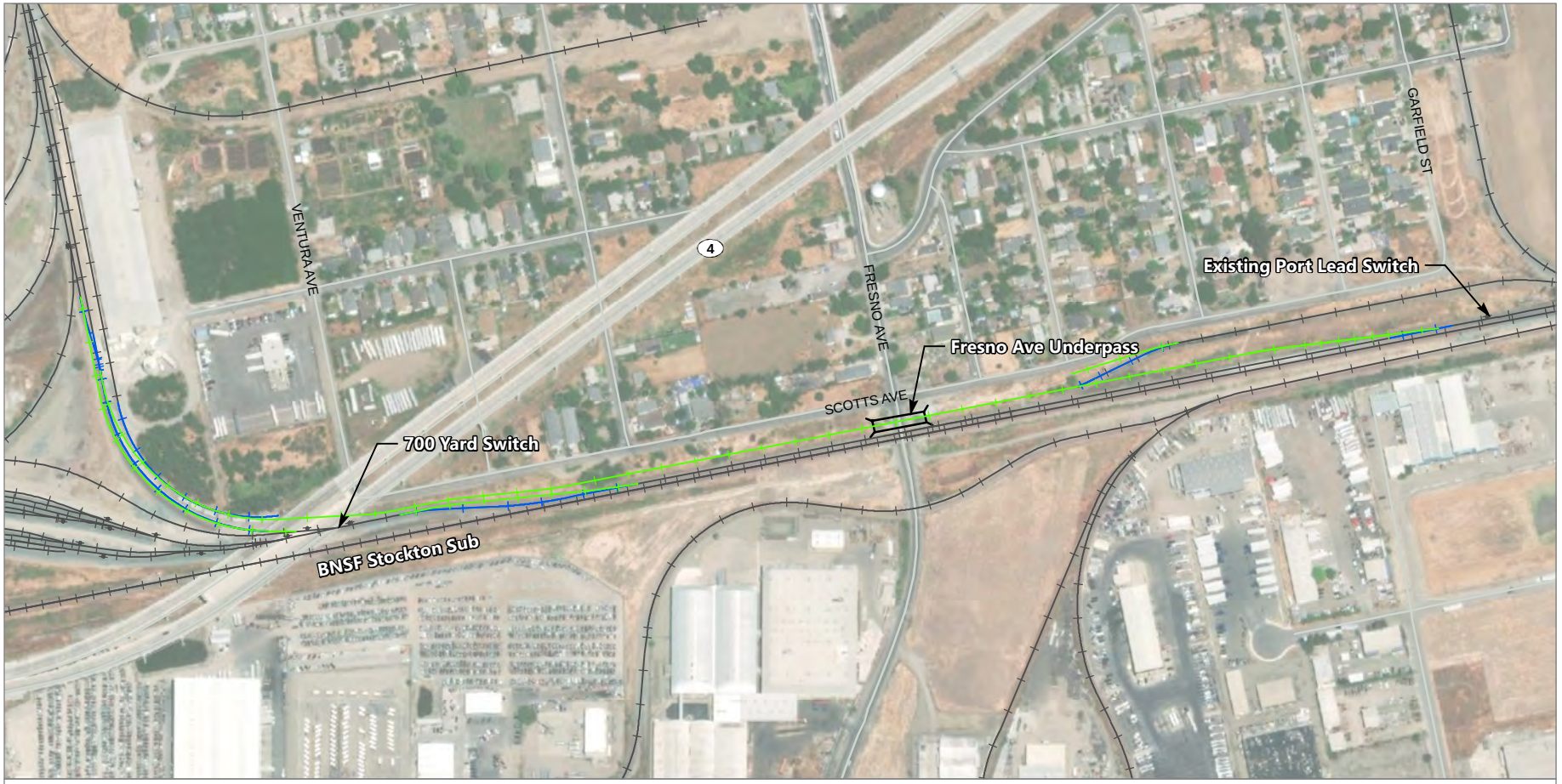
- Eliminate outbound staging bottlenecks
- Increase efficiency of train operations on the East Complex
- Increase efficiency of train operations between the East Complex and West Complex
- Mitigate the potential risk of bridge closure, including from fires originating on creosote-treated wood ties/decking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

2.4 Project Overview

To address the objectives identified for the proposed project, the following rail improvements are proposed:

- Replace the existing outdated wood and steel truss, single-track rail bridge between the Port's East and West Complexes with a double-track rail bridge. The existing swing bridge would be replaced by two fixed bridges, with removable center spans, to accommodate vessels in the event of an upstream levee or flood event. The approach tracks on the East Complex side of the bridge would connect to the double-track Port lead. On the West Complex side of the bridge, the double approach tracks would connect to the existing Port Track 950 just west of the Fyffe Avenue overcrossing.
- Add a second Port lead track within the BNSF right-of-way, extending from beyond the 700 Yard switch to the existing Port lead switch, including a new rail underpass (allowing Fresno Avenue to pass under the tracks)
- Add a second Port lead track through the East Complex
- Construct new yard track south of the Port Yard on the East Complex
- Construct a new rail classification yard on the West Complex

The bridge replacement and rail improvements, and associated modifications, are shown in Figures 4 through 6.



LEGEND:

- Proposed New Rail
- Existing Rail Demolished
- Existing Rail

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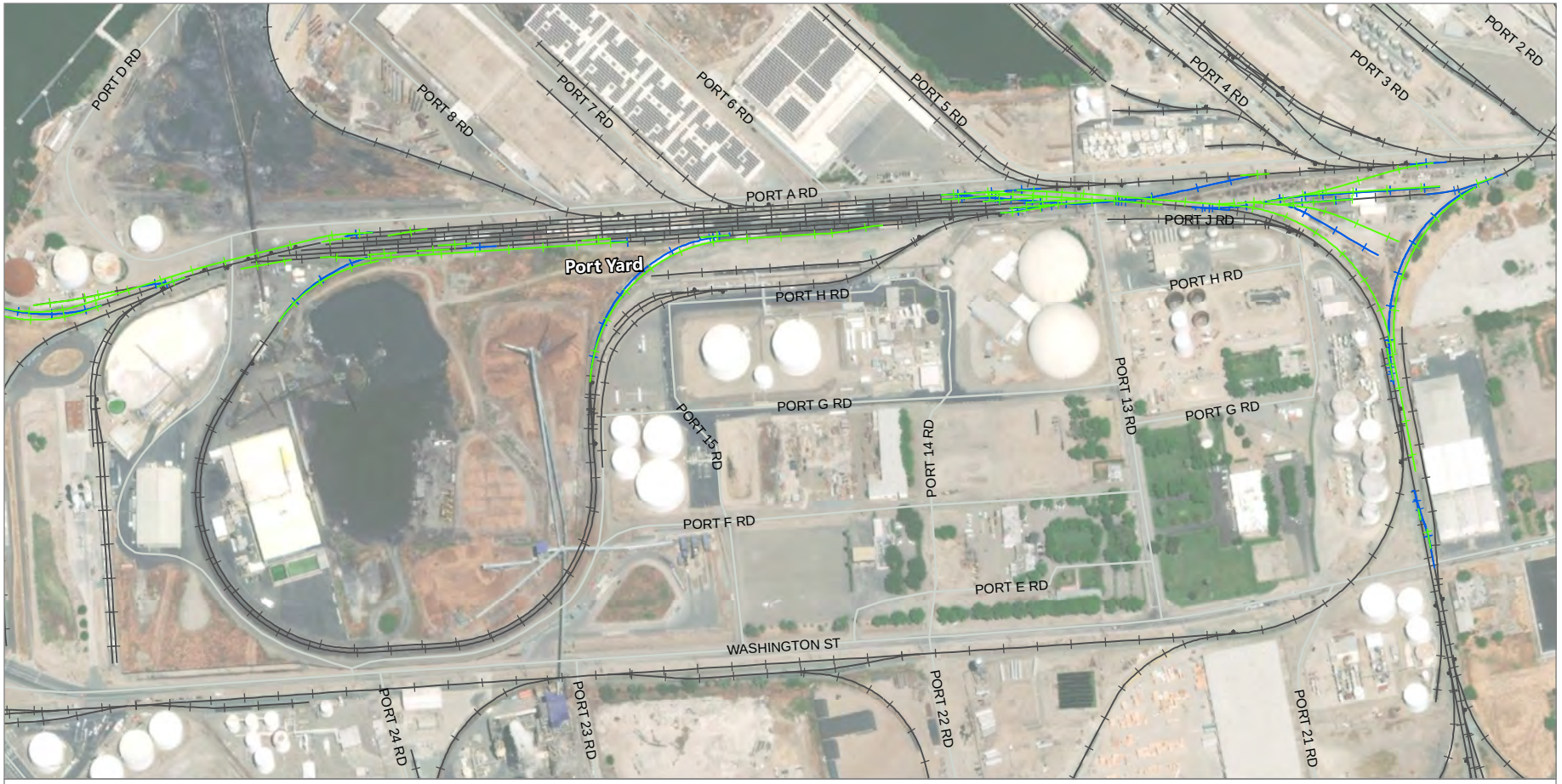
Figure 4a
BNSF Right-of-Way and East Complex Proposed Rail Improvements
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California



LEGEND:

- Proposed New Rail
- Existing Rail Demolished
- Existing Rail

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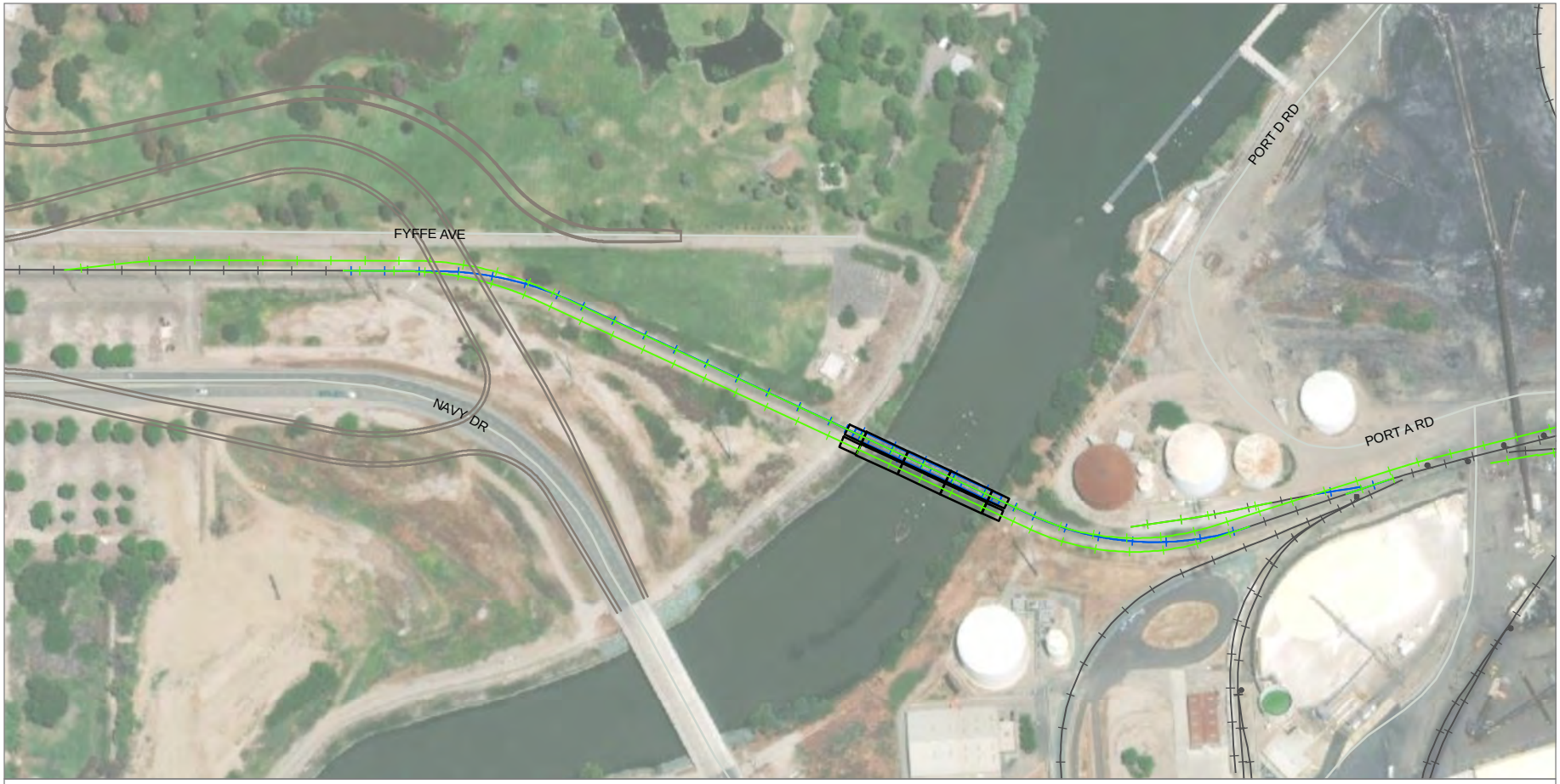
Figure 4b
East Complex Proposed Rail Improvements
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California



LEGEND:

- Proposed New Rail
- Existing Rail Demolished
- Existing Rail
- Proposed New Bridge Alignment
- Future Road Alignment (Under Construction)

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Figure 5a
Proposed Rail Bridge Replacement
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

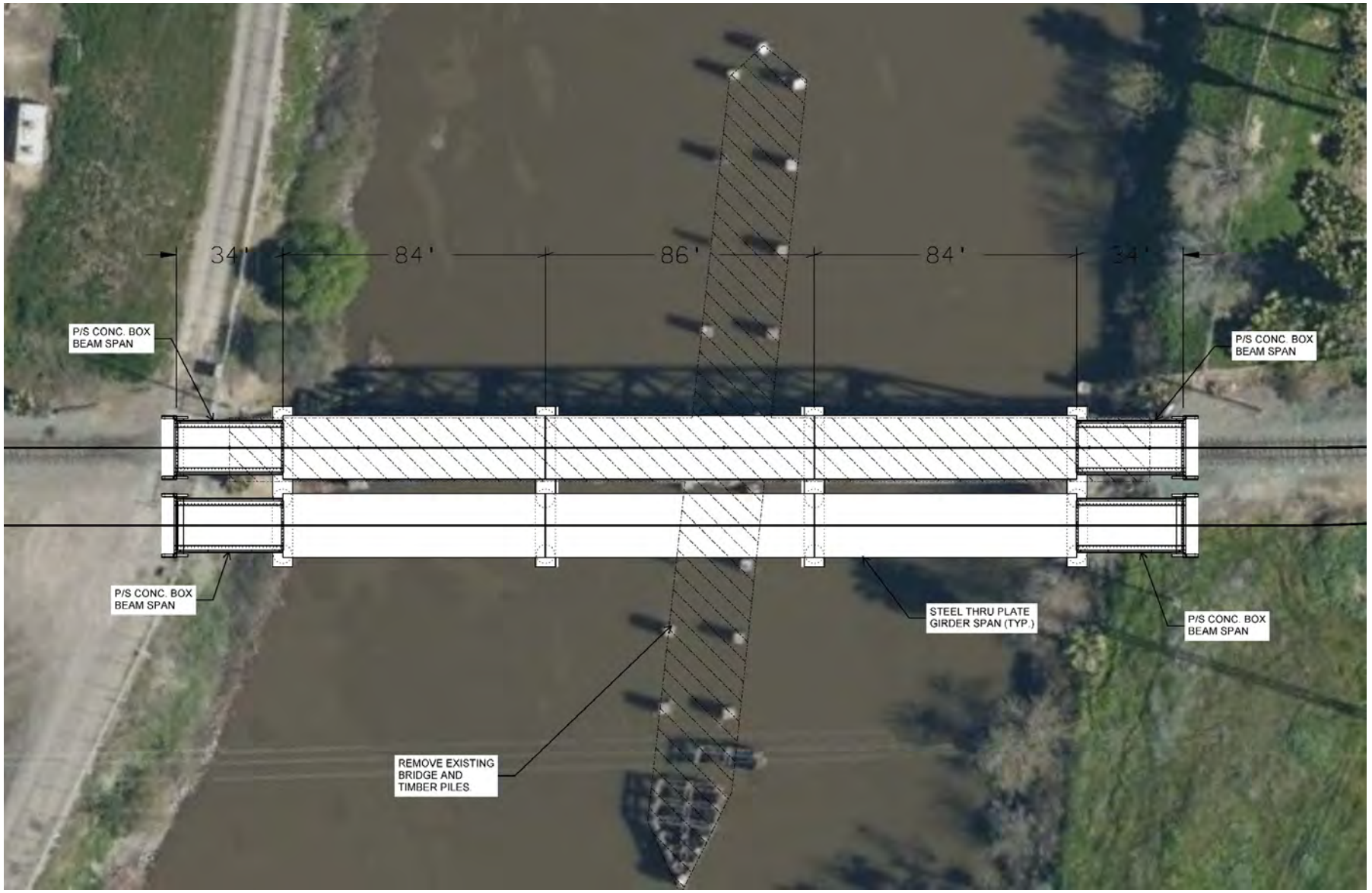

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Figure 5b
Proposed Rail Bridge Replacement
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

LEGEND:

- Proposed New Rail
- Existing Rail Demolished
- Existing Rail

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Figure 6
West Complex Proposed McCloy Rail Classification Yard
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

2.5 Proposed Project Construction

This section describes proposed project construction, including bridge replacement and rail improvement elements. Construction would occur over approximately 3 years, as shown in Table 2. The periods shown in Table 2 reflect the most conservative estimates of construction timing.

Table 2
Rail Improvements Construction Timeline

Construction Element	Approximate Schedule		
	Start	**End**	**Number of Days**
Rail Bridge Replacement: Track LD01 Construction	**2023**	**2024**	
Construct South Temporary Work Platform	July 2023	August 2023	30
LD01 Bridge Foundations	August 2023	October 2023	60
Bridge Piers	July 2024	August 2024	32
Erection of Superstructure on LD01	August 2024	August 2024	13
Removal of South Temporary Work Platform	August 2024	September 2024	30
Rail Bridge Replacement: Track LD02 Construction	**2025**	**2025**	
Construct North Temporary Work Platform	July 2025	August 2025	30
Existing Bridge Removal	August 2025	September 2025	31
LD02 Bridge Foundations	August 2025	September 2025	32
Bridge Piers	September 2025	October 2025	32
Erection of Superstructure on LD02	October 2025	November 2025	13
Removal of North Temporary Work Platform	October 2025	November 2025	30
Second Lead Track Construction	**2023**	**2024**	
Earthwork, Trackwork, and Construction of Fresno Avenue Underpass	July 2023	November 2023	97
Earthwork and Track Construction – Port	November 2023	December 2023	32
Track Removal and Reconnection – Port Side	January 2024	February 2024	36
Track Removal and Reconnection – Bridge Approaches	February 2024	May 2024	65
McCloy Classification Yard Construction	**2023**	**2024**	
Earthwork and Track Construction	July 2023	April 2024	215
Track Removal and Reconnection	April 2024	July 2024	52

2.5.1 Site Preparation

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 7. Many of the staging areas have been previously used for other nearby construction or consist of already 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.

LEGEND:

- Proposed New Rail
- Existing Rail
- Equipment and Material Staging Areas

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Figure 7
Equiment and Material Staging Areas
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

2.5.2 Rail Bridge Replacement

The proposed project would remove the outdated rail bridge that connects the East and West Complexes over the San Joaquin River and replace it with a double-track rail bridge in the same location. The existing single-track swing bridge has creosote-treated wood ties/decking and a steel truss. When closed, the low chord existing bridge elevation is at 15 feet National Geodetic Vertical Datum of 1929 (NGVD 29) with 100 feet of horizontal clearance between the center swing pier and the riverbank. It includes approximately 4,500 square feet of overwater cover.

There are 235 existing in-water, 15-inch-diameter, creosote-treated timber piles that 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. 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 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 project.

The proposed steel and concrete replacement rail 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. The existing single-track rail bridge would be replaced by two single-track rail bridges—for a double-track rail 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 bridge would consist of both structural steel and precast/prestressed concrete superstructures on concrete substructures. The bridge foundations would be driven steel H-piles, pipe piles, and/or cast-in-steel shell (CISS) concrete piles. It is estimated that 80 to 100 driven steel H-piles or pipe piles, and/or 12 to 20 CISS piles, ranging from 48 to 72 inches in diameter, would be permanently installed. 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 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 new rail bridge, except as may be required by the U.S. Coast Guard (USCG) 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 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 new 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 3, and each step is illustrated in construction sequence drawings in Appendix A.

Table 3
Rail Bridge Construction Phasing

Rail Bridge Construction Activities[1]	Duration (weeks)	In-Water[3]	Year
Construct temporary work platform to the south of existing bridge • Remove existing in-water timber piles • Drive steel piles and construct timber deck	7	yes	1
Construct bridge foundations for Track LD01 • Construct a coffer dam below mudline for installation of HP steel piles • Drive steel (HP and CISS) piles for abutments and piers • Fill pipe piles with concrete	10	yes	
Construct Track LD01 rail bridge[2] • Install pre-cast concrete abutment caps • Pour cast-in-place concrete pier caps • Erect steel superstructure, construct tracks • Shift rail traffic from existing bridge to LD01	9	no	
Remove temporary work platform • Deconstruct timber deck • Remove temporary steel piles	6	yes	2
Construct temporary work platform to the north of existing bridge • Remove existing in-water timber piles • Drive temporary steel piles and construct timber deck	7	yes	
Remove existing rail bridge • Remove bridge super structure • Remove existing concreate swing pier and abutments (may require use of a cofferdam) • Remove existing in-water timber piles	6	yes	
Construct bridge foundations for Track LD02 • Construct a coffer dam below mudline for installation of HP steel piles • Drive steel (HP and CISS) piles for abutments and piers • Fill pipe piles with concrete	6	yes	3
Construct Track LD02 rail bridge • Install pre-cast concrete abutment caps • Pour cast-in-place concrete pier caps • Erect steel superstructure, construct tracks • Open LD02 to rail traffic	9	no	

Notes:
1. Assumes that both HP steel and CISS would be used (final design may use one or the other)
2. Assumes that construction of rail switch to connect LD02 to existing railway would occur concurrently with construction of LD02 bridge
3. Assumes that contractor would perform some steps concurrently to complete in-water work during the allotted July 1 to November 30 work window

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 confirmed by USCG and in coordination with Reclamation Districts 403 and 404.

Replacement of the rail 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. The exact volumes of cut and fill remain to be determined, but 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 HP piles are used (excavated soil would be backfilled following placement of piles)
- Removal of soil within pile shafts if CISS piles are used

In summary, the exact number of piles for installation may change based on the final bridge design and the means and methods identified by the contractor, but to recap the information provided above, the following estimates are based on preliminary design:

- Permanently remove 256 existing creosote-treated timber piles, 15-inch diameter (235 of which are in-water piles)
- Temporarily install 96 steel pipe piles, 24-inch diameter, up to 80 feet deep, to be removed following construction
- Permanently install either:
  - 80 to 100 driven steel H-piles or pipe piles, 80 to 100 feet deep
  - 20 driven steel piles for the abutments and 12 to 20 CISS piles, 48 to 72 inches diameter, up to 100 feet deep

Construction phasing assumes some disruption to bridge access (estimated 8 to 12 hours) when Track LD01 is connected to the existing Port rail line.

2.5.3 Lead Track Improvements

The Port proposes to 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 new LLDT would go over Fresno Avenue similar to existing conditions). The LLDT would pass under the existing Crosstown Freeway overpass; crash walls would be constructed around two existing support columns for CA-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 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 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 road bed (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 B.

2.5.4 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 road bed work (excavation, backfill, final grading), laying track, and constructing reconnections to existing tracks.

2.6 Proposed Project Operations

As discussed in Section 2.2.2.1, 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. As shown in Table 4, the proposed rail system improvements would eliminate the constraints and accommodate the projected growth. 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. As shown in Table 4, train travel time 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 Project as trains get longer).

Table 4
Port Rail System With and Without the Proposed Rail System Improvements

		Port Rail Infrastructure Ability to Accommodate 2026 Train Volumes	
	2021 Volumes	Without Proposed Project Improvements	With Proposed Project Improvements
Total trains per week	21 average (up to 28 possible)	28	34
Total weekly train travel time within Port (hours)	138	231	280[a]
Average travel time per train (hours)	6.6	8.25	8.25
Total weekly idle time (hours)	42	55	67[a]
Average idle time per train (hours)	2	2	2
700 Yard staging total weekly blockage time (hours)	48	64	0
Port lead track total weekly blockage time (hours)	124	140	76

Note:

a. Projected values assume the same average travel and idle times for future operations once trains have entered the Port through the lead track.

Many of the operational changes shown in Table 4 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 bridge would allow for train access to the West Complex in a safe and efficient manner. The new 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 for more than one train to access the bridge simultaneously. The new bridge also would increase system resiliency; if a closure of the existing rail 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 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 rail cars in the West Complex and reduce travel times for CCTC's switching operations but would not change the mainline operational capacity.

3 Environmental Checklist

1. **Project Title:** Port of Stockton Bridge Replacement and Rail Improvements
2. **Lead Agency:** Port of Stockton
   2201 West Washington Street
   Stockton, California 95203
3. **Contact Person:** Jason Cashman
4. **Project Location:** The proposed project includes locations on the Port's East Complex, West Complex, the rail bridge across the San Joaquin River between the East and West Complexes, and BNSF right-of-way adjacent to West Scotts Avenue.
5. **Project Sponsor:** Port of Stockton
6. **General Plan Designation:** Institutional (West Complex), Industrial (East Complex)
7. **Zoning:** Port, with limited areas of General Industrial, Low-Density Residential, and undesignated (BNSF right-of-way)
8. **Description of Project:** The proposed project would replace a functionally obsolete rail bridge and increase the overall efficiency of train operations within the Port to accommodate projected volumes. The proposed rail improvements include the following:
   - Replacing the existing outdated wood and steel truss, single-track rail bridge between the Port's East and West Complexes with a double-track rail bridge (two fixed, removable span bridges) to accommodate vessels in the event of an upstream levee or flood event
   - Adding a second Port lead track within the BNSF right-of-way and through the East Complex
   - Constructing new yard track south of the Port Yard on the East Complex
   - Constructing a new rail classification yard on the West Complex

   Construction would occur over approximately 3 years and would be expected to begin in summer 2023.
9. **Surrounding Land Uses and Setting:** Surrounding land uses in the Port are industrial. Surrounding land uses in the City's urban core are 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

10. Other Public Agencies Whose Approval Is Required:

- Bridge permit from USCG
- Permit from the U.S. Army Corps of Engineers
- Streambed Alteration Agreement from CDFW
- Lease from CSLC
- Encroachment Permit from Central Valley Flood Protection Board
- Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit and 401 Water Quality Certification from Central Valley Regional Water Quality Control Board
- Approval from Reclamation Districts 403 and 404
- Grading and land alteration permits from the City
- Grading and land alteration permits from San Joaquin County

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Two Native American tribes requested consultation under CEQA guidelines (commonly known as AB 52): the Buena Vista Rancheria of Me-Wuk Indians of California and the Wilton Rancheria Tribe. The Port notified these two tribes—as well as the Tule River Indian Tribe, Confederated Villages of Lisjan, Muwekma Ohlone Indian Tribe of the SF Bay Area, and the Northern Valley Yokuts Tribe—of the proposed project by email on May 28, 2021, and by letter on June 2, 2021, and will provide the IS/MND to the tribes. No tribal cultural resources have been identified in the project area. Consultation will be ongoing.

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is potentially significant (after incorporation of mitigation measures) as indicated by the checklist.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

3.2 Determination

On the basis of this initial evaluation:

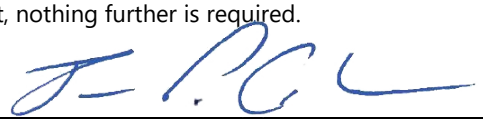
☐ I find that the proposed subsequent activity COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects: a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards; and b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature	June 25, 2021
	Date
Jason Cashman	Port of Stockton
Printed Name	For

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is potentially significant (after incorporation of mitigation measures) as indicated by the checklist.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

3.2 Determination

On the basis of this initial evaluation:

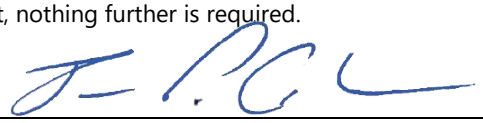
☐ I find that the proposed subsequent activity COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects: a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards; and b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature	June 25, 2021
	Date
Jason Cashman	Port of Stockton
Printed Name	For

3.3 Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

3.3.1 Aesthetics

	Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☐	☒
c.	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

3.3.1.1 Affected Environment

3.3.1.1.1 Regional Setting

The proposed project 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 project site, 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).

3.3.1.1.2 Scenic Highways

California's Scenic Highway Program was created by the State Legislature in 1963 with the purpose of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 284. The closest scenic highway to the project site is the portion of I-580 from I-5 to I-205, which is located 20 miles southwest of the Port.

3.3.1.1.3 Study Area Setting

The proposed project includes elements on the Port's East Complex and West Complex; the visual landscape in the study area of both comprise largely industrial facilities, roads and railways, and barren parcels planned for development (Photographs 1 through 3). 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 rail bridge site includes an approximately 15-foot-high levee adjacent to each side of the San Joaquin River (Photograph 3). Because the study area is so highly developed with industrial infrastructure, few natural features exist. Vegetation is mostly limited to ornamental native and non-native trees and ruderal grasses, shrubs, and other groundcover.

Photograph 1
View of the Proposed McCloy Rail Classification Yard Site on the West Complex
Looking east from near the intersection of McCloy Avenue and Humphreys Drive

Photograph 2
View of the Existing Rail Embankment and Proposed Starting Location of the LLDT in the BNSF Right-of-Way

Looking west near the intersection of West Scotts Avenue and Garfield Avenue

Photograph 3
View of the Existing Railroad Bridge

Looking east from atop the levee on the western approach to the rail bridge

3.3.1.1.4 Project Viewshed

Views throughout the project area are largely obscured by industrial developments, rail lines, and rail cars. 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 project 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 project area. Construction of the rail bridge would not be visible from the Boggs Tract neighborhood. Construction and current and proposed operation of portions of the rail line would be visible from portions of the Boggs Tract neighborhood. The closest neighborhood to the rail bridge is approximately 0.5 mile to the north, across the San Joaquin River; construction of and proposed project operations on the rail bridge could potentially be visible from vacant land on the north bank of the San Joaquin River near the intersection of Ryde Avenue and West Fremont Street.

3.3.1.2 Impact Evaluation

A: Would the project have a substantial adverse effect on a scenic vista?

No Impact. The existing visual character in the study area is not considered scenic, nor are there any identified scenic vistas within the project area. Therefore, there would be no impact to scenic vistas.

B: Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?

No Impact. The proposed project would not affect any rock outcroppings or historic buildings along a scenic highway. Vegetation removal would be limited to grubbing of ruderal vegetation and potentially limited tree removal along McCloy Avenue. There are no designated state scenic highways within the project area, and the visual character of the study area (industrial and Port uses) is consistent with the proposed project. Therefore, there would be no impact to scenic resources.

C: In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-Significant Impact. The proposed project is located within the City's urban core and would not conflict with applicable zoning. There are no applicable regulations governing scenic quality at the project site, and the visual character of the study area would not be changed by the proposed project.

Permanent visual changes resulting from the proposed project would occur from replacing the rail 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 project site and its surroundings, which includes other rail lines and bridges. The proposed project would accommodate a modest increase in rail calls at the Port. Rail operations under the proposed project would be aesthetically similar and consistent with those of existing conditions within the industrialized area. The proposed project would demolish the existing steel and wood single-track rail bridge, which is currently eligible for listing in the National Register of Historic Places (NRHP) as a contributing structure to the National Register-eligible Naval Supply Annex Stockton National Historic District (NHD). The new steel and concrete double-track rail 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 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 of the proposed project construction timeline (see Section 2.5). While it would be visible to some residents of the Boggs Tract neighborhood, construction would not alter the visual character of the project site and surroundings due to its location within an industrialized area.

Based on the conditions described above, there would be a less-than-significant impact to the existing visual character or quality of the project site and its surroundings from the proposed project.

D: Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

No Impact. Any lighting required for construction would be directed onto the project site and would be the minimum necessary for safety purposes. No new permanent sources of light or glare would be constructed. Therefore, the proposed project would result in no impact to daytime or nighttime views in the study area from new sources of light or glare.

3.3.2 Agricultural and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:		**Potentially Significant Impact**	**Less-Than-Significant Impact After Mitigation**	**Less-Than-Significant Impact**	**No Impact**
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	☒
d.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.3.2.1 Affected Environment

The City's 2040 General Plan (City 2018a) designates the project areas on the East Complex as Industrial and areas on the West Complex as Institutional. The zoning designation for the project area and surrounding parcels is primarily Port, but includes limited areas designated as General Industrial, Low-Density Residential, and undesignated zoning along the BNSF right-of-way (City 2021b). Port areas are designated for the operation of port facilities, including wharves, dockage, warehousing, and related port facilities.

Neither the project site nor the immediate surrounding areas currently support agricultural use or forestry resources. There are no timberland zoned properties within San Joaquin County (Stockton Port District 2012). The nearest forest area is the Stanislaus Forest, which is more than 50 miles away. Property surrounding the project area has been developed for industrial or urban land uses.

3.3.2.2 Impact Evaluation

A: Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, there would be no impact.

B: Would the project conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?

No Impact. No farmland exists in the project area. The project area is zoned for non-agricultural uses and is actively used for rail transport, which precludes the area from qualifying for Williamson Act contracts. Therefore, there would be no impact.

C: Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?

No Impact. The proposed project would not conflict with or change any zoning or use of forest land, timberland, or timberland zoned Timberland Production. Therefore, there would be no impact.

D: Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The proposed project would not result in the conversion of forest land or timberland to non-forest use. Therefore, there would be no impact.

E: Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. No forest or farmlands exist near the project area. Therefore, there would be no impact.

3.3.3 Air Quality

When available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.3.1 Affected Environment

3.3.3.1.1 Environmental Setting

The proposed project 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 microns as either $PM_{2.5}$ (particulate matter 2.5 microns or smaller in diameter) or PM_{10} (particulate matter 10 microns or smaller in diameter). 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, 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.

3.3.3.1.2 Regulatory Setting

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 health-based air quality standards, set deadlines for their attainment, and established actions required of areas that exceed these standards. Air agencies in areas that exceed the National Ambient Air Quality Standards (NAAQS) are required to develop state implementation plans (SIPs) to show how they will achieve NAAQS. USEPA's responsibility to control air pollution in individual states is primarily to review submittals of SIPs prepared by each state.

In California, the CARB prepares and enforces federally required SIPs to achieve and maintain NAAQS and California Ambient Air Quality Standards (CAAQS), which were developed as part of the California Clean Air Act adopted in 1988. CAAQS for criteria pollutants are equal to or more stringent than NAAQS and include other pollutants for which there are no NAAQS. In addition, CARB is responsible for assigning air basin attainment and non-attainment designations in California. Air basins are designated as being in attainment if the levels of a criteria air pollutant meet CAAQS for the pollutant and are designated as being in non-attainment if the level of a criteria air pollutant is higher than CAAQS.

The SJVAPCD is the air district for SJVAB, which is where the project site is located. SJVAPCD prepares air quality plans for SJVAB to comply with national and state standards that are used to assess potential air quality impacts. The San Joaquin Valley has been in attainment for carbon monoxide (CO) since 1994 and reached attainment for the federal PM_{10} standard in 2008. The entire air basin is classified as non-attainment 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 non-attainment for the NAAQS 8-hour O_3 standard and the 24-hour and annual $PM_{2.5}$ standards (SJVAPCD 2015a).

The SJVAPCD-recommended thresholds for determining whether projects have significant adverse air quality impacts are provided in its *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015b). Table 5 shows SJVAPCD thresholds. These thresholds are applied separately to construction emissions, permitted operational emissions, and non-permitted operational emissions.

Table 5
San Joaquin Valley Air Pollution Control District Significance Thresholds

Pollutant/Precursor	Emissions (tons per year)
ROG	10
NO_X	10
CO	100
SO_X	27
PM_{10}	15
$PM_{2.5}$	15

Source: SJVAPCD 2015b

3.3.3.2 Impact Evaluation

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. Equipment lists were provided by engineers; 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 Tables 6 and 7. A full description of construction assumptions, including equipment horsepower ratings, is provided in Appendix C.

Table 6
Annual Construction Emissions

Year	Construction Project	Construction Phase	Construction Emissions (pounds per year)					
			ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
2023	Rail Bridge Replacement	Track LD01 Construction	88	853	628	2	56	34
	Second Lead Track	Earthwork	290	2,848	2,484	11	246	122
	McCloy Rail Classification Yard	Earthwork	306	2,216	2,569	6.8	209	108
2024	Rail Bridge Replacement	Track LD01 Construction	35	402	325	1	29	15
	Second Lead Tracks	Track Removal and Reconnection	146	1,262	1,410	4	113	57
	McCloy Rail Classification Yard	Earthwork and Track Removal and Reconnection	245	1,766	2,055	5	161	85
2025	Rail Bridge Replacement	Track LD02 Construction	97	983	833	3	72	39

Table 7
Annual Construction Emissions, Relative to Thresholds

Year	Construction Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
2023	0.34	3.0	2.8	0.010	0.26	0.13
2024	0.21	1.7	1.9	0.0056	0.15	0.079
2025	0.049	0.49	0.42	0.0017	0.036	0.020
Threshold	**10**	**10**	**100**	**27**	**15**	**15**

Operations: As discussed in Sections 2.2.1 and 2.6, 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 project.

As discussed in Section 2.2.1, there are two types of l rail carriers in the Port: the Class I mainline carriers (BNSF and UP) and the Class III short line carriers or "switchers" (CCT 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 rail cars 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 Project" scenario assumes that the rail system continues to be constrained to 28 trains and the lead track blockages continue. The "2026 Conditions with Proposed Project" 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 8. A full description of operational assumptions, including equipment horsepower ratings, is provided in Appendix C.

Table 8
Operational Emissions

Scenario	Engine Type	Engine Mode	CAP Emissions (tons per year)					
			ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SOx
2026 Conditions without Proposed Project	Class I Mainline Carriers	Running	0.70	11	0.38	0.35	2.9	0.012
		Idling	0.030	0.46	0.016	0.015	0.13	5.4E-04
	Class III Switchers	Running	0.62	15	0.33	0.31	3.5	0.013
		Idling	0.042	1.0	0.023	0.021	0.24	8.7E-04
		Total	***1.4***	***27***	***0.75***	***0.69***	***6.8***	***0.027***
2026 Conditions with Proposed Project	Class I Mainline Carriers	Running	0.82	19	0.44	0.41	4.7	0.017
		Idling	0.024	0.56	0.013	0.012	0.13	4.9E-04
	Class III Switchers	Running	0.76	12	0.41	0.38	3.1	0.013
		Idling	0.016	0.25	0.0089	0.0081	0.067	2.9E-04
		Total	***1.6***	***32***	***0.88***	***0.81***	***8.0***	***0.031***
Net Change	Class I Mainline Carriers	Running	0.20	4.7	0.11	0.10	1.1	0.0041
		Idling	-0.018	-0.43	-0.010	-0.0091	-0.10	-3.8E-04
	Class III Switchers	Running	0.069	1.0	0.037	0.034	0.28	0.0012
		Idling	-0.014	-0.21	-0.0076	-0.0070	-0.06	-2.5E-04
		Total	***0.23***	***5.10***	***0.13***	***0.12***	***1.20***	***4.7E-03***
		Threshold	**10**	**10**	**15**	**15**	**100**	**27**
		Significant?	**No**	**No**	**No**	**No**	**No**	**No**

A: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact. SJVAPCD has established thresholds of significance for criteria pollutant emissions, which are based on New Source Review offset requirements for stationary sources. Because the SJVAB is an extreme O_3 non-attainment area, stationary sources in SJVAPCD are subject to some of the toughest regulatory requirements in the Nation. Emission reductions achieved through implementation of offset requirements are a major component of SJVAPCD's air quality plans. Therefore, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not conflict or obstruct implementation of the air quality plans, while emissions exceeding those thresholds would conflict with and obstruct implementation. Tables 6 and 7 present the construction emissions, and Table 8 presents the operational emissions resulting from the proposed project. As shown, emissions would not exceed thresholds.

Because the proposed project would not exceed thresholds, it would not conflict with or obstruct implementation of SJVAPCD's O_3 attainment plans, including its most recent 2016 plan for the 2008 8-hour O_3 standard (SJVAPCD 2016). Impacts would be considered less than significant.

B: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area for an applicable federal or state ambient air quality standard?

Less-than-Significant Impact. Any project-level significant impacts would be considered significant at the cumulative level. As previously discussed, criteria pollutant emissions would be less than significant and therefore would not contribute to significant cumulative impacts. As discussed below, proposed project activities would neither expose sensitive receptors to substantial pollutant concentrations nor generate objectionable odors. Accordingly, no new or more severe cumulative impacts are anticipated as part of the proposed project. Therefore, impacts would be less than significant.

C: Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. SJVAPCD considers a sensitive receptor to be a residence, hospital, school, or convalescence facility where sensitive individuals could be exposed to substantial pollutant concentrations. Commercial and industrial facilities are not included in the definition of sensitive receptors because employees do not remain on site for a full 24 hours and are not considered sensitive. For the health risk assessment, the nearest sensitive receptors to the project site are residential receptors located approximately 300 feet east of portions of the LLDT on the Port, and approximately 100 feet north of portions of the LLDT in the BNSF right-of-way.

Impacts to sensitive receptors are evaluated in terms of exposure to TACs. Diesel PM emitted by on-road and off-road vehicles is considered the TAC of most concern from motor vehicles. The health

risks of TAC emissions are typically quantified when both of the following apply: sensitive receptors are located within 1,000 feet of an emission source; and exposure would occur over several years.

TACs emitted from construction equipment and switching and mainline locomotives include diesel PM emissions. Appendix C provides additional details on the assumptions and modeling results used to conduct the health risk assessment. Table 9 shows the proposed project's construction and operational maximum cancer risks and non-cancer health hazards.

Table 9
Incremental Health Risk Construction and Operations

Source Category	Source	Excess Lifetime Cancer Risk (in a million)	Chronic Hazard Index
Construction Sources	Off-Road Equipment Exhaust	2.2	0.020
	On-Road Mobile Vehicles	0.0060	1.8E-07
	On-Site Truck Exhaust	0.16	2.1E-04
Operational Sources[1]	Class I Locomotives	0.0022	1.8E-06
	Class III Locomotives	6.3E-04	4.8E-07
Total		**2.3**	**0.020**
Significance Threshold		**20**	**1.0**
Exceeds Threshold?		**No**	**No**

Note:

1. Excess lifetime cancer risk and chronic hazard index from operational sources represent the incremental increase in activity expected as a result of the proposed project (i.e., Future with Proposed Project compared to Future without Proposed Project).

As shown in Table 9, the proposed project would result in a less-than-significant cancer risk and chronic health hazard at the maximally affected individual receptors. Therefore, the proposed project's health risk impacts would be less than significant.

D: Would the project result in other emissions (such as those leading to odors) affecting a substantial number of people?

Less-than-Significant Impact. Construction and operations could generate odors associated with diesel exhaust from heavy-duty equipment. Odors would be highest near the source and would quickly dissipate off site. As discussed above, the nearest sensitive receptors are residences located approximately 100 feet north of the areas where sources of construction and operational emissions would be located. Odors would be confined to the immediate area where equipment is operating and would not affect these residences. Therefore, odor impacts would be less than significant.

3.3.4 Biological Resources

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c.	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

3.3.4.1 Affected Environment

Biological conditions occurring in the study area were observed during a reconnaissance survey 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 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 project area (specifically within the San Joaquin

River at the location of the proposed rail crossing) were identified based on critical habitat and essential fish habitat (EFH) designations (50 Code of Federal Regulations [CFR] 226; NOAA 2009).

3.3.4.1.1 Habitat Communities

The proposed project includes elements on the Port's East Complex and West Complex as well as over the San Joaquin River. Except for the proposed replacement bridge crossing, the entirety of the proposed project alignment is within industrial or urban habitats. Vegetation is mostly limited to ornamental native and non-native trees and ruderal grasses, shrubs, and other groundcover. Non-riverine water or wetland features are limited to several isolated topographical depressions, ditches, or artificial ponds. Given the linear nature of the proposed improvements and the project site's general industrial and urban setting, habitat community descriptions are provided in the following sections for the following lengths of the proposed project's alignment:

- **McCloy rail classification yard.** Includes the proposed McCloy rail classification yard that would be constructed between and parallel to Fyffe Street and McCloy Avenue on the West Complex, approximately between Humphreys Drive and James Drive (Figure 6). Construction staging would occur in areas to the south and southwest along this length of the project site (Figure 7).
- **West Complex rail bridge approach.** Includes the proposed connection from the rail bridge to existing tracks on the West Complex, from the approximate western end of the Port golf course to the top of bank of the western levee of the San Joaquin River, west of the proposed rail crossing (Figure 5a). Construction staging would also occur in this area, both to the north and south of existing rail lines (Figure 7).
- **Rail bridge replacement.** Includes the location of the existing and proposed rail bridges crossing the San Joaquin River (Figures 5a and 5b).
- **East Complex rail bridge approach.** Includes the proposed connection from the rail bridge to existing tracks on the East Complex, from the top of bank of the eastern levee of the San Joaquin River, east of the rail bridge replacement area, to near the intersection of Stork Road and Port Road A (Figure 5a). Construction staging would also occur in this area south of the existing rail line immediately east of the levee (Figure 7).
- **Port Yard improvements**. Includes the proposed segments of track and switches within the Port Yard (Figure 4b). Two small staging areas would also be in this area on the west end of the Port Yard (Figure 7).
- **LLDT improvements between 700 Yard and Port Yard**. Includes the proposed rail improvements along the eastern end of the Port's East Complex, west of the Boggs Tract neighborhood, approximately between the intersection of Port Road A and Port Road J to the existing Crosstown Freeway overpass, and in perimeter areas of undeveloped privately owned property west of Ventura Avenue (Figures 4a and 4b). Several construction staging areas would be located west of the exiting rail lines in this area (Figure 7).

- **East Complex central staging area**. Includes a proposed temporary construction staging area located in the center of the East Complex within a barren but disturbed area immediately west of the Port's Administration Building at 2201 West Washington Street (Figure 7).
- **LLDT improvements adjacent to West Scotts Avenue.** Includes the proposed LLDT parallel to and south of West Scotts Avenue approximately between the existing Crosstown Freeway overpass and the existing Port lead switch near Garfield Avenue, including the new rail underpass at Fresno Avenue and work in the BNSF right-of-way, and potentially within City and San Joaquin County right-of-way, to accommodate the new tracks (Figure 4a). Construction staging would occur adjacent to the existing rail lines in this area (Figure 7).

3.3.4.1.1.1 McCloy Rail Classification Yard

The McCloy rail classification yard portion of the project site includes an approximately 5,600 linear foot length within the industrialized West Complex where the proposed rail classification yard would be constructed. The proposed McCloy rail classification yard would be constructed parallel to and south of existing rail lines in this area. Within or immediately south of the proposed 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 area 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 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 4). The undeveloped areas west and south of the proposed rail extension contain dense coverage of ruderal groundcover, grasses, and shrubs.

Photograph 4
View of the Proposed McCloy Rail Classification Yard Site on the West Complex
Looking west along McCloy Avenue and at a typical cedar tree

3.3.4.1.1.2 West Complex Rail Bridge Approach

The West Complex rail bridge approach portion of the project site includes an approximately 1,600 linear foot length within the industrialized West Complex, just south of the existing inactive Port golf course and adjacent to a retention basin being constructed as part of the Fyffe Avenue Grade Separation project. Most of the proposed rail alignment in this area overlaps with an existing active construction site for the Fyffe Avenue Grade Separation project, and at the time of the site visit largely consisted of barren disturbed earth (Photograph 5). The proposed rail alignment would be located adjacent to the existing rail line in this area. The existing rail line is at grade until nearing the western bank of the San Joaquin River crossing, and the tracks 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 adjacent to the proposed alignment consisted of Himalayan blackberry (*Rubus armeniacus*) brambles and non-native ornamental trees such as camphor (*Cinnamomum camphora*), black walnut (*Juglans hindsii*), and others. 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 6).

Temporary construction staging would occur also within the West Complex rail bridge approach area. Staging areas 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 the existing San Joaquin River levees in areas containing similar disturbed construction areas or the predominantly Himalayan blackberry bramble vegetation described previously.

Other notable habitat features in this area include the inactive Port golf course north of the proposed rail alignment, which is characterized by turf and ornamental landscape trees. The inactive golf course continues to support numerous ornamental trees and greens, which appear to be maintained with mowing. Within the inactive golf course, there are two artificially created ornamental ponds. The westernmost pond supports a ring of emergent vegetation including cattail (*Typha latifolia*) and bulrush (*Schoenoplectus acutus*) around its shoreline, and its water surface is covered with water fern (*Azolla* sp.). The eastern horseshoe-shaped pond lacks emergent vegetation and supports open-water habitat. Except for the San Joaquin River to the east (described in Section 3.3.4.1.1.3), other habitats surrounding 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.

Photograph 5
View Looking East from the West Complex Bridge Approach Area
Including a view of the inactive golf course and active construction site

Photograph 6
View of the Temporary Construction Detention Basin

3.3.4.1.1.3 Rail Bridge Replacement

As described in Section 2.5.2, the proposed replacement steel and concrete bridge would measure approximately 325 feet long, spanning the San Joaquin River, and would replace the existing bridge structure. 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. 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, there are ornamental palms, cottonwood (*Populus fremontii*), and non-native tree species including Siberian elm (see Photograph 3 in Section 3.3.1.1.3); Himalayan blackberry brambles drape the bank to the river (Photograph 7). Non-native grasses occur on the eastern slope of the levee at this location. 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.

Photograph 7
View of Vegetation on the Western Levee Near the Proposed Rail Crossing
Including a view of elderberry shrub and Himalayan blackberry

3.3.4.1.1.4 East Complex Rail Bridge Approach

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, a length of approximately 600 to 800 feet. The inland levee bank and slopes adjoining the rail line have been colonized by grass and groundcover species common in disturbed areas. The dominant vegetation observed at the site is non-native perennial grasses, in addition to coverage of red stemmed filary (*Erodium cicutarium*), *Epilobium* sp., *Bromus* spp., little mallow (*Malva parviflora*), and ice plant (*Carpobrotus edulis*). 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, and a large sulfur stockpile (Photographs 8 and 9). Temporary construction staging would occur between the existing rail lines and the SATCO facility storage tanks, within the undeveloped but disturbed area with common grass and groundcover species.

Photograph 8
View of the East Complex Bridge Approach Area
Looking east toward neighboring tanks and sulfur stockpiles

Photograph 9
View of the East Complex Bridge Approach Area
Looking east near Stork Road

3.3.4.1.1.5 Port Yard Improvements

The Port Yard improvements area includes approximately 3,400 linear feet occurring entirely within a highly industrialized and developed portion of the Port's East Complex (Photograph 10). The proposed rail lines would be constructed adjacent 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.

Photograph 10
View of the Existing Port Yard
Looking west

3.3.4.1.1.6 LLDT Improvements Between 700 Yard and Port Yard

The LLDT improvements portion of the project site between the 700 Yard and the Port Yard includes an approximately 3,500 linear foot length at the eastern edge of the Port's East Complex, just west of the Boggs Tract neighborhood (the closest residences in this area are approximately 300 feet east of the proposed rail alignment). 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 exiting rail lines. The proposed rail improvement and staging areas footprints are entirely developed with rail lines, adjoining compacted surfaces, or rail ballast (Photograph 11). Most of the alignment is devoid of vegetation with the exception of 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 is an apparent maintained urban forest planted with catalpa (*Catalpa bignonioides*) and mulberry (*Morus* sp.) ranging between 20 to 30 feet tall, fitted with aboveground flexible irrigation piping

(Photograph 12); and the second is a detention basin with cottonwood trees planted throughout (Photograph 13). These vegetation associations occur directly adjacent to the rail line.

The LLDT improvements between the 700 Yard and the Port Yard are entirely surrounded to the west by industrial Port developments and rail storage areas. Immediately east of the LLDT improvements between the 700 Yard and the Port Yard area are several warehouse buildings, a barren but disturbed vacant parcel, and the two vegetation communities noted previously. As previously noted, the Boggs Tract neighborhood is located farther east and north of the proposed alignment.

Photograph 11
View of the Port Lead Track in the East Complex
Looking south toward the Crosstown Freeway overpass

Photograph 12
View of the Catalpa Urban Forest Northwest of the Crosstown Freeway Overpass

Photograph 13
View of the Cottonwood Grove and Topographic Depression near the Crosstown Freeway Overpass

3.3.4.1.1.7 East Complex Central Staging Area

The East Complex central stating area consists of an approximately 5-acre area within the center of the East Complex adjacent 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 project activities in this area would be limited to temporary construction staging.

3.3.4.1.1.8 LLDT Improvements Adjacent to West Scotts Avenue

The portion of the project site where LLDT improvements would be constructed adjacent to West Scotts Avenue includes an approximately 3,500 linear foot length along West Scotts Avenue, immediately south of the Boggs Tract residential neighborhood (the closest residences in this area are approximately 100 feet north of the proposed rail alignment). 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 14) includes non-native annual grasses and weedy tree species, including tree of heaven (*Ailanthus altissima*). Just east of South Merced Avenue, the existing rail line splits into two spurs. The area between the two spurs appears to contain a seasonally inundated depression colonized with (*Bromus* spp.), oats (*Avena* spp.), mustards (*Brassica* spp. and *Raphanus* spp.), and other common weeds (Photograph 15).

Surrounding features include the Boggs Tract residential neighborhood to the north. 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.

Photograph 14
View of West Scotts Avenue and Existing Rail Lines
Looking east

Photograph 15
View of the Topographic Depression between the Existing Rail Lines
Looking west from the proposed LLDT improvement area adjacent to West Scotts Avenue

3.3.4.1.2 Wetlands and Jurisdictional Waters

Potentially jurisdictional water and wetland features were identified during the March 23, 2021, site visit. In addition to the San Joaquin River, which qualifies as a navigable water of the United States and state, potentially jurisdictional features within or near the proposed alignment include the cobble-lined drainage ditch north of McCloy Avenue, the two construction impoundments near the West Complex rail bridge approach, 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 are briefly described as follows:

- **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**. The cobble-lined drainage ditch extends parallel to the existing rail tracks just north of McCloy Avenue. The ditch was dry at the time of the site visit and devoid of vegetation. This fabricated ditch would most likely not be subject to U.S. Army Corps of Engineers (USACE) jurisdiction under Section 404 of the CWA according to the "Navigable Waters Protection Rule: Definition of 'Waters of the United States'" (Final Rule) published April 21, 2020, and effective June 22, 2020 (85 Federal Register 22250), because it appears to have been constructed in uplands. The Final Rule clarifies that "ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands" are not considered waters of the United States. Furthermore, the ditch likely does not meet the definition of a wetland under 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 since 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).
- **Construction impoundments**. Two small ponded areas were observed in the vicinity of the existing construction area for the Fyffe Avenue Grade Separation project. These ponds 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 construction impoundments are also unlikely to be waters of the United States or waters of the state for the same reasons as those described for the aforementioned cobble-lined drainage ditch.
- **Detention basin with planted cottonwoods**. This area contains a topographical depression that was dry at the time of the site visit. 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 would likely only qualify as a water of the state.

- **Topographic depression between rail lines**. This area contains a topographical depression that was dry at the time of the site visit but appears to be seasonally inundated. Coverage of vegetation, including bromes, oats, and mustards, were 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 since it lacks connection to any traditionally navigable waters.

3.3.4.1.3 Special-Status Species

The CNDDB identifies 27 special-status (candidate, threatened, or endangered under the federal Endangered Species Act [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 project quadrangle and eight surrounding quadrangles (Appendix D; CDFW CNDDB 2021). Potential species occurrence was determined based on habitat requirements and on-site conditions.

The project site'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 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 in the project area—specifically, within the San Joaquin River at the location of the proposed rail bridge replacement—were identified based on critical habitat and EFH designations (50 CFR 226; 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 project area are also considered EFH for Pacific salmon and Groundfish and may provide habitat to Central Valley spring-run Chinook salmon (*O. tshawytscha*; CDFW 2019b; 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 Sections 3.3.4.1.3.1 through 3.3.4.1.3.13. Potential special-status plant occurrence is also addressed, although habitat conditions likely preclude their presence.

3.3.4.1.3.1 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 adjacent 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 their 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).

Swainson's hawks are regularly observed throughout the Port. Mature trees within the project area may provide nesting habitat to Swainson's hawk, and undeveloped areas may provide foraging habitat. Urbanized and developed conditions, including ongoing Port activities, likely diminish the suitability of nesting and foraging habitat throughout the project site. Areas within or near the project area that are 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 within the project area 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 space such as agricultural fields in proximity to the project site.

3.3.4.1.3.2 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. 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 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 project area in April 2008 (CDFW CNDDB 2021).

As with Swainson's hawk, mature trees within the project area 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 in proximity to the project site.

3.3.4.1.3.3 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 project area in April 2005 (CDFW CNDDB 2021).

Riverbank areas adjacent 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.

3.3.4.1.3.4 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 nearly always 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 project area in April 1984 (CDFW CNDDB 2021).

VELB may be present within elderberry plants in the project area, including those observed on levees adjacent to the rail bridge replacement area.

3.3.4.1.3.5 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. At the proposed rail bridge replacement location, the San Joaquin River is within designated critical habitat for green sturgeon.

There is a small potential for Southern distinct population segment (DPS) green sturgeon to be present in the project area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019a) based on past historical conditions, monitoring data, and species characteristics. San Joaquin River waters in the project 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.

3.3.4.1.3.6 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 project area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019a). The proposed rail bridge crossing location has been developed. This area does not provide the shallow edge waters preferred by delta smelt during spawning, which typically occurs in sloughs and shallow edge waters within the upper Delta.

3.3.4.1.3.7 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 the majority of rearing occurs farther upstream than the project area. Waters in the proposed rail bridge crossing 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 exists a very small potential for this species to be present in the project area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019a). In addition, steelhead may occur within the proposed rail bridge crossing area during the upstream migration of spawning adults and downstream migration, resting, and foraging of juveniles (Caltrans and Port 2013). The proposed rail bridge crossing area has been developed; this area does not contain river bottom habitat suitable for spawning or incubation.

3.3.4.1.3.8 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 to spawn from April to October and 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 project area during the in-water construction window (USACE 2015; Anchor QEA 2019; CDFW 2019a). Chinook salmon may, however, migrate, forage, or rest within waters in the proposed rail bridge crossing area. The proposed rail bridge crossing area has been developed; this area does not contain river bottom habitat suitable for spawning or incubation.

3.3.4.1.3.9 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 project area (USACE 2015; Anchor QEA 2019; CDFW 2019a). The proposed rail bridge crossing area does not provide suitable spawning habitat for this species.

3.3.4.1.3.10 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 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 salmon and Pacific groundfish FMPs within the aquatic portion of the project area.

3.3.4.1.3.11 Marine Mammal Protection Act Protected Species

Harbor seals are known to occur in the San Joaquin River near the project site. 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 project 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.

3.3.4.1.3.12 Special-Status Plant Species

There are 20 plant species considered rare, threatened, or endangered by the California Native Plant Society (CNPS; a CNPS Rank 1 or 2 species) with recorded occurrences in the vicinity of the project site, as identified through a search of the proposed project quadrangle and eight surrounding quadrangles (Appendix E; 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 within the project area, none of the special-status plant species with recorded occurrences have the potential to occur within the project site. No CNPS Rank 1 or 2 species were observed during the March 23, 2021, site visit.

3.3.4.1.3.13 Migratory Bird Treaty Act Protected Birds and Raptors

Several species of birds protected by the MBTA may occur in the vicinity of the project area. Although the project area serves industrial functions, MBTA-protected birds could nest in disturbed but barren areas within or near the project site, 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. MBTA-protected birds could also roost or nest in mature trees located within or near the project site, particularly within the inactive golf course, maintained urban forest, and cottonwood vegetated depression near the Crosstown Freeway overpass. Several MBTA-protected birds have been observed at the Port, including to 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 (*Elanus leucurus*)
- Swainson's hawk (*Buteo swainsoni*)
- Common raven (*Corvus corax*)

3.3.4.2 Impact Evaluation

A: Would this project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-than-Significant Impact with Mitigation. As described in Section 3.3.4.1, the upland portion of the project site and surrounding areas are heavily urban or industrial and provide only marginal habitats or habitat features suitable for terrestrial special-status species. The project area contains mature trees that may provide suitable nesting habitat for Swainson's hawk, white-tailed kite, or MBTA-protected 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 may also be present within or near the immediate project footprint, particularly in disturbed but barren 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. Undeveloped areas within and near the proposed rail alignment may also provide foraging habitat for special-status bird species. Riverbank areas next to the rail bridge replacement area may provide suitable basking habitat to the aquatic western pond turtle. Elderberry bushes in the project area, including those observed at the rail bridge replacement area, may provide habitat to VELB. As noted, terrestrial habitat within the project area 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.

Proposed project construction could directly or indirectly affect bird nesting, bird foraging, VELB, or western pond turtles. If present, nesting birds could be directly impacted by tree removal along the proposed project alignment. 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. 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 project is unlikely to result in significant long-term adverse impacts to terrestrial or amphibious special-status 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 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 bridge. Proposed project operations would be consistent with existing Port conditions; the addition of an anticipated six trains per week by 2026 is unlikely to result in direct or indirect adverse effects to terrestrial species or habitats.

The proposed rail bridge replacement location may provide habitat to special-status 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 project area additionally includes 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. The project area does not include any spawning habitat for these species or species associated with these FMPs, and their presence in the project 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 project area during construction. 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 proposed project 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 project. Impacts to fish from uptake of pollutants in disturbed sediment are therefore 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. Because the proposed project would include more than 1 acre of ground disturbance, a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit addressing these types of impacts would be required.

Underwater noise from construction, particularly from pile installation, has the potential to adversely affect fish. 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 and would likely be relatively small in comparison to the size of the San Joaquin River.

In-water construction for the proposed project, primarily pile driving, may temporarily impede localized movement or migration of special-status 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 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 in the project area 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 project area has been severely impacted by historic Port and military operations, USACE operations and 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 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 project would also remove existing creosote-treated piles, which would provide an environmental benefit.

The proposed project operations are unlikely to adversely affect aquatic habitat, as there would be no new activity within the San Joaquin River. The projected increase of six trains per week by 2026 would not affect aquatic habitat.

Based on the analysis above, construction of the proposed project has the potential to adversely affect special-status species that could be present in the project area. For terrestrial species, this includes potential direct or indirect impacts during construction such as trampling, removal of host species, or nest disturbance. For aquatic species, temporary construction impacts include the following: 1) potential input of pollutants to the waterway that could affect water quality; and 2) pile driving or other bottom-disturbing activities that could affect water quality or result in injury or mortality of special-status fish. These would constitute potentially significant impacts. Permanent adverse impacts would be minimal and likely limited to loss of marginal terrestrial and aquatic habitat within the immediate footprint of proposed rail improvements.

The following mitigation measures would be implemented during construction to reduce potential impacts:

- **MM-BIO-1: Obtain Coverage under the SJMSCP or Conduct Nesting Bird Surveys; Elderberry Surveys, Setbacks, and Compensation; and Western Pond Turtle Buffer Establishment.** To avoid impacts on potentially present special-status species, the proposed project will apply to obtain coverage under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). The SJMSCP is 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 San Joaquin Council of Governments (SJCOG), the agency that

administers the SJMSCP, within 60 days of project construction. SJCOG will review the proposed project, prepare a staff report, and submit the report to the SJMSCP Habitat Technical Advisory Committee, which determines whether the proposed project will be covered under the SJMSCP. Assuming the proposed project 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 project. SJCOG will then execute a final summary of applicable ITMMs for the proposed project. 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 project is not able to obtain coverage under the SJMSCP, the Port will implement the following avoidance and minimization measures specific to nesting birds, 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 project-related 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 project area for active nests within 7 days prior to starting project 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 be of sufficient duration to observe movement patterns. If a lapse in project-related 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 project 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 project 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 VELB, alternatives to SJMSCP coverage include the following for areas with elderberry bushes identified in pre-construction surveys:
        - If elderberry shrubs are present on the project site, 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 which cannot be retained on the project site as described in the previous two bullets, the Port will count all stems of 1-inch or greater diameter at ground level during preconstruction surveys. Compensation for removal of these stems will be provided by the Port in coordination with the U.S. Fish and Wildlife Service (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).
- **MM-BIO-2: Obtain and Implement NPDES Construction Stormwater General Permit.** A NPDES Construction Stormwater General Permit will be obtained for the proposed project, which will require the development of a construction Stormwater Pollution Prevention Plan (SWPPP). The construction SWPPP will include best management practices (BMPs) 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, National Marine Fisheries Service, and USFWS approved work window, which is expected to span from July 1 through November 30.
- **MM-BIO-4: Employ Soft-Start Techniques for 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 the opportunity to disperse from the project area.
- **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/waters and comply with permitting requirements from

USACE, Regional Water Quality Control Board (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. Work occurring in stream-dependent riparian habitats will also occur in compliance with permitting requirements from CDFW. Requirements will likely include implementing erosion controls, designating appropriate staging and fueling areas, requiring equipment inspections and maintenance, and additional standard construction BMPs.

Mitigation measures MM-BIO-1, MM-BIO-3, MM-BIO-4, and MM-BIO-5 would reduce the potential exposure of special-status species to construction impacts to the extent feasible. This includes reducing potential presence of special-status species by completing surveys (MM-BIO-1), establishing buffer zones (MM-BIO-1), complying with in-water construction windows (MM-BIO-3), and providing species with the opportunity to flee the impact area (MM-BIO-4). 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 aquatic species.

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 project area (as detailed in Sections 3.3.4.1.3.6 and 3.3.4.1.3.9), 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 project 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 project area during and outside the construction window, and there is very low risk for green sturgeon injury from pile driving. The use of soft-start techniques during all 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 project.

With implementation of mitigation measures MM-BIO-1 through MM-BIO-5, impacts would be less than significant.

B: Would this project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-than-Significant Impact with Mitigation. The proposed project includes construction on the San Joaquin River levees to construct the 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 project 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. As described above, 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.

Based on the analysis presented above, the proposed project would result in adverse impacts to riparian habitat from construction of the 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. These riparian and special-status aquatic habitat impacts would constitute a potentially significant impact.

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 CDFW requirements for addressing potential impacts to riparian habitat are implemented. 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, impacts would be less than significant.

C: Would this project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Less-than-Significant Impact with Mitigation. The proposed project would entail permanent fill and shading of the San Joaquin River, a navigable water, from construction of the rail bridge replacement. Temporary impacts to the San Joaquin River would also occur during construction, as detailed under item A above. Wetland vegetation was not observed on the levees adjacent to the rail bridge replacement area and impacts to wetlands therefore would not occur in association with this proposed improvement.

As described in Section 3.3.4.1.2, 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 quality as waters of the United States. Construction adjacent 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 project may result in loss of potential wetlands that may be under RWQCB jurisdiction. This would constitute a potentially significant impact.

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, impacts would be less than significant.

D: Would this project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact with Mitigation. Although the project area 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, the developed nature of the project area and small size of the riparian corridor along the San Joaquin River likely preclude migratory bird species from using the project site as a stopover during their migration.

The rail bridge replacement area is not within any nursery sites for special-status fish species, and the proposed project would not substantially impede migration within the San Joaquin River or other waters. Although project 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.

Based on the analysis presented above, the proposed project would result in no impact to native wildlife nursery sites. Proposed project construction may impede localized movement of resident migratory fish, which would constitute a potentially significant impact.

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 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, impacts would be less than significant.

E: Would this project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The proposed project would not require removal of any SMC-defined heritage trees (valley oak [*Quercus lobata*], coast live oak [*Q. agrifolia*], and interior live oak [*Q. wislizenii*]) or street trees (trees within City right-of-way or easements) and would therefore not conflict with the City Heritage Tree Ordinance or SMC pertaining to street trees. Heritage oak trees were not observed within the proposed improvement footprint. Tree removal would occur exclusively within Port property or BNSF right-of-way; therefore, street trees would not be affected. Conformance with the SJMSCP is addressed under item A above. There are no other local policies or ordinances for protecting biological resources that are applicable to the proposed project.

Based on the analysis presented above, the proposed project would result in no impact from conflicting with local policies or ordinances pertaining to biological resources.

F: Would this project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less-than-Significant Impact with Mitigation. The SJMSCP is the only conservation plan in the project area. As discussed under item A above, mature trees near the project footprint, including large trees within the inactive golf course, may provide suitable nesting habitat for Swainson's hawk, white-tailed kite, or MBTA-protected bird species. Nests of ground-nesting MBTA-protected bird species may also be present in the project area. Western pond turtle may also use riverbank areas adjacent to the rail trestle, and VELB may be present in elderberry bushes observed on the levee. Construction activities associated with the proposed project may directly disturb ground-nesting birds or nesting western pond turtles, directly remove elderberry plants, or indirectly disturb birds nesting in trees away from the project site (e.g., noise disturbance), if present.

Because the proposed project has the potential to temporarily adversely affect special-status species, it has the potential to conflict with biological resource goals and policies from the SJMSCP.

Mitigation measure MM-BIO-1 would be implemented to reduce potential impacts. Implementing MM-BIO-1 includes adherence with SJMSCP requirements or implementation of equivalent avoidance measures. With implementation of this mitigation measure, impacts would be less than significant.

3.3.5 Cultural Resources

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☒	☐	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c.	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.3.5.1 Affected Environment

The Delta has probably 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 (Chartkoff and Chartkoff 1984; Milliken et al. 2007). 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 are common during this period, though communities are still thought to have been fairly mobile (Fagan 2003). Later in this period, a trend towards sedentary communities and economic diversification emerges. The late Holocene is characterized by a continued increase in economic diversity and sociopolitical complexity, with emphasis on long-distance trade (Chartkoff and Chartkoff 1984; Moratto 1984). Cultures from this era correspond with ethnographically described cultures.

The project 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 (Golla 2007). They lived throughout the San Joaquin Valley and relied on the region's rich fishing and hunting resources (Kroeber 1976). Native American communities were severely impacted by European contact (Milliken 1995). However, Yokuts people have endured and are now members of several federally recognized tribes.

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 (Wood 1973). 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. Hundreds of vessels, from paddlewheelers to barks, plied the area serving miners. 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 (Garone 2011).

Prior to historic landmaking, the current Port vicinity would have been seasonally inundated (it is mapped as historically "tidal freshwater emergent wetlands" [SFEI-ASC 2018]). There is evidence of industrial and land development in the vicinity since at least the early 1900s, which intensified through the mid to late twentieth century. By 1913, levees had been constructed that channelized the San Joaquin River and allowed for landmaking through filling of adjacent uplands.

Dredging to create the Stockton DWSC began in 1930; the original navigational depth of 15 feet was deepened to 26 feet and the course was straightened. A rail line was constructed in 1932 through the area that would become the East Complex to Rough and Ready Island (now known as the Belt Line rail). The Port was founded immediately afterward, in 1933. The original Port area was the northern and western parts of what is now the East Complex.

The Port became part of the Stockton Ordnance Depot during World War II. After the war, the military began transferring parcels back to the Port, a process that was complete on the East Complex by 1956 (CMM 2016). The transfer included lands on the south and east sides of the East Complex that were previously agricultural and not part of the Port before the war. Industrial development intensified through the mid to late twentieth century.

The U.S. Navy purchased nearly the entirety of Rough and Ready Island in 1944 to serve the expanding needs of the Pacific theater in World War II. The property became the Naval Supply Annex Stockton. Between 1943 and 1946, the island's northern shoreline was straightened to its current configuration. This change resulted from construction of the Stockton DWSC, which was dredged to a depth of 30 feet. Fill from the dredging project was likely deposited on portions of the project site. 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). The majority of the base, including warehouses, housing, medical facilities, and utilities infrastructure, was constructed between August 1944 and June 1945. Prisoners of war 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. Immediately post-war, the facility continued to operate, primarily processing returning equipment and supplies. Activity declined at the facility thereafter, with two exceptions: operations during the Korean War in the early 1950s, and the operation of the Naval Communications Station after 1960. The Department of Defense property on Rough and Ready Island was approved for transfer to the Port in 1996 and became the West Complex as property was conveyed to the Port between approximately 2000 and 2010. The remaining buildings and infrastructure of the Naval Supply Annex Stockton and the Naval Communications Station form the Naval Supply Annex Stockton NHD, which has been determined eligible for listing in the NRHP.

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 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 foot to 3.5 feet above sea level. Native sediments would have been seasonally inundated.

According to a search of the California Historical Resources Information System, there are three previously recorded cultural resources in the project area, the Naval Supply Annex Stockton NHD, the Belt Line Railroad (P-39-005115), and the rail bridge (P-39-002864). Four cultural resources are recorded within 1 mile of the project area, as follows:

- Site P-39-05238 is a historic refuse scatter along West Charter Way, approximately 0.1 mile southeast of the project area.
- Site CA-SJO-103 is a precontact village site containing burials, is located near the eastern approach of the West Charter Way Bridge (Garwood Bridge) over the San Joaquin River, approximately 0.75 mile south of the project area.
- Sites P-39-004516 and P-39-004517 are the East and West Levees (respectively) of the San Joaquin River south of the confluence with the Stockton DWSC.

No archaeological surveys that include subsurface testing have been conducted in the project area.

3.3.5.2 Impact Evaluation

A: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less-than-Significant Impact with Mitigation. The proposed project would include demolition of the existing Port of Stockton San Joaquin Rail Bridge. The bridge is eligible for listing in the NRHP as

a contributing structure to the National Register-eligible Naval Supply Annex Stockton NHD. Updated Department of Parks and Recreation forms for the bridge are provided as Appendix F. The proposed project's removal of the Port's San Joaquin Rail Bridge would result in an adverse change to the NHD. The McCloy rail classification yard would be added directly south of existing rail lines in an area of the West Complex that is within the boundaries of the NHD. The McCloy rail classification yard is proposed to be constructed between West Fyffe Street and McCloy Avenue, bounded by North Hooper Street to the east and the Humphreys Drive to the west. Construction includes installing rail lines between the current southern extent of the yard, and 100 feet to the south in front of existing warehouses. Although currently vacant, this expansion area has been occupied by various rail configurations in the past, during and after the period of significance of the NHD. The area is shown containing at least one rail siding in a 1946 aerial photograph taken shortly after construction of the Naval Supply Annex Stockton (Figure 8), and two rail sidings are illustrated in the McCloy rail classification yard area on a 1990 Naval Facilities map (Figure 9). The proposed McCloy rail classification yard is expected to be located within the previous footprint of this former rail infrastructure in the NHD. It would be a change from existing conditions, and therefore would be an impact to the NHD. However, it is not expected to be an adverse impact or result in any significant changes to the setting, landscape, or other features of the NHD that contribute to its significance.

The following mitigation measure would be implemented to address potential impacts:

- **MM-CULT-1: Prepare and Approve a Memorandum of Agreement with the State Historic Preservation Officer and Implement Section 106-Directed Mitigation.** The bridge demolition would require a permit from USACE and USCG and would be reviewed under Section 106 of the National Historic Preservation Act. Section 106 requires federal agencies to avoid, minimize, or mitigate adverse effects through a consultation process. USACE or USCG would consult with the State Historic Preservation Officer and other consulting parties to carry out this process. Consultation is expected to result in the development of mitigation measures, documented in a signed Memorandum of Agreement. Section 106-directed measures are expected to include professional recordation of the bridge by a qualified historian, additional historical research, and potential interpretation for the public. This interpretation could include adding information on the bridge to the Port's website and history portal and developing informational brochures or signage on site or in the Port's Administration Building.

With implementation of MM-CULT-1, impacts would be less than significant.

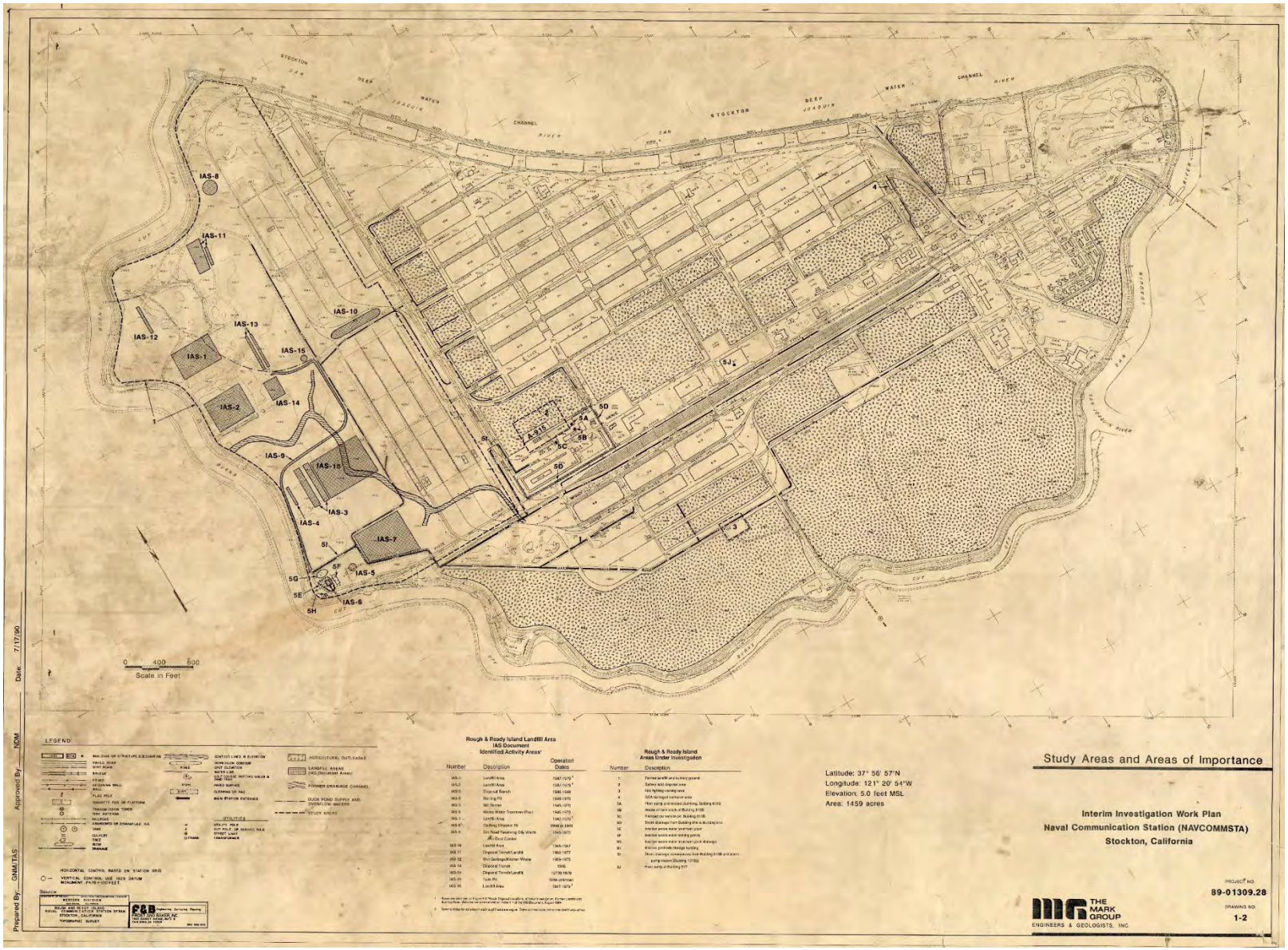
Filepath: \\sf1\sf\PROJECTS\Port_of_Stockton\Planning-Permitting\Rail Improvements\Project Description\Figures\Figure 8_1946 West Complex.docx

ANCHOR QEA

Figure 8

1946 Aerial Photo, Taken Shortly after Construction of the Naval Supply Annex Stockton

Rail Bridge Replacement and Rail Improvements
Port of Stockton, California



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ANCHOR QEA

Figure 9
1990 West Complex Naval Facilities Map
Rail Bridge Replacement and Rail Improvements
Port of Stockton, California

B: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-than-Significant Impact with Mitigation. Precontact archaeological resources may be encountered where ground disturbance could occur in native sediments with archaeological potential. Historical archaeological resources could also be encountered within historic-age fill. Ground disturbance for the proposed project 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. Deeper ground disturbance is expected in two areas: at the installation of the new rail bridge, and at the location of the new rail underpass at Fresno Avenue.

At the rail bridge, upland ground disturbance:

- May include excavation of 10 to 15 feet 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 crown of the levees 25 to 30 feet landward of current levee crown
- Would include excavation of 6 feet of below existing grade for construction of end bents (to join the second bridge track to the main rail line)

At the bridge excavation locations, thick fill is present over low-lying native soils that would have been seasonally inundated. 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. Intact native sediments are unlikely to be encountered.

While unlikely, the following mitigation measure would be implemented to address potential impacts:

- **MM-CULT-2: Implement Provisions for Accidental Discovery During Construction.** If archaeological materials are encountered during construction, the proposed project 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. This includes CEQA Guidelines Section 15064.5(f), which requires implementing "provisions for historical or unique archaeological resources accidentally discovered during construction" and Section 15064.5(e)(1), which guides actions following the discovery of human remains.

With implementation of MM-CULT-2, impacts would be less than significant.

C: Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less-than-Significant Impact with Mitigation. As described above, the proposed project is unlikely to encounter native sediments with archaeological potential, and therefore is unlikely to encounter human remains. While the proposed project is not expected to encounter archaeological resources, in the unlikely event of such a discovery, the proposed project would implement mitigation measure MM-CULT-2 to avoid the potential for significant impacts. Within implementation of mitigation, impacts would be less than significant.

3.3.6 Energy

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b.	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

3.3.6.1 Affected Environment

Senate Bill (SB) SX1-2 required the State of California to produce 33% of its electricity from renewable sources by December 31, 2020; SB 350 requires that the state produce 50% of its electricity from renewable sources by December 31, 2030; and SB 100 requires that the state produce all electricity from renewable sources by 2045. Local policies pertaining to energy include Policy LU-5.4B of the City's 2040 General Plan, which mandates "all new development, including major rehabilitation, renovation, and redevelopment, to incorporate feasible and appropriate energy conservation and green building practices" (City 2018a).

To comply with SB SX1-2 and SB 350 standards, the Port has developed and implemented a *Renewable Portfolio Standard Procurement Plan* (Port 2016). In the plan's most recent iteration, the Port determined the most efficient and cost-effective approach to meeting these standards is through continued purchase of sufficient state-approved renewable energy products from the active California market. For the compliance period from 2021 through 2030, the Port would determine and implement the most cost-effective options for complying with newly codified laws (Port 2016). Other steps that the Port is undertaking to improve energy efficiencies includes purchasing zero-emission electric vehicles, replacing diesel-powered equipment with cleaner electric models, and completing an energy audit to identify areas where energy consumption can be reduced (Port 2021a).

As of July 2019, the Port also offers its tenants financial incentives to install high-efficiency equipment or systems. Incentives are paid on the energy savings and permanent peak demand reduction beyond baseline energy performance, which include state-mandated codes, federal-mandated codes, industry-accepted performance standards, or other baseline energy performance standards (Port 2019).

The proposed project would obtain energy from local providers using existing Port power infrastructure, including electricity from the Pacific Gas and Electric Company.

In addition to these state- and Port-specific measures, the City's 2040 General Plan includes new policies that pertain to energy and resource conservation such as the following:

> **Policy TR-3.2:** Require new development and transportation projects to reduce travel demand and greenhouse gas emissions, support electric vehicle charging, and accommodate multi-passenger autonomous vehicle travel as much as feasible.
>
> **Policy CH-5.2:** Expand opportunities for recycling, re-use of materials, and waste reduction.
>
> Action CH-5.2A: Use recycled materials and products for City projects and operations where economically feasible, and work with recycling contractors to encourage businesses to use recycled products in their manufacturing processes and encourage consumers to purchase recycled products.
>
> Action CH-5.2B: Continue to require recycling in private and public operations, including construction/demolition debris. (City 2018a)

3.3.6.2 Impact Evaluation

A: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact. Proposed project construction would involve equipment that consumes fossil fuels; however, the proposed project would not require any unusual or excessive construction equipment or practices compared to projects of similar type and size. In addition, the proposed project would comply with standard BMPs such as equipment idling restrictions and maintaining equipment according to manufacturers' specifications. As such, construction of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy. The completed project would eliminate several Port rail system bottlenecks that currently constrain existing movements and would improve rail car loading. The proposed project would also promote the use of rail at the Port and allow rail to move more efficiently, which would reduce vehicle miles and trips by making rail more desirable for Port tenants. This would be in line with State of California and City goals and policies. Therefore, there would be no impact.

B: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The Port would employ standard BMPs during construction, and operations would occur in compliance with federal, state, and local regulations pertaining to emissions and efficiency. These

measures would ensure that consumption of fossil fuels occur in compliance with existing plans and regulations.

Continued implementation of the Port's *Renewable Portfolio Standard Procurement Plan* (Port 2016) would ensure that the proposed project does not conflict with state regulations pertaining to renewable energy. As noted, the Port currently operates in compliance with 2020 standards and plans would be developed to ensure compliance with 2030 standards. Therefore, there would be no impact.

3.3.7 Geology and Soils

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
	ii. Strong seismic ground shaking?	☐	☐	☒	☐
	iii. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
	iv. Landslides?	☐	☐	☐	☒
b.	Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c.	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒	☐	☐
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

3.3.7.1 Affected Environment

3.3.7.1.1 Soils

As mapped by the Natural Resources Conservation Service (NRCS), soils occurring in the West Complex portion of the project site 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 project 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).

The western edge of the proposed McCloy rail classification yard would be located on Site 19, a remediation site with known soil contamination. Site 19 is a subarea of the larger Naval Computer and Telecommunications Station, San Diego Detachment Stockton (NCTS Stockton; the former Naval site that became the West Complex) site. Site 19 is located west of the existing rail lines in the area of the proposed McCloy rail classification yard, adjacent to the intersection of Humphreys Drive and McCloy Avenue. Site 19 is bounded by a vacant flat site to the west, fencing and existing rail to the north, fencing to the south, and the intersection to the east. A portion of the proposed McCloy rail classification yard would be located in only the eastern edge of Site 19, requiring approximately 1 foot of excavation within that part of Site 19. The known contamination at Site 19 is limited to stockpiles located west of the proposed work area; the proposed project would not impact these stockpiles. There is a California Department of Toxic Substances Control (DTSC) Land Use Covenant (LUC) in place for all of NCTS Stockton, including Site 19. The LUC forbids use of NCTS Stockton as a residence, hospital, school, or day care center for children, or for any use that restricts access of groundwater monitoring wells, restricts investigation, remediation, and long-term maintenance and operations, or, without DTSC permission, alters groundwater conditions. The LUC also requires preparation of a soil management plan (SMP) for DTSC approval, and pre-construction notice prior to any earthwork. The LUC would apply to work on the part of the McCloy rail classification yard that occurs in the edge of Site 19.

Recent geotechnical investigations in the project vicinity have identified potentially liquefiable soils, which may also be present in the project area. Geotechnical borings taken for the Navy Drive Bridge project located approximately 600 feet southwest of the rail bridge replacement portion of the project site, identified thick layers of potentially liquefiable soils within the top 60 feet of soil below the existing levee crown. Exploratory investigations were also conducted for the Endicott Biofuel Production Facility on Navy Drive, planned for construction on the East Complex immediately southwest of Navy Drive Bridge, approximately 600 feet southwest of the proposed replacement rail crossing. The Endicott Biofuel Production Facility investigation also identified potentially liquefiable soils in areas mapped by NRCS as containing Yellowlark gravely loam soils (Stockton Port District and TRC Solutions 2013). 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). Geotechnical investigations for the SR 4 Crosstown Freeway project, which extends the Crosstown Freeway west from Fresno Avenue to Navy Drive, also identified some areas prone to liquefaction; these conditions may also be present in the project area adjacent to West Scotts Avenue (Port 2021b).

3.3.7.1.2 Fault Rupture

Surface fault rupture is defined as slip on a fault plane that has spread to the Earth's surface and caused a rupture or disturbance. Fault rupture almost always follows preexisting faults, which are zones of weakness. There are two active known faults within 25 miles of the project 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 project site (USGS 2008). However, the project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (CGS 2019).

3.3.7.1.3 Ground Shaking

Ground shaking is the most widespread effect of earthquakes. The most likely sources of strong ground shaking are from the Hayward, San Andreas, Calaveras, Marsh Creek-Greenville, and Concord-Green Valley faults (County 2010, 2014). The project site 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 City, ground shaking would mostly affect taller structures (3 to 4 stories high; County 2010).

3.3.7.1.4 Liquefaction

Liquefaction is the transformation of a granular material (sediments or soils) from a solid into a liquefied state, often resulting from strong seismic ground shaking in areas with susceptible soils. Factors known to affect the liquefaction potential of soils are the characteristics of the materials, including grain size distribution, relative density, and degree of saturation; the initial stresses acting on the soils; and the characteristics of the earthquake such as the intensity and duration of the ground shaking. Low-density sandy soils with water tables less than 20 feet below ground surface may be susceptible to liquefaction.

As described in Section 3.3.7.1.1, recent geotechnical investigations suggest that potentially liquefiable soils may be present in the area of the proposed replacement rail crossing and near the proposed LLDT improvements adjacent to West Scotts Avenue. Portions of the project site that are inland on the East and West Complexes, away from the levees, are mapped as mostly containing soils with low liquefaction vulnerability (NRCS 2021). However, fill soils potentially susceptible to

liquefaction are common throughout the Delta. The type of ground motion expected from large earthquakes in San Joaquin County is expected to be a rolling type of motion, which would be less likely to cause liquefaction (County 2010).

3.3.7.1.5 Lateral Spreading

Lateral spreading is a form of liquefaction that results in lateral movement of ground in which cohesive soil layers may fracture, subside, rotate, or disintegrate as a result of seismic activity. During an earthquake, lateral spreading usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spreading has generally been observed to take place in the direction of a free face (i.e., retaining wall, slope, and channel) but has also been observed to a lesser extent on ground surfaces with very gentle slopes. As noted, portions of the project site may be susceptible to liquefaction and therefore may also be susceptible to lateral spreading. The risk of lateral spreading would be highest in areas with steep slopes, such as near levees or elevated rail lines, and reduced in areas with flat topography, as occurs through most of the project site.

3.3.7.1.6 Slope Failure and Slope Stability

Earthquakes can cause significant slope stress, potentially resulting in earthquake-induced landslides. Landslides most commonly occur in areas with steep slopes or within slide-prone geologic units that contain excessive amounts of water. Other factors that affect slope stability include site geology, climate, and human activity. The project site largely has flat topography, although the proposed replacement rail crossing area includes levees with relatively steep slopes. Portions of the rail alignment are also elevated on berms. Landslide hazard zones are not mapped in the project area or in its immediate vicinity (City 2018a).

3.3.7.1.7 Expansive Soils

Expansive soils are high in clay content and increase and decrease in volume upon wetting and drying, respectively. The change in volume exerts stress on buildings and other loads placed on these soils. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction. Site preparations and backfill operations associated with subsurface structures can often eliminate the potential for expansion.

The project site is mapped as containing Egbert-Urban land complex, which is highly expansive (linear extensibility of approximately 7% through the soil column), Jacktone-Urban land complex, which is moderately expansive (linear extensibility of approximately 5.3% through the soil column), and Merritt silty clay loam and Yellowlark gravelly loam, which have low expansivity (linear extensibility of approximately 3.9% through the soil column) (NRCS 2021).

3.3.7.1.8 Subsidence and Settlement

Subsidence involves a sudden sinking or gradual settling and compaction of soil and other surface material with little or no horizontal motion. Land surface subsidence can result from natural and artificial phenomena, including tectonic deformation, consolidation, hydrocompaction, collapse of underground cavities, oxidation of organic-rich soils, rapid sedimentation, and the withdrawal of groundwater. Expansive soils and materials, including estuarine sediments, organic detritus, or thick organic deposits, are more susceptible to subsidence. Settlement occurs when ground shaking reduces the amount of pressure existing between soil particles, resulting in a reduction of the volume of the soil. Areas are susceptible to differential settlement if they are underlain by compressible sediments such as poorly engineered artificial fill. Differential settlement can damage structures, pipelines, and other subsurface entities. Earthquakes and seismic activity can accelerate and accentuate settlement. The project site is mapped as containing soils susceptible to expansion or subsidence. However, as discussed previously, because geotechnical investigations for nearby projects found primarily interbedded clay/silt layers, which are usually not susceptible to cyclic densification, the likelihood of earthquake-related settlement is likely low (H&A 2020).

3.3.7.1.9 Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. The project site resides within a Mediterranean climate, which is exemplified by moist winters and dry summers. Therefore, during the winter, the area is more prone to water erosion, while in the summer the area is more prone to wind erosion. The project site is essentially flat and would not be particularly susceptible to erosion, although the rail bridge crosses a section of the sloped San Joaquin River shoreline. The site does not exhibit evidence of current erosion, and the rail bridge area contains vegetation and riprap that likely provide slope stability. Elevated rail lines within the project area similarly contain vegetated berms, and evidence of erosion was not observed.

3.3.7.2 Impact Evaluation

A: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 1) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42); 2) strong seismic ground shaking; 3) seismic-related ground failure, including liquefaction; or 4) landslides?

Less-than-Significant Impact with Mitigation. The project area is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, and no known surface expression of active faults is believed to cross the project site; therefore, fault rupture through the project site is not anticipated, and there would be no impact related to this hazard.

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 City and County Grading Regulations and seismic design parameters from the 2019 California Building Code and American Society of Civil Engineers—and would not increase the potential for human injury or loss of life. Therefore, the proposed project would result in less-than-significant impacts related to seismic ground shaking.

Liquefiable soils may be present in the area of the proposed replacement rail bridge crossing and the LLDT rail underpass at Fresno Avenue, as evidenced by recent geotechnical investigations in the project vicinity. 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 project improvements would be constructed in compliance with applicable seismic standards. Nonetheless, mitigation measures would be implemented to address potential liquefaction hazards. Levee maintenance and construction also occurs with oversight from Reclamation Districts 403 (West Complex side) and 404 (East Complex side).

The following mitigation measures would be implemented during construction to reduce potential impacts:

- **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.

To additionally ensure that the proposed levee work does not result in adverse effects related to liquefaction or other seismic hazards, the proposed project would include implementation of mitigation measure MM-GEO-1. Mitigation measure MM-GEO-1 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.

The potential for liquefiable soils and high groundwater table may necessitate pile driving or other potential reinforcement measures for rail underpass at Fresno Avenue. The proposed project would include implementation of mitigation measure MM-GEO-2 to identify and implement these

reinforcement measures. Mitigation measure MM-GEO-2 may include identifying and implementing reinforcement measures such as support piles with pile casings or slurry reinforcement.

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. 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. Therefore, with implementation of MM-GEO-1 and MM-GEO-2, impacts related to liquefaction would be less than significant.

B: Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact with Mitigation. The project site 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 project site would comply with 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. Project construction would require excavation that could erode soils if improperly managed, which would constitute a potentially significant impact.

Mitigation measures MM-BIO-2, MM-BIO-5, MM-GEO-1, and MM-GEO-2 would be implemented to reduce potential impacts. 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. Although there is unlikely to be substantial soil erosion during operations, the proposed project additionally includes implementation of mitigation measures MM-GEO-1 and MM-GEO-2. MM-GEO-1 entails coordination with Reclamation Districts 403 and 404 for any levee improvements, including implementation of slope stabilization methods such as riprap installation, as needed. MM-GEO-2 entails conducting a site-specific geotechnical investigation in the area of the rail underpass at Fresno Avenue, and implementing identified stabilization measures such as reinforced piles.

With implementation of mitigation measures MM-BIO-2, MM-BIO-5, MM-GEO-1, and MM-GEO-2, impacts related to soil erosion or the loss of topsoil would be less than significant.

C: Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact with Mitigation. As previously discussed, most of the project site contains flat topography and existing prepared subgrades with low potential for slope failure, landslides, or lateral spreading. In addition, the soil underlying portions of the project site has been previously prepared for construction in connection with the original installation of rail lines and associated infrastructure. Liquefiable soils may however be present in the vicinity of the proposed replacement rail bridge and LLDT improvements near West Scotts Avenue, including the rail underpass at Fresno Avenue, and portions of the rail alignment occur on elevated berms. Some soils mapped as occurring at the project site may be susceptible to liquefaction or subsidence. Fill soils potentially susceptible to subsidence are also common in the area.

Proposed improvements would be constructed or installed in adherence with applicable building and seismic design standards. This would include compaction of subgrade soils and installation of base and foundation as necessary, which would reduce the potential for slope failure or landslides.

As noted above, mitigation measure MM-GEO-1 would be implemented to avoid levee stability impacts from project construction, while MM-GEO-2 would be implemented to identify and implement stabilization measures in the area of the proposed rail underpass at Fresno Avenue. In addition, exposure to unstable geologic hazards would be typical to the region and would not be exacerbated by the proposed project. Therefore, with implementation of MM-GEO-1 and MM-GEO-2, impacts related to unstable geological units or soils would be less than significant.

D: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less-than-Significant Impact. The soils mapped as occurring at the project site include soils that are highly or moderately expansive (Egbert-Urban land complex and Jacktone-Urban land complex; NRCS 2021). As part of the proposed project, site grading and surface preparation would be completed as needed to comply with design standards addressing the potential for expansion. In addition, soils underlying the developed portions of the proposed project footprint have been previously prepared for construction in connection with the original installation of rail lines and associated infrastructure, including compaction of subgrade soils and installation of base and foundation, as necessary. In consideration of the existing developed site conditions and applicable design standards, there would be less-than-significant impacts related to expansive soils.

E: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

No Impact. The proposed project would not require wastewater disposal or generate process or industrial wastewater, and it would neither require the use of septic tanks or alternative wastewater disposal systems nor affect any such systems. Therefore, there would be no impact.

F: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact. There are no known unique geological or paleontological resources in the project area. Construction of the proposed project would include excavation, fill, and compaction of soils. However, because of its geomorphological history, the project area is not likely to contain any fossils other than invertebrate fossils that are in a redeposited context. Therefore, there would be a less-than-significant impact.

3.3.8 Greenhouse Gas Emissions

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b.	Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.3.8.1 Affected Environment

3.3.8.1.1 Environmental Setting

Global climate change results from GHG emissions caused by several activities, including fossil fuel combustion, deforestation, and land use change. GHGs trap infrared radiation emitted from the Earth's surface, which otherwise escapes to space. The most prominent GHGs contributing to this process 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. 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. 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. 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. Climate change is a global problem, and GHGs are global pollutants, unlike criteria pollutants (such as O_3, CO, and PM) and TACs, which are pollutants of regional and local concern (see Section 3.3.3).

Global warming potential (GWP) is a measure of how much a given mass of GHG contributes to global warming. A relative scale is used to compare the gas in question to CO_2 (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 a GWP 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 equivalence (CO_2e).

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 (IPCC 1995; CCCC 2012; USGCRP 2014). In California, an assessment of climate change impacts predicts that temperatures will increase between 4.1°F to 8.6°F by 2100, based on low and high global GHG emission scenarios (CCCC 2012). Predictions of long-term negative environmental impacts in California include worsening of air quality problems, 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 2012).

3.3.8.1.2 Regulatory Setting

Executive Order (EO) S-3-05, signed by then-Governor Schwarzenegger on June 1, 2005, established the following GHG reduction targets for California: 1) by 2010, reduce GHG emissions to 2000 levels; 2) by 2020, reduce GHG emissions to 1990 levels; and 3) by 2050, reduce GHG emissions to 80% below 1990 levels. EO S-3-05 also called for the California Environmental Protection Agency to prepare biennial reports on progress made towards achieving these goals, impacts to California from global warming, and mitigation and adaptation plans to combat these impacts.

The California Global Warming Solutions Act of 2006 (AB 32) required CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB was directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. AB 32 set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. AB 32 also required CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

On December 11, 2008, CARB adopted the AB 32 Scoping Plan, which set forth the framework for meeting the state's GHG reduction goal set by EO S-3-05. On October 20, 2011, CARB adopted the final cap-and-trade regulation. CARB also approved an adaptive management plan that monitors the progress of reductions and recommends corrective actions if progress is not as planned or there are unintended consequences in other environmental areas (e.g., concentration of local criteria pollutants).

In 2014, CARB adopted an update to the 2008 AB 32 Scoping Plan that builds upon that initial plan with new strategies and recommendations. The 2008 AB 32 Scoping Plan and 2014 Scoping Plan Update require that reductions in GHG emissions come from virtually all sectors of the economy and be accomplished from a combination of policies, regulations, market approaches, incentives, and voluntary efforts. These efforts target GHG emission reductions from cars and trucks, electricity production, fuels, and other sources.

In 2017, CARB prepared an update to the Scoping Plan. The update established a set goal to reduce GHG emissions to 40% below 1990 inventory levels by 2030 (ARB 2017a).

In August 2008, SJVAPCD adopted the Climate Change Action Plan to assist lead agencies in assessing and reducing the impacts of project-specific GHG emissions on global climate change. The Climate Change Action Plan relies on the use of performance-based standards, otherwise known as Best Performance Standards (BPSs), to assess the significance of project-specific GHG emissions on global climate change. Projects implementing BPS are determined to have a less-than-significant impact. Otherwise, demonstration of a 29% reduction in GHG emissions from business as usual is required to classify a project's impact as less than significant.

In 2009, SJVAPCD adopted the *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* (SJVAPCD 2009a) and the *District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQ*A (SJVAPCD 2009b). SJVAPCD was not able to determine a specific quantitative level of GHG emissions increase above which a project would have a significant impact on the environment, and below which it would have an insignificant impact. SJVAPCD staff concluded that impacts of project-specific emissions on global climatic change are cumulative in nature, and the significance thereof should be examined in that context. SJVAPCD requires all projects to reduce their GHG emissions, whether through project design elements or mitigation. Projects achieving performance-based standards that have been demonstrated to be BPS would be considered to have a less-than-cumulative significant impact on global climate change (SJVAPCD 2009a).

The City updated and adopted its 2040 General Plan on December 4, 2018; it has new GHG measures to comply with a 2008 Settlement Agreement with the state and the Sierra Club that requires the City to address GHG reductions, including through specific provisions in the 2040 General Plan. The 2040 General Plan represents a substantial change in the policy framework for future development in the City compared to the 2035 General Plan (City 2007). The fundamental shift is from emphasizing growth in "outfill" areas at the periphery of the City to focusing new construction and redevelopment in existing "infill" neighborhoods. This change is reflected in the land use map, an associated map depicting the transportation network required to serve future development, and in the goals, policies, and actions throughout the document. In addition, the City's 2040 General Plan includes the following policies regarding GHG and climate change that are applicable to the proposed project:

> **Policy TR-3.2:** Require new development and transportation projects to reduce travel demand and greenhouse gas emissions, support electric vehicle charging, and accommodate multi-passenger autonomous vehicle travel as much as feasible.

Policy CH-5.1: Accommodate a changing climate through adaptation, mitigation, and resiliency planning and projects.

Action CH-5.1B: Maintain and implement the City's Climate Action Plan and update the CAP to include the following:

- Updated communitywide GHG emissions inventory;
- 2030 GHG emissions reduction target, consistent with SB 32;
- Estimated 2030 GHG emissions reduction benefits of State programs;
- Summary of the City's progress toward the 2020 local GHG emissions reduction target;
- New and/or revised GHG reduction strategies that, when quantified, achieve the 2030 reduction target and continue emission reductions beyond 2030; and
- New or updated implementation plan for the CAP.

Policy CH-5.2: Expand opportunities for recycling, re-use of materials, and waste reduction.

Action CH-5.2A: Use recycled materials and products for City projects and operations where economically feasible, and work with recycling contractors to encourage businesses to use recycled products in their manufacturing processes and encourage consumers to purchase recycled products.

Action CH-5.2B: Continue to require recycling in private and public operations, including construction/demolition debris. (City 2018a)

3.3.8.1.3 Methodology for Determining Impacts

In determining the significance of a project's impacts, the lead agency may consider a project's consistency with the state's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is consistent with those plans, goals, or strategies (CEQA Guidelines Section 15064.4[b][3]).

In December 2018, the California Natural Resources Agency clarified several points regarding the method for determining GHG impacts in CEQA documents. CEQA Guidelines Section 15064.4 includes the following provisions as summarized by the Governor's Office of Planning and Research (OPR 2020):

- "Lead agencies must analyze the greenhouse gas emissions of proposed projects" (CEQA Guidelines Section 15064.4[a]).

- "The focus of the lead agency's analysis should be on the project's effect on climate change, rather than simply focusing on the quantity of emissions and how that quantity of emissions compares to statewide or global emissions" (CEQA Guidelines Section 15064.4[b]).
- "Lead agencies may rely on plans prepared pursuant to Section 15183.5 (Plans for the Reduction of Greenhouse Gases) in evaluating a project's greenhouse gas emissions" (CEQA Guidelines Section 15064.4[b][3]).

Based on the above guidance, the analysis herein analyzes the GHG emissions that would be generated as a result of the proposed project and addresses how potential emissions as well as the project design would compare to state, regional, and local plans to address climate change.

3.3.8.2 Impact Evaluation

Construction: GHG emissions during construction would come from the construction equipment, worker vehicle trips, and energy used on site. As described in Section 2.5, proposed project construction is expected to occur over 3 years in various areas of the Port, largely within the Port's rail system. Construction emissions would be generated by construction equipment and worker vehicles. The initial phase of construction would include site preparation activities at all sites. Some work elements relative to the rail bridge replacement, LLDT construction, and McCloy rail classification yard construction would occur simultaneously. Equipment lists were provided by engineers for the proposed project; 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. GHG emissions from construction are shown in Table 10. A full description of GHG emission sources, including equipment horsepower ratings, is provided in Appendix C.

Table 10
Annual Construction Greenhouse Gas Emissions

Year	Construction Project	Construction Phase	CO_2e (metric tons/year)
2023	Rail Bridge Replacement	Track LD01 Construction	98
	Second Lead Track	Earthwork	351
	McCloy Rail Classification Yard	Earthwork	239
		Total	**689**
2024	Rail Bridge Replacement	Track LD01 Construction	58
	Second Lead Track	Track Removal and Reconnection	145
	McCloy Rail Classification Yard	Earthwork and Track Removal and Reconnection	188
		Total	**392**
2025	Rail Bridge Replacement	Track LD02 Construction	**144**

Notes:
Emissions may not precisely sum, due to rounding.
Rail emissions reflect switcher and line-haul locomotives.

Operations: GHG emissions during proposed project operation would originate from rail engines within the Port; all operational emissions would occur within the Port. As discussed in Sections 2.2.1 and 2.6, 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 GHG assessment considers the emissions change between constrained operations in 2026 (without the proposed system improvements) and operations in 2026 (with system improvements). The GHG assessment analyzes the emissions from rail movements within the Port both with and without the proposed project. To model GHG emissions, hours of operation were allocated to the destination location and locomotive type by number of trips and distance traveled within the Port.

GHG emissions from operations are shown in Table 11. The "2026 Conditions without Proposed Project" scenario assumes that the rail system continues to be constrained to 28 trains and that lead track blockages continue. The "2026 Conditions with Proposed Project" scenario assumes rail system improvements are constructed accommodating an additional six trains, with two going to the East Complex and four going to the West Complex. Full GHG emissions modeling results are included in Appendix C.

Table 11
Operational Greenhouse Gas Emissions

Scenario	Engine Type	Engine Mode	CO_2e (metric tons/year)
2026 Conditions without Proposed Project	Class I Mainline Carriers	Running	1,188
		Idling	52
	Class III Switchers	Running	1,245
		Idling	84
		Total	**2,569**
2026 Conditions with Proposed Project	Class I Mainline Carriers	Running	1,641
		Idling	47
	Class III Switchers	Running	1,305
		Idling	28
		Total	**3,022**
Net Change	Class I Mainline Carriers	Running	397
		Idling	-37
	Class III Switchers	Running	117
		Idling	-24
		Total	**453**

Note:
Rail emissions reflect switcher and line-haul locomotives.

A: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision-makers to intelligently consider a project's incremental contribution to climate change (CEQA Guidelines Section 15064.4[c]).

SJVAPCD has established GHG thresholds for projects subject to CEQA. For projects implementing SJVAPCD's BPS, quantification of project-specific GHGs is not required (SJVAPCD 2009). SJVAPCD's BPS generally apply to projects with stationary industrial emission sources. Most the proposed project's emissions are from mobile sources; therefore, SJVAPCD's BPS do not apply. SJVAPCD has not established BPS for the wide variety of land use sources that can occur within the San Joaquin Valley. Instead, SJVAPCD recommends determining whether the GHG emissions applied to a project would result in a 29% reduction compared to business as usual. However, the business as usual approach has been invalidated in the 2015 *Center for Biological Diversity v. Department of Fish and Wildlife* California Supreme Court decision.

Several California Air Districts have established a GHG threshold of 1,100 metric tons of CO_2e per year for land use plans and 10,000 metric tons per year for stationary sources. However, the proposed project is neither a land use plan nor a stationary source. The South Coast Air Quality Management District (SCAQMD) has established a threshold of 10,000 metric tons per year of CO_2e emissions per year for industrial projects, including Port projects which include a number of industrial emission sources. Construction GHG emissions, amortized over the life of a project, are required to be included in a project's annual GHG emissions totals (SCAQMD 2011). For purposes of this analysis, the SCAQMD's industrial project threshold is used to evaluate the significance of the proposed project's GHG emissions. The analysis also considers the proposed project's consistency with applicable provisions of the plans, goals, or strategies identified in Section 3.3.8.1.2.

Tables 10 and 11 show the total proposed project GHG emissions, as estimated using CalEEMod. Construction emissions would occur between 2023 and 2025. Operational emissions include direct emissions from line-haul locomotives and switching locomotives. Detailed emission estimates are summarized in Appendix C. As shown, annual emissions would be less than the threshold of 10,000 metric tons per year and therefore are considered less than significant.

B: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. As discussed above, there are numerous statewide regulations and initiatives related to overall GHG reductions. SJVAPCD's BPS generally apply to projects with stationary industrial emission sources. As shown in Table 11 the majority of the proposed project's GHG emissions are from mobile sources and SJVAPCD's BPS do not apply.

The proposed project is subject to future state and local requirements imposed by CARB's 2017 *Climate Change Scoping Plan Update* (CARB 2017a). The *Climate Change Scoping Plan Update* describes how California will reduce its GHG emissions by 40% below 1990 levels by 2030. The proposed project's emission sources are mobile sources that would be captured under state initiatives such as low carbon energy and fuel standards. Therefore, impacts are considered less than significant.

3.3.9 Hazards and Hazardous Materials

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☒	☐
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

3.3.9.1 Affected Environment

3.3.9.1.1 Listed Hazardous Material Sites

Surrounding sites potentially containing hazardous materials were identified through a search of the DTSC EnviroStor (DTSC 2021) and State Water Resources Control Board GeoTracker (SWRCB 2021a) databases. Within a 1-mile radius of the proposed project footprint (including the proposed rail improvements, replacement rail bridge, rail yard, and staging areas), 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).

Thirteen sites listed on the DTSC EnviroStor (DTSC 2021) and GeoTracker (SWRCB 2021a) databases occur within 1,000 feet of the project site. Ten of these sites are parts of NCTS Stockton (EnviroStor has three NCTS Stockton listings, and GeoTracker has seven). The remaining three are the Stockton Ordnance Depot (part of former Naval use of the Port); the Koppel Stockton Terminal site at 2025 West Hazelton Avenue (listed on GeoTracker); and the Newark Group, Inc. Leaking Underground Storage Tank (UST) Case 2 site at 800 West Church Street (listed on GeoTracker). These sites are described in the following subsections.

3.3.9.1.1.1 Naval Computer and Telecommunications Station, San Diego Detachment Stockton

NCTS Stockton is the former Naval outpost, which encompassed the Port's modern West Complex. The U.S. military first occupied the West Complex after World War I and subsequently developed the area into the U.S. Naval Supply Annex, Stockton, during World War II. In the early 1950s, supply depot activity slowed, and command of Rough and Ready Island transferred to NCTS Stockton. NCTS Stockton managed the depot until July 2002, when U.S. Navy operations ceased entirely. The Department of Defense property on Rough and Ready Island was approved for transfer to the Port in 1996 and became the West Complex as property was conveyed to the Port between approximately 2000 and 2010. The West Complex is now used to provide maritime support for the Port.

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 project and EnviroStor lists three (all 38 sites are included in the total identified from the databases in Section 3.3.9.1.1).

The proposed project 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). As discussed in Section 3.3.7.1.1, the western edge of the proposed McCloy rail classification yard would be on Site 19.

3.3.9.1.1.2 Stockton Ordnance Depot

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. A portion of the project footprint would occur adjacent to the East Complex former Stockton Ordnance Depot area. The Stockton Ordnance Depot

was used for military purposes from 1941 through 1973. 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.

3.3.9.1.1.3 Koppel Stockton Terminal

This site is located at 2025 West Hazelton Avenue. Phytoremediation was initiated at this site in May 1998 for nitrate and ammonium contaminated groundwater. 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.

3.3.9.1.1.4 Newark Group, Inc. Leaking Underground Storage Tank Case 2

This site is located at 800 West Church Street. It is a leaking UST site; petroleum contamination was found in soil and groundwater after removal of site USTs. The site is under monitored natural attenuation and as of 2021 is under RWQCB consideration for closure.

3.3.9.1.2 Potentially Hazardous Materials On-Site

Most of the project site consists of existing industrial rail lines, or portions of the Port or BNSF right-of-way that are directly next to existing rail lines. The portions of the proposed project site 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 project sites 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 but not limited to 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 2020a). 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 2020a). 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 sections.

3.3.9.1.2.1 BNSF Hazardous Material Plans

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, discussed as follows, to address personnel safety and reduce releases of hazardous materials due to accidents (also called accident releases). BNSF works with customers to reduce non-accident releases by improving packaging and containment. In the event a problem does occur, BNSF's spill response program, discussed as follows, is designed to minimize impact to the environment, the community, and BNSF operations.

A Hazardous Materials Emergency Response Plan is developed for every BNSF facility in the United States. For BNSF facilities located in California, the Hazardous Materials Emergency Response Plans and California Business Plans consist of the following components:

- A list of emergency contact numbers for the following parties: the Emergency Coordinator at the BNSF facility; the local fire and police departments; the County Environmental Health Department; the State Office of Emergency Services; the National Spill Response Center; the USEPA Emergency Reporting Number; the State Water Resources Control Board; the RWQCB; the California Occupational Safety and Health Department; and spill response contractors
- A list of the types and locations of emergency equipment at the BNSF facility
- A County Health Department Business Activities Form that identifies the sizes of storage containers for hazardous materials, including underground and aboveground storage tanks, hazardous wastes, and other regulated substances present at the facility, as well as total volume of materials being stored at the facility
- A facility contingency plan that summarizes emergency response procedures for the proposed project in the event of fire, explosion, or other unauthorized release of hazardous substance(s). The plan also includes the following:
  - Emergency evacuation plan
  - Employee hazardous materials training program
  - Contracts that are prepared and signed by designated qualified emergency response contractors that identify the scope of services, the types of materials to be handled, and the term of the contract

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.

BNSF's spill response program delivers 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 are required to 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 highway/rail crossings to provide the public with a way to contact BNSF immediately in an emergency.

When responding to a spill, information about the spill area and type of material involved is critical. BNSF uses GIS to provide "point-and-click" information about specific track locations, surrounding communities, emergency responders, healthcare facilities, schools, nursing homes, pipelines, and detailed response procedures. The GIS includes a model for simulating chemical concentrations and "footprints" if a release were to occur. Output from the model includes consideration for complex topography, such as mountains and river valleys.

3.3.9.1.2.2 Union Pacific Hazardous Materials Management Group

The UP Hazardous Materials Management Group (HMM) consists of hazardous material experts focused on the following four areas of hazardous material management:

1. **Prevention.** UP's HMM team members regularly inspect tank cars moving on the UP network. HMM is responsible for training employees about hazardous materials safety. U.S. Department of Transportation-defined "hazmat employees" are required to be trained in the safe handling of hazardous materials. Train crews are required to carry a copy of Instructions for Handling Hazardous Materials, provided by HMM, while operating a train carrying hazmat.
2. **Preparedness.** HMM develops the UP Hazardous Materials Emergency Response Plan, a performance-based plan that provides guidance about reporting a release as well as 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.
3. **Response.** The response process used by HMM 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 Response Management Communication 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.

4. **Recovery.** 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.

3.3.9.1.3 Regional Emergency Response Plans

Regional emergency response plans are detailed in the 2008 San Joaquin County Office of Emergency Services' *Hazardous Materials Area Plan* (SJCOES 2008). The plan discusses topics such as natural hazards, emergency management, mitigation programs, emergency preparedness, and state roles and responsibilities. Under the plan, considerations have been made for the area, including for hazardous materials. Additionally, Appendix 5 of the plan addresses non-routine emergency responses, including responses to industrial chemical hazards and terrorist chemical release (SJCOES 2009). Other hazard plans for the region and throughout California would also apply to the proposed project.

3.3.9.1.4 Sensitive Receptors

There are no schools, airstrips, airports, or other sites potentially sensitive to hazards or hazardous materials within 1 mile of the proposed McCloy rail classification yard (which is near known contamination at Site 19), or within 1 mile of the rail bridge construction site (which would involve longer periods of construction equipment use). The school that is nearest to the project area is George Washington Elementary School, located approximately 1,500 feet north of portions of the LLDT work in the BNSF right-of-way; this portion of the project area is not known or anticipated to contain hazardous materials. George Washington Elementary is approximately 2 miles east of the proposed McCloy rail classification yard and 1.3 miles to the east of the rail bridge. Victory Elementary School is located approximately 1.3 miles to the northeast of the rail bridge. The nearest airport is the Stockton Municipal Airport, located approximately 5 miles southeast of the project area.

3.3.9.1.5 Wildfire Hazards

The project site is not within any fire hazard severity zones (Los Padres ForestWatch 2020; CAL FIRE 2021). There are no wildlands within the project area, and wildland fires do not pose a risk to the project site.

3.3.9.2 Impact Evaluation

A: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact with Mitigation. Proposed project operations would not create any new uses of hazardous materials, although there may be an increase in rail transport of potentially hazardous materials commensurate with the anticipated increase of six trains per week by 2026. Rail

transport would remain 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.

Proposed project operations may require use, storage, and management of common industrial materials such as lubricants and fuels. 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 compared to baseline conditions.

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 Occupational Safety and Health Administration (OSHA) regulations, and risk of exposure can be evaluated through pre-construction hazardous material surveys.

Construction activities would involve the use of equipment that contains oil, gas, or hydraulic fluids that could be spilled during normal usage or during refueling. 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.

A portion of the proposed project (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. Proposed project construction in Site 19 would take place to the east of the stockpiles and would not affect the stockpiles. As discussed in Section 3.3.7.1.1, 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.

The impacts from proposed project construction could be potentially significant. The following mitigation measure would be implemented during construction to reduce 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.

Mitigation measure MM-HAZ-1 would be implemented, including restricting work to the non-stockpile portion of Site 19 and preparation of an SMP for DTSC approval prior to construction. In addition, the Port would implement mitigation measures MM-BIO-2 and MM-BIO-5 to ensure spill controls, erosion controls, or similar actions are in place to minimize or avoid adverse impacts to the environment or human beings from construction. With implementation of mitigation measures MM-HAZ-1, MM-BIO-2, and MM-BIO-5, impacts would be less than significant.

B: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact with Mitigation. As described, the proposed project 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. Small quantities of common industrial materials may also be used during proposed project operations. Compliance with OSHA regulations would avoid or minimize the potential for worker exposure to hazardous materials during demolition or construction.

A portion of the proposed project (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. For the same reasons as outlined above under item A, potential impacts from project construction associated with Site 19 could be potentially significant.

Mitigation measures MM-HAZ-1, MM-BIO-2, and MM-BIO-5 would be implemented during construction to reduce potential impacts. Hazards associated with Site 19 would be addressed through mitigation measure MM-HAZ-1, which prohibits construction in the contaminated stockpile portion of Site 19 and requires the Port to prepare an SMP prior to initiating ground disturbance in Site 19. Implementation of mitigation measures MM-BIO-2 and MM-BIO-5 would avoid or minimize impacts to persons and the environment from accidental spills during construction. With implementation of mitigation measures MM-HAZ-1, MM-BIO-2, and MM-BIO-5, impacts would be less than significant.

C: Would the project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Less-than-Significant Impact. No school is proposed within the 0.25-mile radius of the project site, and no school is located within 1 mile of portions of the project area that are anticipated to contain hazardous materials. Because of the bulk of the project area's zoning (Port Area), it is unlikely that a school would be constructed within this radius. The nearest school is George Washington Elementary School, which is approximately 1,500 feet north of portions of the LLDT work in the BNSF right-of-way, 1.3 miles to the east of the rail bridge, and 2 miles east of the proposed McCloy rail classification yard. Construction activities for the LLDT work in the BNSF right-of-way may involve the use of hazardous materials and substances. Although this construction would not occur within 0.25 mile of the school, due to the relative proximity, impacts would be considered less than significant related to hazardous material emissions or handling in the vicinity of a school.

D: Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less-than-Significant Impact with Mitigation. Part of the proposed project is located on the Port's West Complex, which was formerly used as a Naval base. Portions of the West Complex are included on the Cortese list and are active hazardous materials sites. The majority of the proposed project footprint within the West Complex would occur outside of hazardous materials sites. 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. For the same reasons as outlined above under item A, potential impacts from project construction associated with Site 19 could be potentially significant.

Mitigation measure MM-HAZ-1 (work restrictions at Site 19) would be implemented to reduce potential impacts. With implementation of mitigation measure MM-HAZ-1, impacts related to hazards from known hazardous materials sites would be less than significant.

E: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The project site is not located within an airport land use plan area, and the nearest airport or airstrip is located approximately 5 miles southeast of the project area. Therefore, the proposed project would result in no impact related to aviation.

F: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The Port, BNSF, and UP have emergency response or evacuation plans in place, which would apply to the proposed project. Regional emergency response plans, including but not limited to the San Joaquin County *Hazardous Materials Area Plan* (SJCOES 2008), were developed in consideration of activities occurring within industrial areas of the City. The proposed project improvements and anticipated train throughput increase (six trains per week by 2026) would not interfere with emergency plan implementation or effectiveness. Therefore, there would be no impact related to impairment of emergency plans.

G: Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

No Impact. The project site is not within any fire hazard severity zones, and there are no wildlands or other areas susceptible to wildfire in the project area. Therefore, there would result be no impact related to wildland fires.

3.3.10 Hydrology and Water Quality

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b.	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
	i. Result in a substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
	ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☒	☐	☐
	iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
	iv. Impede or redirect flood flows?	☐	☐	☐	☒
d.	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e.	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

3.3.10.1 Affected Environment

3.3.10.1.1 Surface and Stormwater

The proposed project footprint is primarily within the footprint of the existing Port rail system, which comprises soil compacted and prepared for rail installation. The portions of the proposed project footprint that are not existing rail are either vacant land or concrete pads for existing structures. Temporary construction staging would occur in several locations throughout the East and West Complexes, mostly within barren but disturbed areas with compacted earth, asphalt, or ruderal vegetation. The proposed rail bridge replacement area is located above the San Joaquin River.

On the West Complex, stormwater is conveyed through a system of open, channelized earthen stormwater drainage ditches that convey stormwater to a single pump-controlled discharge point on

the west side of the West Complex. Once stormwater reaches this discharge point, it is held in a stormwater retention basin on the western end of the West Complex; when the basin reaches a high level, it is then 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. During years when the retention basin reaches a high level, stormwater is pumped to the San Joaquin River (Stockton Port District 2006). Stormwater falling in the area of the replacement rail bridge and adjoining levees drains directly to the San Joaquin River.

3.3.10.1.2 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 project site 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).

Upstream dam failures could cause flooding in the project area, which is within the dam inundation zone of three major dams, 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 SB 92 (2017) requires emergency action plans for all dams, except those classified as "low hazard."

The project area is protected by a levee system 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).

3.3.10.1.3 Groundwater

The project 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.

3.3.10.1.4 San Joaquin River

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 project 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 project area.

3.3.10.1.5 Port of Stockton's Storm Water Development Standards Plan

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.

3.3.10.2 Impact Evaluation

A: Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less-than-Significant Impact with Mitigation. Construction activities associated with the proposed project would include excavation and grading of soils throughout the Port, and the proposed project includes construction above and adjacent to the San Joaquin River. These activities could pose the potential for water quality impacts during construction. Because the proposed project would include more than 1 acre of ground disturbance, a NPDES Construction Stormwater General Permit addressing these types of impacts would be required. In-water work for replacement of the rail bridge, including pile driving, would also be conducted in line with relevant regulatory requirements for work in jurisdictional waters.

Construction activities would not occur in areas known to be contaminated. A portion of the proposed project (the western edge of the proposed McCloy rail classification yard) would extend

onto the Site 19 hazardous materials site. As described in Section 3.3.9.1, 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 project work areas. The proposed project would comply with the LUC in place for Site 19, including preparation of an SMP for DTSC approval prior to any earthwork, as described in Section 3.3.9.2, avoiding or minimizing the potential for water quality impacts associated with known hazardous material sites.

Proposed project 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.

Water quality impacts from project construction could be potentially significant. Mitigation measures MM-BIO-2, MM-BIO-5, and MM-HAZ-1 would be implemented to reduce potential impacts. 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, such as the potential state-jurisdictional wetlands described in Section 3.3.4. Mitigation measure MM-HAZ-1 would ensure the proposed project 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 these mitigation measures, impacts to water quality would be less than significant.

B: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-Significant Impact. The proposed project 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 projects minor effects on permeable surfaces and the continued conveyance of stormwater throughout the Port's existing drainage systems, there would be a less-than-significant impact pertaining to groundwater recharge.

C: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in a substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?

Less-than-Significant Impact After Mitigation. The proposed project would have little or no effect on drainage patterns throughout the project site. 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 projects 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.

Potential flood hazards from levee failure are addressed through Port and Reclamation Districts 403 and 404 monitoring and collaboration, which would continue to occur with implementation of the proposed project.

The proposed project 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.

As noted previously, project construction could result in adverse impacts if surface runoff were to be improperly managed. Mitigation measures MM-GEO-1, MM-BIO-2, and MM-BIO-5 would be implemented to reduce potential impacts. Potential flood hazards from levee failure are addressed through Port and Reclamation Districts 403 and 404 monitoring and collaboration, which would continue to occur with implementation of the proposed project. To additionally ensure that the proposed levee excavation would not result in flood hazards, the proposed project includes implementation of mitigation measure MM-GEO-1. MM-GEO-1 may include flood abatement or avoidance measures such as installation of rock riprap, construction setbacks, or design measures for continued access and maintenance. Mitigation measures MM-BIO-2 and MM-BIO-5, which entail obtaining required permit approvals and implementing avoidance measures such as erosion and spill controls, would be implemented to avoid or minimize the potential for polluted runoff during construction.

In consideration of the minor effects on localized drainage patterns, and with implementation of mitigation measures MM-GEO-1, MM-BIO-2, and MM-BIO-5, impacts would be less than significant.

D: Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The project area is within the dam inundation zone for several dams, and levee systems protect the project site 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 upland portion of the project site is not within a FEMA-designated flood hazard area. Therefore, the proposed project would not exacerbate risks related to flood hazards or the risk of stormwater contamination during flooding, and there would be no impact.

E: Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact. As previously described, the proposed project would result in only less-than-significant water quality or groundwater impacts. In addition, the proposed project would be subject to Port review for compliance with its Storm Water Development Standards Plan (Port 2009). Therefore, there would be a less-than-significant impact.

3.3.11 Land Use and Planning

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.3.11.1 Affected Environment

The City's 2040 General Plan (City 2018a) designates the project site for the operation of Port facilities and designates the project areas on the East Complex as Industrial and areas on the West Complex as Institutional. The zoning designation of the project area is primarily "Port," but includes limited areas designated as General Industrial, Low-Density Residential, and undesignated zoning along the BNSF right-of-way (City 2021b). There is no housing within the project site. 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 closest to portions of the project area.

3.3.11.2 Impact Evaluation

A: Would the project physically divide an established community?

No Impact. As noted above, the majority of the project area is zoned as Port. 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 right-of-way adjacent to Ventura Avenue and West Scotts Avenue, respectively. The project footprint does not include any residences, hospitals, schools, convalescent facilities, or other features that would constitute an established community. The proposed project is a Port use, which is consistent with the site's current zoning and existing use. 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. Therefore, there would be no impact relative to dividing communities.

B: Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. 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. Accordingly, the proposed project would be consistent with applicable land use plans and policies, and there would be no impact.

3.3.12 Mineral Resources

	Would the project:	Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.3.12.1 Affected Environment

Important extractive resources in San Joaquin County include sand, gravel, and natural gas; however, the project area is within the mineral resource zone (MRZ) designation MRZ-1, meaning that sufficient information exists to conclude that no significant mineral deposits are present (City 2007). Historic mineral extraction in the southwest sector of San Joaquin County included silver, coal, and placer gold, but no mineral resources are currently mined within Stockton, including within the project area (City 2007).

3.3.12.2 Impact Evaluation

A: Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The proposed project is located in MRZ-1; as such, continued development of the area would not limit access to any known mineral resources. The proposed project would neither interfere with any existing extraction operations nor reduce the availability of any known mineral resources. Therefore, there would be no impact.

B: Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The project area does not include a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there would be no impact.

3.3.13 Noise

Would the project result in:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b.	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c.	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.3.13.1 Affected Environment

3.3.13.1.1 Noise Fundamentals

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 A-weighted decibel [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 12 presents typical sound levels of some familiar noise sources and activities.

Table 12
Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	
Noisy urban area, daytime		
Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Larger business office
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, larger conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: Caltrans 2013

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.

3.3.13.1.2 Groundborne Vibration Fundamentals

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 easiest descriptor to understand; it is simply 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 project'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.

3.3.13.1.3 Environmental Setting

Existing noises in the project vicinity 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 in the project vicinity include nearby general neighborhood sounds (music, chickens, conversations, general home and yard maintenance) and local and regional roadway traffic on nearby roads and highways (i.e., I-5, CA-4, and SR 4).

Land uses that are sensitive to increases in ambient noise can include residences, schools, libraries, and hospitals. Sensitive receptors that may be impacted by project-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 replacement; 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 project site 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 (located at 601 Ventura Street), and off-gassing 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, 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 rail bridge, just 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 13 provides a summary of both long-term and short-term noise measurement data. A detailed summary of sound level measurement data and field notes are provided in Appendix G.

Table 13
Summary of Noise Measurements

Site Location	Date	Time Started	Measurement Duration	L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}
STNM1	April 1, 2021	4:25 p.m.	1 hour	52	74	40	59	55	50	47
STNM2	April 1, 2021	3:17 p.m.	1 hour	61	79	46	67	64	61	59
STNM3	April 1, 2021	2:07 p.m.	1 hour	64	86	44	64	58	56	53
STNM4	April 1, 2021	12:34 p.m.	1 hour	48	62	37	56	52	46	44
STNM5	April 1, 2021	11:18 a.m.	1 hour	62	90	39	71	66	54	47
STNM6	April 1, 2021	9:48 a.m.	1 hour	49	87	42	53	51	49	47
LTNM1	April 1–2, 2021	10:00 a.m.	24 hours	55	87	59	56	55	53	52
LTNM2	April 2–3, 2021	12:08 a.m.	24 hours	55	73	59	56	55	54	54

3.3.13.1.4 Regulatory Setting

OSHA has established acceptable occupational noise exposure levels (29 CFR 1910.95). These regulations state that employees must not be exposed to occupational noise levels greater than 90 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). 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).

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 are based on maximum overall levels for a single event. The impact criteria for groundborne vibration are shown in Table 14. 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 project 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.

Table 14
Groundborne Vibration Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro-inch/second)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[4]	65 VdB[4]	65 VdB[4]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime uses	75 VdB	78 VdB	83 VdB

Notes:
Source: FTA 2018

1. "Frequent Events" are defined as more than 70 vibration events of the same source per day. Most rapid transit projects are in this category.
2. "Occasional Events" are defined as between 30 and 70 vibration events of the same source per day (most commuter trunk lines).
3. "Infrequent Events" are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
4. Approximate threshold of perception for most people.

The *State of California General Plan Guidelines* (OPR 2017) also provide guidance for projects within areas exposed to specific noise levels. For areas zoned for industrial, manufacturing, utilities, and agricultural land uses, the normally acceptable level of community noise exposure is less than 75 Community Noise Equivalent Level (CNEL), with 70 to 80 CNEL considered conditionally acceptable (OPR 2017). The *State of California General Plan Guidelines* also present adjustment factors that may be used to further define noise acceptability standards reflective of noise control goals of a community and the community's sensitivity to noise (OPR 2017).

SMC Title 16, Division 3, Chapter 16.60.010 "provides community noise control regulations and standards which are consistent with, or exceed, the guidelines of the State Office of Noise Control and the standards adopted by the Federal Highway Administration (FHWA), California Department of Transportation (Caltrans), or other government or regulatory agencies." Regarding construction, the City prohibits "operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work between the hours of 10:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities."

The Noise Element of the City's 2040 General Plan establishes goals, policies, and criteria for determining land use compatibility with major noise sources within the community (City 2018a). The

2040 General Plan includes Policy SAF-2.5, which states "Protect the community from health hazards and annoyance associated with excessive noise levels" (City 2018a).

To achieve compliance with Policy SAF-2.5, the City's 2040 General Plan includes the following five actions:

> Action SAF-2.5A: Prohibit new commercial, industrial, or other noise-generating land uses adjacent to existing sensitive noise receptors such as residential uses, schools, health care facilities, libraries, and churches if noise levels are expected to exceed 70 dBA [...] when measured at the property line of the noise sensitive land use.
>
> Action SAF-2.5B: Require projects that would locate noise sensitive land uses where the projected ambient noise level is greater than the "normally acceptable" noise level indicated [in the 2040 General Plan to provide an acoustical analysis].
>
> Action SAF-2.5C: Require noise produced by commercial uses to not exceed 75 dB L_{dn}/CNEL at the nearest property line.
>
> Action SAF-2.5D: Grant exceptions to the noise standards for commercial and industrial uses only if a recorded noise easement is conveyed by the affected property owners.
>
> Action SAF-2.5E: Require all new habitable structures to be set back from railroad tracks to protect residents from noise, vibration, and safety impacts. (City 2018a)

The 2040 General Plan also establishes acceptable noise levels (L_{dn}) for various land use types. For industrial areas, this includes "normally acceptable" L_{dn} of 0 to 70 dBA and "Conditionally Acceptable" L_{dn} of 71 to 80 dBA. To be "Conditionally Acceptable" in this noise range, new construction or development should be undertaken only after "a detailed analysis of the noise reduction requirements is made and needed insulation features have been included in the design" (City 2018a). L_{dn} of 81 dBA or higher are considered "unacceptable." In addition, if "existing noise standards are currently exceeded, a proposed project shall not incrementally increase noise levels by more than 3 dBA" (City 2018a).

SMC also establishes criteria for vibration. City Ordinance 16.32.100 prohibits land uses from generating ground vibration that is perceptible without instruments by the average person at any point along or beyond the property line of the parcel containing the activities. SMC does not provide a specific vibration level for analysis, but groundborne vibration is considered "distinctly perceptible" at level of 0.25 PPV for transient sources and at a level of 0.04 PPV for continuous/frequent

intermittent source (Caltrans 2020). The City's standard only applies to non-construction-related on-site vibratory sources that do not leave the site. Vibration from temporary construction and demolition, and vehicles that leave the subject site (i.e., trucks, trains, and aircraft) are exempt from the City's vibration standards. Construction is exempt from this standard.

3.3.13.2 Impact Evaluation

Construction activities typically require the use of numerous pieces of noise-generating equipment. 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. A list of compiled noise levels associated with commonly used construction equipment is provided in Table 15.

Table 15
Construction Equipment Sound Levels

Equipment Description	Sound Level at 50 feet (dBA)	Acoustical Use Factor (%)
Backhoe	78	40
Compactor (ground)	83	20
Compressor (air)	78	40
Concrete Saw	90	20
Crane	81	16
Dozer	82	40
Drill Rig Truck	79	20
Dump Truck	76	40
Excavator	81	40
Forklift[1,2]	61	50
Front End Loader	79	40
Generator	81	50
Grader	85	40
Hydra Break Ram	90	10
Lift	75	20
Impact Pile Driver	101	20
Paver	77	50
Pumps	81	50
Roller	80	20
Tractor	84	40
Welder	74	40

Notes:
Source: FHWA 2006
1. Strautins 2014
2. Data provided L_{eq} as measured at the operator. Sound level at 50 feet is calculated using inverse square law.

For the purposes of this assessment, 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.

The Federal Highway Administration (FHWA) Roadway Construction Noise Model (FHWA 2006) was used to estimate construction noise associated with each proposed project element by phase (or subphase), 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 or subphase would operate continuously on the same day. Noise sources were assumed to be located within the center of each construction site because the center of a site 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 proposed project 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 LTNM1. 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 G.

As discussed in Sections 2.2.1 and 2.6, 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 operations in 2026 (with system improvements).

As discussed in Section 2.2.1, there are two types of rail carriers in the Port: the Class I mainline carriers (BNSF and UP) and the Class III switchers (CCT at the Port). Class I carriers were assumed in this analysis to have an average of two locomotives while Class III switchers were assumed to have one locomotive at the Port. 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 rail cars to terminals.

A: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less-than-Significant Impact.

Construction. Construction activities would occur intermittently on the project site 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 16 presents the results of the construction noise analysis.

Table 16
Construction Noise Analysis Results Summary

Construction Phase	Pile Driving Included? (Y/N)	Calculated 8-hour L_{eq} (dBA)	Calculated 30-day L_{dn} (dBA)
Rail Bridge Replacement			
Rail Bridge Replacement	Y	60	63
LLDT Construction			
Underpass Construction at 25 Feet	Y	86	82
Underpass Construction at 270 Feet	Y	85	81
Earthwork and Trackwork at 25 Feet	N	84	80

Construction Phase	Pile Driving Included? (Y/N)	Calculated 8-hour L_{eq} (dBA)	Calculated 30-day L_{dn} (dBA)
Earthwork and Trackwork at 270 Feet	N	70	68
Earthwork and Track Construction Port	N	69	67
Construction of McCloy Rail Classification Yard			
Port Yard Construction	N	55	63

Project 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 rail bridge 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 FHWA 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.

As discussed in Section 3.3.13.1.4, 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 project is construction to support existing infrastructure and therefore would not be considered new construction. While not required, several mitigation measures have been included to further reduce the potential for noise, especially during construction of the LLDT. The following mitigation measures would be implemented during construction to further reduce the potential for impacts:

- **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 project 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. SMC 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.

While not required, mitigation measures MM-NOI-1 through MM-NOI-7 have been included to further reduce the potential for noise impacts; accordingly, impacts related to construction noise would be less than significant.

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 (FRA 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). Therefore, operational impacts would be less than significant.

B: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Unless heavy construction activities are conducted extremely close (within a few feet) to neighboring structures, vibrations from construction activities rarely reach levels that damage structures. Typical vibration levels associated with construction equipment are provided in Table 17. Heavy equipment (e.g., a large bulldozer) generates vibrations levels of 0.089 in/sec PPV at a distance of 25 feet.

Table 17
Vibration Velocities for Construction Equipment

Equipment	PPV at 25 feet (in/sec)
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer/Backhoe	0.003

Source: FHWA 2006

City Ordinance 16.32.100 prohibits activities that generate groundborne vibration that is perceptible without instruments by the average person at any point along or beyond the property line of the parcel containing the activities. The City's standard only applies to non-construction-related on-site vibratory sources that do not leave the site. Vibration from temporary construction and demolition and vehicles that leave the subject site (i.e., trucks, trains, and aircraft) are exempt from the City's vibration standards. Construction is exempt from this standard.

For construction activities, an assessment was completed to determine the potential for construction-related vibrations 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.

FTA has established vibration impact assessment criteria for use in evaluating groundborne vibration impacts associated with developments in proximity to rail lines based on maximum overall levels for a single event (FTA 2018). The vibration level associated with rail operations on the new alignment was calculated 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.

Because the construction and operational-related vibration would not exceed FTA thresholds, the proposed project would result in a less-than-significant impact related to vibration.

C: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. There is no public airport within 2 miles of the project site. The closest airport is the Stockton Municipal Airport, located approximately 5 miles southeast of the project area. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with public airport activities.

3.3.14 Population and Housing

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b.	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.3.14.1 Affected Environment

The City's 2040 General Plan (City 2018a) designates the project area on the East Complex as Industrial and areas on the West Complex as Institutional. The zoning designation for the project area and surrounding parcels is primarily Port, but includes limited areas designated as General Industrial, Low-Density Residential, and undesignated zoning along the BNSF right-of-way (City 2021b). There is no housing within the project area.

The project site includes rail improvements on the Port's East and West Complexes and accommodates the Port's projected growth. Growth at the Port is expected to increase direct employment opportunities. However, the increase in employment is not expected to result in population growth in the vicinity of the proposed project.

The project area is in the vicinity of the Boggs Tract neighborhood. Residences along West Scotts Avenue are approximately 100 feet from the project area, east of CA-4.

3.3.14.2 Impact Evaluation

A: Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. No new homes, businesses, or roads would be built as part of the proposed project, and the proposed project would not affect population growth in the area. Therefore, there would be no impact.

B: Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. A portion of the proposed project occurs adjacent to the residential area of the Boggs Tract neighborhood, but there are no housing units within the project area. The proposed project would not displace any people or housing, and the site's zoning precludes the potential for future housing developments. Therefore, the proposed project would have no impact on housing.

3.3.15 Public Services

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?		☐	☐	☐	☒
Police protection?		☐	☐	☐	☒
Schools?		☐	☐	☐	☒
Parks?		☐	☐	☐	☒
Other public facilities?		☐	☐	☐	☒

3.3.15.1 Affected Environment

3.3.15.1.1 Fire Protection

The City's Fire Department provides fire protection to the City and contiguous areas, including the project site. The department has 12 fire stations, and each fire station has one fire engine. The department's goal for response time, per the 2040 General Plan (City 2018a), is to arrive at fire suppression incidents within 4 minutes of notification. Nearby fire stations include Station 6 at 1501 Picardy Drive (1.5 miles northeast of the rail bridge) and Station 2 at 110 West Sonora Street (2.5 miles east of the rail bridge; City 2018b).

3.3.15.1.2 Police Protection

The Port maintains the Port Police Department, an independent certified police agency (Port 2020b). The Port Police Department patrols on a 24-hour basis and is currently served by 13 staff. At least three Port police officers are on duty simultaneously (two on patrol and one in charge of communications). The Port Police Department has mutual aid agreements with the City Police Department, the San Joaquin Sheriff's Department, and the California Highway Patrol in case additional police response is needed (Port 2004). The Stockton Police Department, maintained by the City, also provides police service throughout the City and has an officer to citizen ratio of about 1 to 650 (City 2021c). The department responds to emergencies within approximately 3 to 5 minutes, depending on time of day, location, and the number of requests for services (Stockton Port District 2012).

3.3.15.1.3 Schools

The Stockton Unified School District is divided into seven trustee areas and includes 37 Head Start classes, 53 state preschool classes, three First 5 Preschool classes, 41 K-8 schools, eight high schools,

a special education school, an adult education school, and five charter schools (SUSD 2019). A number of colleges, universities, and vocational training schools are located in Stockton, including California State University, Stanislaus's Stockton Center, the San Joaquin Delta College, the University of the Pacific, Humphreys University, Christian Life College, and UEI College (Stockton Port District 2012). The nearest schools are George Washington Elementary School (approximately 1,500 feet north of portions of the LLDT work in the BNSF right-of-way, 1.3 miles east of the rail bridge, and 2 miles east of the proposed McCloy rail classification yard) and Victory Elementary School (approximately 1.3 miles northeast of the rail bridge).

3.3.15.1.4 Parks

The City's 2040 General Plan (City 2018a) designates the project area as Institutional (West Complex) and Industrial (East Complex). Nearby parks include Louis Park (approximately 0.4 mile north of the McCloy rail classification yard, on the opposite bank of the San Joaquin River from the West Complex) and Boggs Tract Park (900 feet north of the LLDT at West Scotts Avenue).

3.3.15.2 Impact Evaluation

A: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: 1) fire protection; 2) police protection; 3) schools; 4) parks; or 5) other public facilities?

No Impact. The proposed project would not result in increased demand on any existing facilities or services, including fire protection, police, schools, or parks. The project area is adequately served by the City Fire Department, City Police Department, and Port police. There would be no impact to fire protection, police, schools, parks, or other public facilities.

3.3.16 Recreation

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b.	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.3.16.1 Affected Environment

The City operates and maintains 66 parks ranging in size from 2 to 64 acres. Recreational facilities can also be found on the waterways in the region, which includes natural rivers and creeks; manufactured canals, channels, sloughs, and ditches; and the Delta (City 2015). Several parks and recreational facilities exist in the vicinity of the project area, including Boggs Tract Park (900 feet north of the Port lead tracks at West Scotts Avenue); Van Buskirk Municipal Park golf course (1.4 miles south of the Port lead tracks); and Louis Park and Stockton Rod and Gun Club (both are approximately 0.4 mile north of the McCloy rail classification yard on the opposite bank of the San Joaquin River from the West Complex). Recreational use of the surrounding San Joaquin River north of the project area includes primarily recreational boating and fishing (Stockton Port District and TRC Solutions 2013). There is no public access to the active Port, and the portion of the river directly adjacent to the proposed project is not a popular recreational area due to the Port's operating industrial berths.

3.3.16.2 Impact Evaluation

A: Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. Neither construction nor operation of the proposed project would increase the use of existing neighborhood and regional parks or other recreation facilities. Therefore, there would be no impact.

B: Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include the construction or expansion of any recreational facilities and would not result in increased demand or other effects to recreational facilities. Therefore, the proposed project would result in no impact to recreational facilities.

3.3.17 Transportation

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b.	Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?	☐	☐	☐	☒
d.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e.	Result in inadequate emergency access?	☐	☐	☐	☒

3.3.17.1 Affected Environment

This section discusses the transportation-related context in which the proposed project would be constructed and would operate, including the street and rail network that serves the area; existing transit service, bicycle, and pedestrian facilities near the proposed project; and a summary of current conditions.

3.3.17.1.1 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 proposed project vicinity, and 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 project. 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.

3.3.17.1.2 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 2018). 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.

3.3.17.1.3 Regulatory Setting

Traffic analyses in California are overseen by the California Department of Transportation and local jurisdictions. This agency has developed a *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002) to provide a summary of goals and policies. 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.

SB 743, signed by former Governor Brown in 2013, is intended to better align congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions. SB 743 set the stage for moving away from Level of Service (LOS)—which measures delay to motorists—to vehicle miles traveled (VMT) as the metric to evaluate transportation network performance and land use and transportation planning decisions, with investments oriented toward reducing VMT. SB 743 created a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 requires the Governor's Office of Planning and Research to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (PRC 21099[b][1]). Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated" (PRC 21099[b][1]). Once the CEQA Guidelines are amended to include those alternative criteria, auto delay will no longer be considered a significant impact under CEQA (PRC 21099[b][2]). Transportation impacts related to air quality, noise, and safety must still be analyzed under CEQA where appropriate (PRC 21099[b][3]). SB 743 also amended congestion management law to allow cities and counties to opt out of LOS standards within certain infill areas.

Per the 2018 CEQA Guidelines Update, CEQA analyses must consider the amount and distance of automobile travel attributable to a project. Other relevant considerations may include a project's effects on transit and non-motorized travel. Consistent with the 2018 CEQA Guidelines and SB 743, the City is updating its traffic guidelines. While LOS is no longer a CEQA threshold, the City is continuing to assess increases in traffic levels in addition to 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 City's 2040 General Plan includes the following policies for integrating SB 743 into future planning:

> **Policy TR-4.1:** Utilize Level of Service (LOS) information to aid understanding of potential major increases to vehicle delay at key signalized intersections.
> Action TR-4.1A: Strive for Level of Service (LOS) D or better for both daily roadway segment and peak hour intersection operations, except when doing

so would conflict with other land use, environmental, or economic development priorities, and with the following additional exceptions:

- In the Greater Downtown, strive for LOS E or better, but LOS F may be acceptable after consideration of physical or environmental constraints and other City goals and policies. […]
- Roadway segments determined to be operating at deficient LOS by the San Joaquin Council of Governments in the Regional Congestion Management Program.
- Accept worse than adopted-standard LOS at intersections where widening the intersection would reduce bicycle and pedestrian safety and/or increase pedestrian crossing times such that they would create longer traffic delays due to signal timing.

Action TR-4.1B: Amend the City's Transportation Impact Analysis Guidelines to reflect the updated LOS goals under Action TR-4.1A and to refine the threshold at which a project needs to evaluate LOS impacts.

Policy TR-4.2: Replace LOS with: 1) vehicle miles traveled (VMT) per capita; and 2) impacts to non-automobile travel modes, as the metrics to analyze impacts related to land use proposals under the California Environmental Quality Act, in accordance with SB 743.

Action TR-4.2A: To evaluate the effects of new development and determine mitigation measures and impact fees, require projects to evaluate per capita VMT and impacts to transit, bicycle, and pedestrian modes.

Action TR-4.2B: Amend the City's Transportation Impact Analysis Guidelines to include alternative travel metrics and screening criteria.

Policy TR-4.3: Use the threshold recommended by the California Office of Planning and Research for determining whether VMT impacts associated with land uses are considered significant under State environmental analysis requirements.

Action TR-4.3A: Amend the City's Transportation Impact Analysis Guidelines to:

- Establish a threshold of 15 percent below baseline VMT per capita to determine a significant transportation impact under the California Environmental Quality Act.
- Identify screening criteria that will streamline certain types of development and/or development in certain areas by not requiring a VMT analysis. (City 2018a)

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.

3.3.17.2 Impact Evaluation

A: Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less-than-Significant Impact. Except for the initial movement of any construction materials to the project site at the start of construction and eventual movement from the project site at the end of construction, the proposed project would not affect roads or highways. Construction would result in minimal trips and would be well under the threshold of 100 trips during peak hours. As discussed in Section 2, no new on-road operational trips would be generated because of the proposed project. Accordingly, a traffic study is not required for the proposed project, and operation of the proposed project would not conflict with the City's 2040 General Plan or any other plans, ordinances, or policies. Therefore, there would be a less-than-significant impact to traffic from operations.

As discussed in Sections 2.2.1 and 2.6, the Port's rail system currently has several system bottlenecks that constrain existing rail movements within the Port. The existing single-track swing rail bridge between the East and West Complexes has outdated rail size and weight limitations; over time, the rail bridge has become susceptible to structural deficiencies that could lead to closure. Weight restrictions mean that some Port tenants partially fill rail cars. In addition, rail service to the West Complex would be halted if the rail bridge's single track were to require closure. The Port's lead track is also not long enough to serve existing trains. Further, blockages on the lead track cause staging bottlenecks in two locations at the Port: 1) inbound cargo is delayed at the 700 Yard where outbound staged rail cars awaiting departure block the lead track; and 2) delays occur at the Port Yard when CCTC must sort its manifest trains, blocking the Port lead track an average of 4 hours per day. The proposed project would address the current constraints and result in system-wide efficiencies. In addition, no changes are proposed to any public at-grade crossings. Therefore, the proposed project would not conflict with any other plans, ordinances, or policies related to rail circulation.

B: Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?

No Impact. CEQA Guidelines Section 15064.3(b) describes specific considerations for evaluating a project's transportation impacts and notes that VMT is the most appropriate measure of transportation impacts consistent with SB 743. CEQA Guidelines Section 15064.3(a) defines VMT as "the amount and distance of automobile travel [specifically for cars and light trucks] attributable to a

project." As discussed in Section 2.6, no new operational on-road trips would be generated under the proposed project, and therefore there would be no changes to VMT as a result of the proposed project. As the proposed project increases the efficiency of rail operations within the Port, the proposed project adheres to the goals of SB 743 by reducing the number of vehicles on the road that would be needed to transport goods. Therefore, the proposed project would not conflict with, or be inconsistent with, CEQA Guidelines Section 15064.3(b).

C: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-than-Significant Impact. Washington Street, Navy Drive, SR 4, and Harbor Street all provide primary access to the project site from the interstate highway system and are all designated to accommodate construction trucks. Any construction deliveries and staging would be limited to the routes designed and designated to accommodate commercial trucks carrying heavy loads.

As discussed in Section 2 and item A above, the Port's rail system currently has several system bottlenecks that constrain existing rail movements and lead to hazards within the Port. The proposed project would address existing rail blockages and access limitations, 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 new double-track rail bridge would allow for train access to the West Complex in a safe and efficient manner. The new 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 rail alignments would not sharpen any existing curves through which the trains in the Port currently operate.

While the proposed project would address existing design constraints, construction may result in times of delayed service and disruption. Because the new rail bridge would be built parallel to the existing rail bridge, and the existing rail bridge would continue to operate while the new bridge is under construction, no disruptions to rail services to the West Complex are expected. 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. Therefore, impacts are considered less than significant.

D: Would the project result in inadequate emergency access?

No Impact. The proposed project would result in no new traffic within an existing industrial area served by existing emergency vehicles. 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. Additionally, the closest fire station to the project site 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 project site, respectively. Because the proposed project is not expected to increase the need for emergency services or block any emergency access routes, the proposed project is expected to have no impact related to emergency access.

3.3.18 Tribal Cultural Resources

Would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
	i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☒	☐	☐
	ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c)? In applying the criteria set forth in Public Resource Code Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

3.3.18.1 Affected Environment

The project site 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 (Golla 2007). They lived throughout the San Joaquin Valley and relied on the region's rich fishing and hunting resources (Kroeber 1976). Native American communities were severely impacted by European contact (Milliken 1995). However, Yokuts people who have endured are now members of several federally recognized tribes.

Two Native American tribes have requested consultation under the CEQA Guidelines (commonly known as AB 52)—the Buena Vista Rancheria of Me-Wuk Indians of California and the Wilton Rancheria Tribe. The Port also consults with four other tribes—the Northern Valley Yokuts Tribe, the Tule River Indian Tribe, Muwekma Ohlone Indian Tribe of the SF Bay Area, and the Confederated Villages of Lisjan. The Port notified these five tribes of the proposed project by email on May 28, 2021, and by letter on June 2, 2021, and will provide the Draft IS/MND to the tribes. No tribal cultural resources have been identified in the project site. Consultation will be ongoing.

3.3.18.2 Impact Analysis

Ai: Would the proposed project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

Less-than-Significant Impact with Mitigation. There are no known sites, features, places, or cultural landscapes that are listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources in the project area. Previously unrecorded archaeological resources or human remains could potentially constitute tribal cultural resources. However, potential to encounter archaeological resources is low, as described in Section 3.3.5. While the potential is low, native sediments may contain a previously unrecorded archaeological site or human remains that could be tribal cultural resources. Therefore, because the proposed project includes disturbance of soil through direct removal, if archaeological materials or remains are present in previously undisturbed native sediments, they could potentially be disturbed during construction.

If archaeological materials that could be tribal cultural resources are encountered during construction, the proposed project would implement mitigation measure MM-CULT-2. This includes CEQA Guidelines Section 15064.5(f), which requires implementing "provisions for historical or unique archaeological resources accidentally discovered during construction." Within implementation of mitigation, impacts would be less than significant.

Aii: Would the proposed project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c)? In applying the criteria set forth in Public Resource Code Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.

Less-than-Significant Impact with Mitigation. There are no known sites, features, places, or cultural landscapes that have been determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC 5024.1(c) in the project area. Previously unrecorded archaeological resources or human remains could potentially constitute

tribal cultural resources. However, potential to encounter archaeological resources is low, as described in Section 3.3.5. While the potential is low, native sediments may contain a previously unrecorded archaeological site or human remains that could be tribal cultural resources. Therefore, because the proposed project includes disturbance of soil through direct removal, if archaeological materials or remains are present in previously undisturbed native sediments, they could potentially be disturbed during construction.

If archaeological materials that could be tribal cultural resources are encountered during construction, the proposed project would implement MM-CULT-2. This includes CEQA Guidelines Section 15064.5(f), which requires implementing "provisions for historical or unique archaeological resources accidentally discovered during construction." Within implementation of mitigation, impacts would be less than significant.

3.3.19 Utilities and Service Systems

	Would the project:	Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b.	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒
c.	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d.	Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e.	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

3.3.19.1 Affected Environment

3.3.19.1.1 Stormwater

As detailed in Section 3.3.10.1.1, on the West Complex, stormwater is conveyed through a system of open, channelized earthen stormwater drainage ditches that convey stormwater to a single pump-controlled discharge point on the west side of the West Complex. Once stormwater reaches this discharge point, it is held in a stormwater retention basin on the western end of the West Complex; when the basin reaches a high level, it is then 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. During years when the retention basin reaches a high level, stormwater is pumped to the San Joaquin River (Port 2009). Stormwater falling in the area of the replacement rail bridge and adjoining levees drains directly to the San Joaquin River. Stormwater from the proposed project would be conveyed to the Port's existing stormwater drainage system.

3.3.19.1.2 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.

3.3.19.1.3 Wastewater Infrastructure

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).

3.3.19.1.4 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 EIR* indicates that all three landfills have sufficient capacity to serve the region's needs (City 2018c). The most recently reported remaining capacity and acceptable waste types for these facilities are listed in Table 18.

Table 18
Project Vicinity Landfills

Landfill	Remaining Capacity	Waste Type
Forward Landfill	Unit 1: 22,100,000 cubic yards (reported December 31, 2012) Unit 3: 40,031,058 cubic yards (reported June 1, 2002)	Agricultural, asbestos, friable, ash, construction/ demolition, contaminated soil, green materials, industrial, mixed municipal, sludge (biosolids), tires, shreds
Foothill Sanitary Landfill	125,000,000 cubic yards (reported June 10, 2010)	Agricultural, construction/demolition, dead animals, industrial, mixed municipal, tires, wood waste
North County Landfill & Recycling Center	35,400,000 cubic yards (reported December 31, 2009)	Construction/demolition, industrial, mixed municipal, tires, other designated, agricultural, metals, wood waste

Source: CalRecycle SWIS 2021

3.3.19.1.5 Utilities

The Pacific Gas and Electric Company services the area of the proposed project with overhead electrical distribution lines and underground gas transmission lines.

3.3.19.2 Impact Evaluation

A: Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The proposed project would not require relocation or construction of any new water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities. Therefore, there would be no impact.

B: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

No Impact. The proposed project would have no connection to Port water facilities. Any requirement for water on site during construction of the proposed project (for example, for dust control) would be temporary and intermittent. Therefore, there would be no impact to water supplies.

C: Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The proposed project would not result in an increase in wastewater, nor would it require new water or wastewater treatment facilities. Runoff would continue to be conveyed to the exiting drainage system, and the proposed project would not contribute additional runoff to this system. Therefore, there would be no impact.

D: Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-than-Significant Impact. The proposed project would require demolition of the existing rail bridge, which would produce used steel, creosote-treated wood, and soils that would need to be disposed of. In addition, the proposed project would require excavation and disposal of materials for construction of the new bridge, LLDT, and rail underpass at Fresno Avenue. The landfills in the area have adequate capacity to meet the region's need and are authorized to accept waste materials that may be generated during construction of the proposed project. The proposed project would not

affect solid waste collection from the Port as a result of construction or operation. Impacts associated with solid waste would be minimal and less than significant.

E: Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The proposed project would be constructed within the parameters of applicable federal, state, and local solid waste regulations. As described, area landfills are authorized to accept the types of waste potentially generated by proposed project construction and operation. Therefore, there would be no impact.

3.3.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b.	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c.	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d.	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

3.3.20.1 Affected Environment

According to the Fire Hazard Severity Zone Maps maintained by the California Department of Forestry and Fire Protection, the project area and other nearby communicates within San Joaquin County are outside of zones that present moderate to very high fire hazard severity risk. Therefore, the project area and nearby communities are generally considered to have lower wildfire risk (Los Padres ForestWatch 2020).

Fire response in the project area is in a local responsibility area (CAL FIRE 2021). Existing fire response services are described in Section 3.3.15.

3.3.20.2 Impact Evaluation

A: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed project is located in a local responsibility area and is outside of areas designated as very high fire hazard severity zones. The proposed project would not impair implementation of, nor interfere with any adopted emergency response plan nor emergency evacuation plan. Because the proposed project is not expected to result in new traffic, increase the need for emergency services, nor block any emergency access routes (see Section 3.3.17), there would be no impacts to emergency response.

B: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels, and fuel moisture contents), and topography. For instance, steep slopes can contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult (Estes et al. 2017). Fuels, such as grass, are highly flammable (Estes et al. 2017). The proposed project site is located in an area that is industrialized, generally flat, and contains very limited vegetation, which is not considered to pose a significant risk of wildfire. The proposed project would be located in a local responsibility area, not a state responsibility area, and would not be in or near lands classified as very high fire hazard severity zones (Los Padres ForestWatch 2020). Although flammable materials may be present during construction and operation of the proposed project, adequate fire response services are in place to respond during an emergency; therefore, there would be no impact.

C: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The proposed project is located in a local responsibility area and is outside of areas designated as very high fire hazard severity. Therefore, there would be no impact.

D: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The proposed project is located in a local responsibility area and is outside of lands classified as very high fire hazard severity. Furthermore, the proposed project would not expose people or structures to significant risks, nor would it result in drainage changes, landslides, nor downstream flooding. Therefore, there would be no impact.

3.3.21 Mandatory Findings of Significance

		Potentially Significant Impact	Less-Than-Significant Impact After Mitigation	Less-Than-Significant Impact	No Impact
a.	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b.	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.3.21.1 Impact Evaluation

A: Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact After Mitigation. The potential impacts of the proposed project on fish, wildlife, and other biological resources are described in detail in Section 3.3.4. The upland portions of the project area are heavily urban or industrial and provide only marginal habitats or habitat features suitable for terrestrial special-status species. Undeveloped areas may provide habitat for special-status bird species, and riverbank areas may provide basking habitat for the aquatic western pond turtle. Elderberry bushes in the project area, including those observed at the rail bridge replacement area, may provide habitat to VELB. Terrestrial habitat within the project area is generally 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. Waters at the proposed rail bridge replacement location may provide habitat to fish species and benthic habitat.

Construction of the proposed project has the potential to adversely affect species that could be present in the project area. For terrestrial species, this includes potential direct or indirect impacts during construction such as trampling, removal of host species, or nest disturbance. For aquatic species, temporary construction impacts include potential input of pollutants to the waterway that could affect water quality, and pile driving or other bottom-disturbing activities that could also affect water quality or result in injury or mortality of special-status fish. If they were to occur, these would constitute potentially significant impacts. Permanent adverse impacts would be minimal and likely limited to loss of marginal terrestrial and aquatic habitat within the immediate footprint of proposed rail improvements. Mitigation measures MM-BIO-1 through MM-BIO-5 would be implemented to reduce potential impacts (see Section 3.3.4.2). With implementation of these mitigation measures, there would be less-than-significant impacts to biological resources.

The potential impacts of the proposed project on historical resources are described in detail in Section 3.3.5. The proposed project would include demolition of the existing Port of Stockton San Joaquin Rail Bridge, which is eligible for listing in the NRHP as a contributing structure to the National Register-eligible Naval Supply Annex Stockton NHD. Removal of the Port of Stockton San Joaquin Rail Bridge would result in an adverse change to the NHD. The proposed project would also include construction of the McCloy rail classification yard in an area of the West Complex that is within the boundaries of the NHD. The McCloy rail classification yard would be a change from existing conditions, and therefore would be an impact to the NHD; however, this is not expected to be an adverse impact or result in any significant changes to the setting, landscape, or other features of the NHD that contribute to its significance. Section 106 of the National Historic Preservation Act requires federal agencies to avoid, minimize, or mitigate adverse effects through a consultation process. USACE or USCG would consult with the State Historic Preservation Officer and other consulting parties to carry out this process. Consultation is expected to result in the development of mitigation measures, documented in a signed Memorandum of Agreement. Mitigation measure MM-CULT-1 would be implemented to reduce potential impacts (see Section 3.3.5.2). With implementation of this mitigation measure, there would be less-than-significant impacts to historical resources.

B: Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less-than-Significant Impact. The proposed project would result in minimal less-than-significant impacts, mostly temporary impacts associated with construction, some of which require mitigation. One of the purposes of the project is to increase efficiency of train operations within the Port. The new LLDT would reduce overall rail congestion and train travel times in the Port. The operational improvements to reduce staging bottlenecks and increase the efficiency of train operations at the

Port 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 staging delays. These operations are designed to accommodate the Port's projected growth and reduce system-wide blockages, thus avoiding significant air quality, GHG, and transportation impacts. Therefore, the proposed project would result in less-than-significant cumulative impacts.

C: Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact After Mitigation. As noted in item B above, the project purpose and operational improvements are designed to accommodate the Port's projected growth, reduce system-wide blockages, and avoid significant air quality, GHG, and transportation impacts. Those environmental factors would not have substantial adverse effects on human beings, nor would they have impacts that require mitigation. The proposed project would also have minimal less-than-significant impacts, some of which require mitigation, related to aesthetics, geology and soils, hydrology and water quality, tribal cultural resources, and utilities and service systems. There would be no impacts from the proposed project related to agricultural and forestry resources, energy, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire.

Construction of the proposed project has the potential to generate noise, particularly during 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. This construction would be relatively close to some residences along West Scotts Avenue, in the Boggs Tract neighborhood. While not required, several mitigation measures—MM-NOI-1 through MM-NOI-7 (see Section 3.13.2)—have been included to further reduce the potential for temporary construction noise to disturb people near the construction sites, especially during construction of the LLDT and associated rail underpass at Fresno Avenue. Accordingly, impacts related to construction noise would be less than significant.

Construction of the proposed project has the potential to encounter potentially hazardous materials during demolition and construction, which could be hazardous to human beings if improperly managed. Mitigation measures MM-HAZ-1, MM-BIO-2, and MM-BIO-5 (see Section 3.3.9.2) would be implemented to reduce potential impacts by prohibiting construction in the contaminated stockpile portion of Site 19, requiring an SMP prior to ground disturbance in Site 19, and implementing measures to avoid or minimize the potential for impacts to persons and the environment from accidental spills during construction. With implementation of these mitigation measures, there would be less-than-significant impacts related to hazards and hazardous materials.

Therefore, the proposed project would result in less-than-significant impacts associated with environmental effects that could adversely affect human beings.

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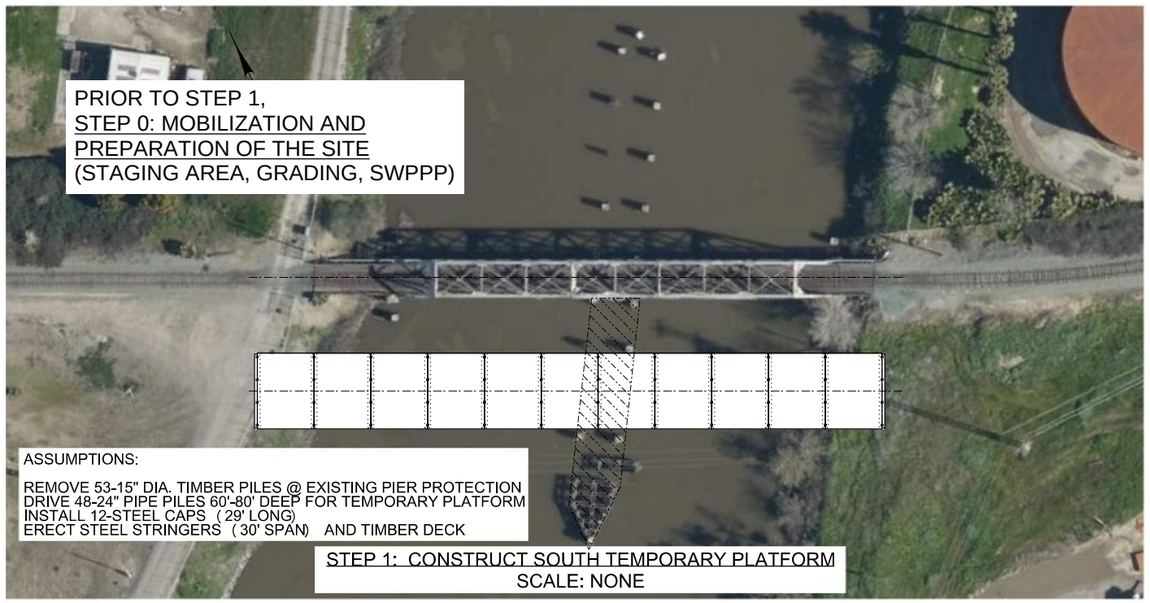
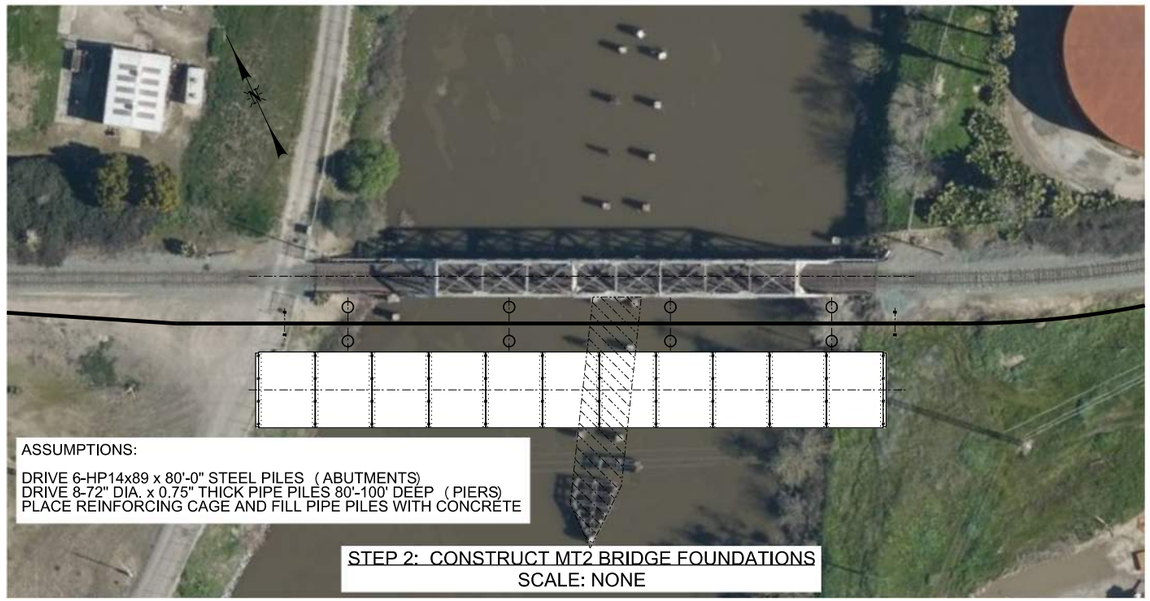
Appendix A
Rail Bridge Construction Phasing

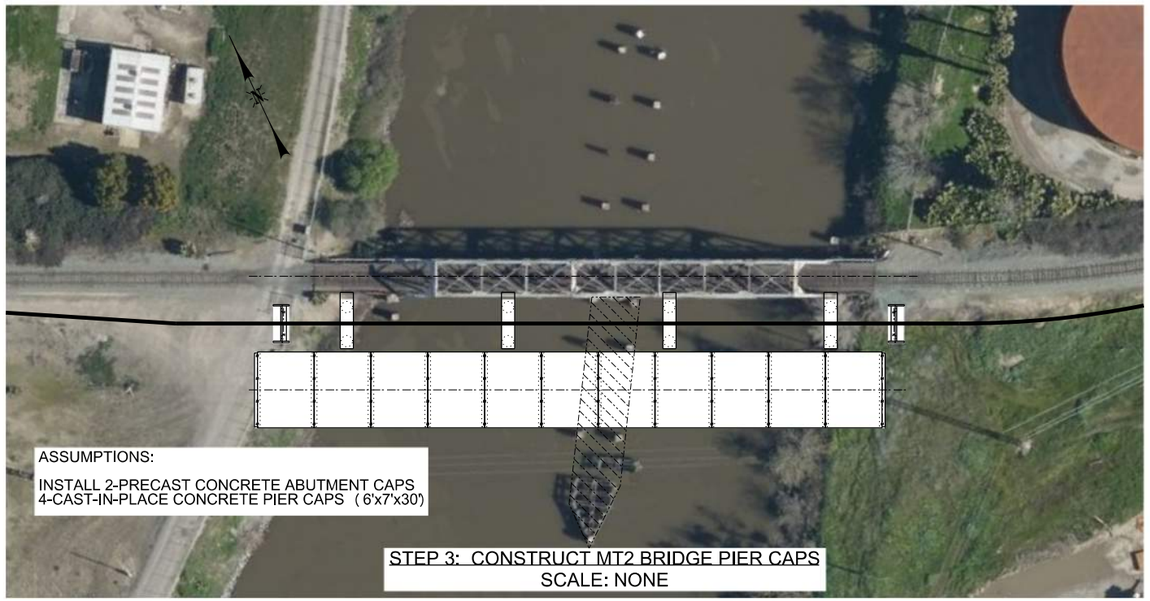
EXISTING BRIDGE
SCALE: NONE



STEP 1: CONSTRUCT SOUTH TEMPORARY PLATFORM
SCALE: NONE



STEP 2: CONSTRUCT MT2 BRIDGE FOUNDATIONS
SCALE: NONE



STEP 3: CONSTRUCT MT2 BRIDGE PIER CAPS
SCALE: NONE

DATE	
date	

PORT OF STOCKTON
SAN JOAQUIN RAIL BRIDGE

CONSTRUCTION SEQUENCE
(SHEET 1 OF 3)

DEPARTMENT OF PUBLIC WORKS
CITY OF STOCKTON, CALIFORNIA

Revision No.	Description	Date	By	Aprvd. By
e	e desc	e date		e app
d	d desc	d date		d app
c	c desc	c date		c app
b	b desc	b date		b app
a	a desc	a date		a app

CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
1-800-227-2600

NOT FOR CONSTRUCTION

SCALE	AS NOTED
DESIGNED BY	RJB
DRAWN BY	
CHECKED BY	
RECORD DWGS.	

SHEET NO. S-01
OF 24 SHEETS
PROJECT NO.

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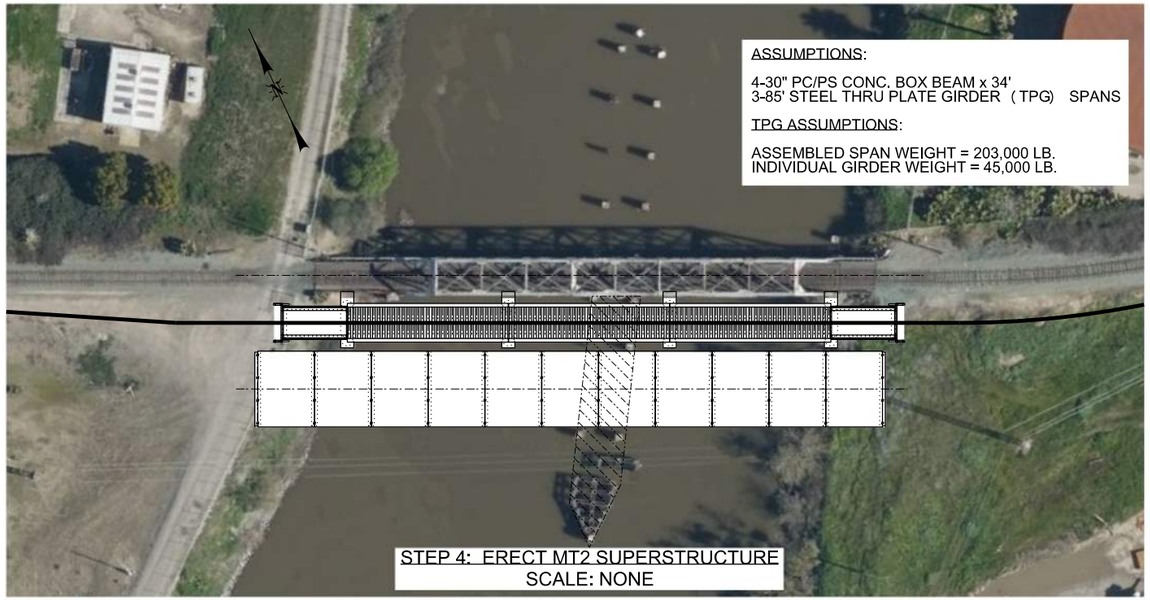

STEP 4: ERECT MT2 SUPERSTRUCTURE
SCALE: NONE

STEP 8: CONSTRUCT NORTH TEMPORARY PLATFORM
SCALE: NONE

STEP 9: REMOVE EXISTING BRIDGE
SCALE: NONE

STEP 10: CONSTRUCT MT1 BRIDGE FOUNDATIONS
SCALE: NONE

Revision No.	Description	Date	By	Aprvd. By
e	e desc	e date		e app
d	d desc	d date		d app
c	c desc	c date		c app
b	b desc	b date		b app
a	a desc	a date		a app

CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
1-800-227-2600

NOT FOR CONSTRUCTION

DATE
date

PORT OF STOCKTON
SAN JOAQUIN RAIL BRIDGE

CONSTRUCTION SEQUENCE
(SHEET 2 OF 3)

DEPARTMENT OF PUBLIC WORKS
CITY OF STOCKTON, CALIFORNIA

SCALE	AS NOTED
DESIGNED BY	RJB
DRAWN BY	
CHECKED BY	
RECORD DWGS.	

SHEET NO. S-02
OF 24 SHEETS
PROJECT NO.

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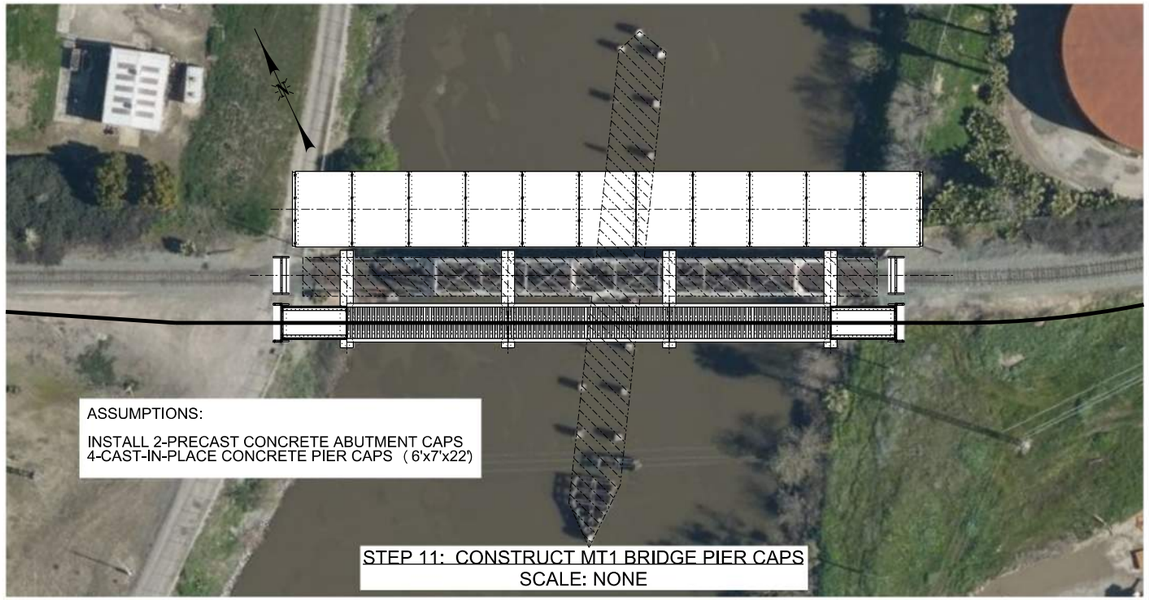
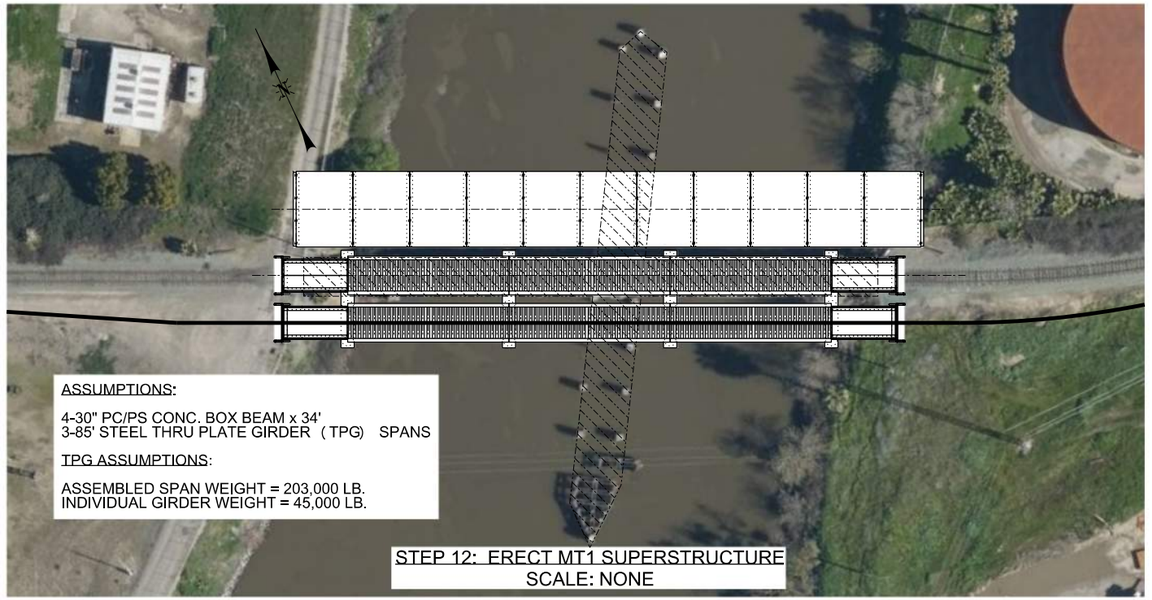


STEP 11: CONSTRUCT MT1 BRIDGE PIER CAPS
SCALE: NONE



STEP 12: ERECT MT1 SUPERSTRUCTURE
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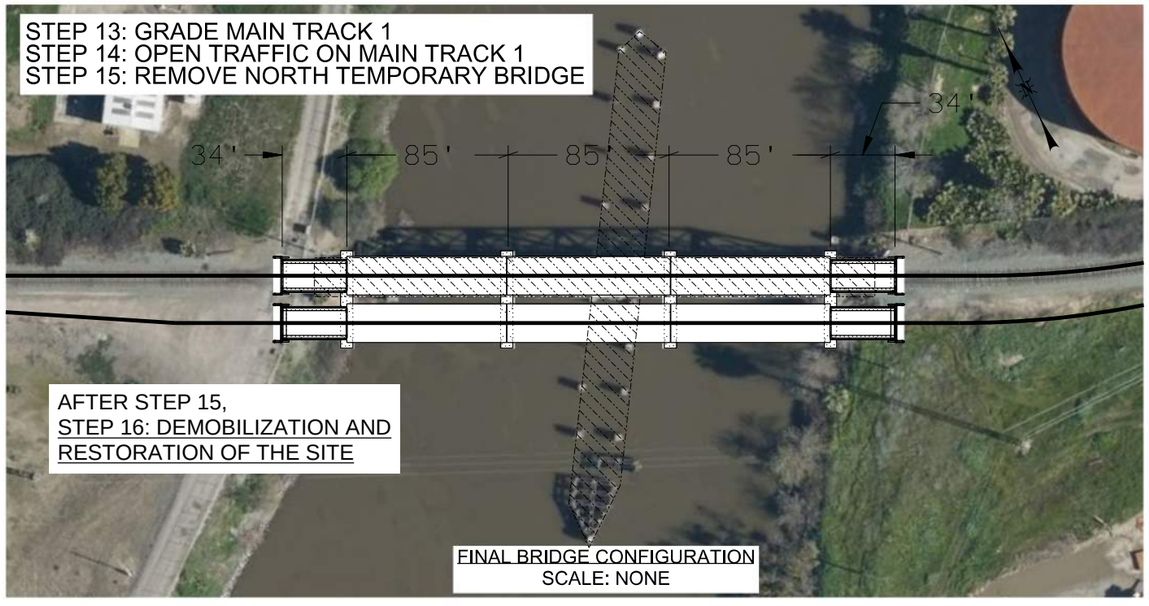

FINAL BRIDGE CONFIGURATION
SCALE: NONE

Revision No.	Description	Date	By	Aprvd. By
e	e desc	e date		e app
d	d desc	d date		d app
c	c desc	c date		c app
b	b desc	b date		b app
a	a desc	a date		a app

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DATE
date

PORT OF STOCKTON
SAN JOAQUIN RAIL BRIDGE

CONSTRUCTION SEQUENCE
(SHEET 3 OF 3)

DEPARTMENT OF PUBLIC WORKS
CITY OF STOCKTON, CALIFORNIA

SCALE	AS NOTED
DESIGNED BY	RJB
DRAWN BY	
CHECKED BY	
RECORD DWGS.	

SHEET NO.
S-03
OF 24 SHEETS
PROJECT NO.

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$$date$$

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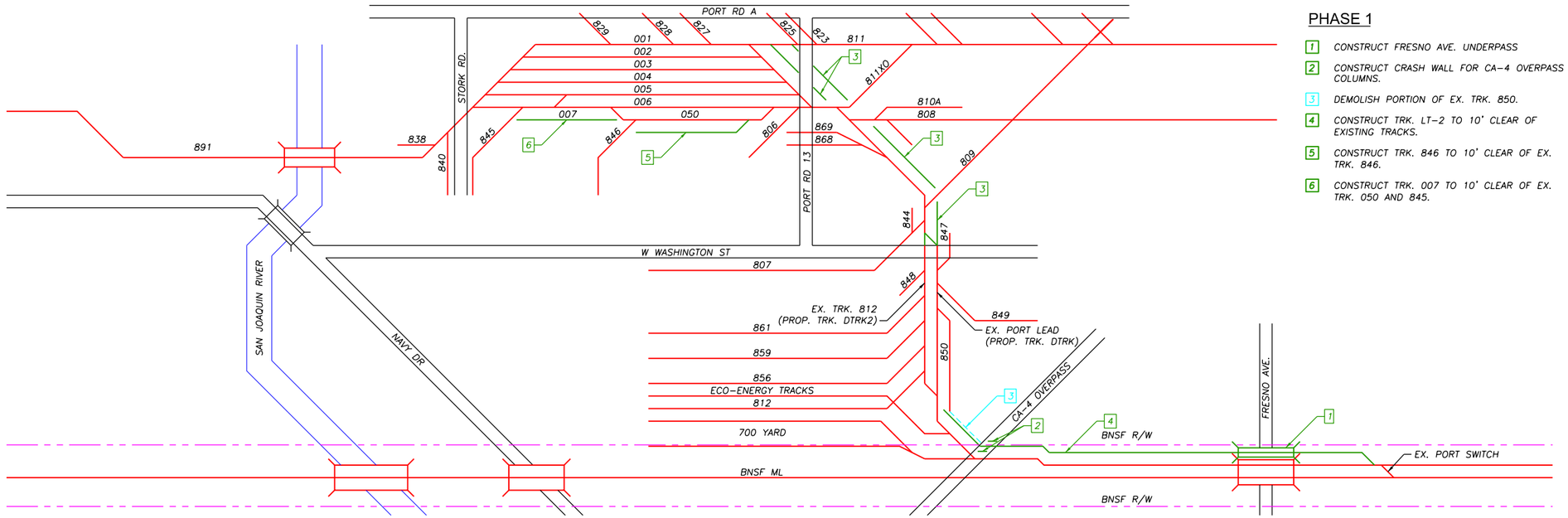
Appendix B
Rail Construction Phasing

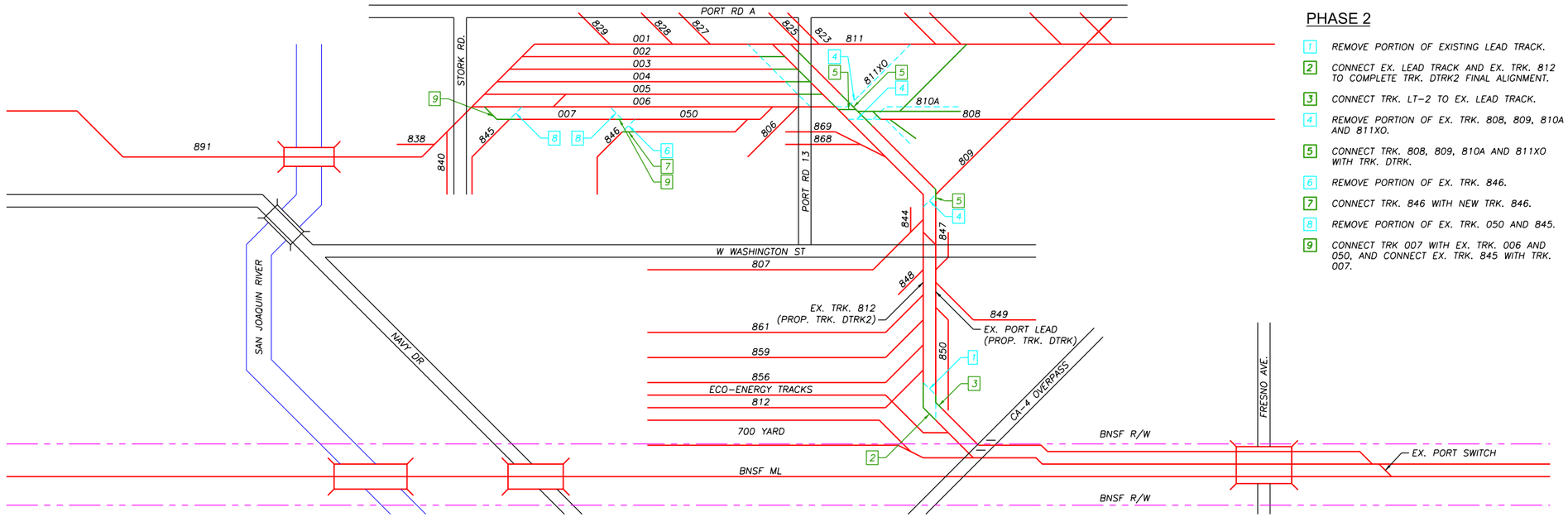


PHASE 1

1. CONSTRUCT FRESNO AVE. UNDERPASS
2. CONSTRUCT CRASH WALL FOR CA-4 OVERPASS COLUMNS.
3. DEMOLISH PORTION OF EX. TRK. 850.
4. CONSTRUCT TRK. LT-2 TO 10' CLEAR OF EXISTING TRACKS.
5. CONSTRUCT TRK. 846 TO 10' CLEAR OF EX. TRK. 846.
6. CONSTRUCT TRK. 007 TO 10' CLEAR OF EX. TRK. 050 AND 845.

DESIGN NOTES:

1. REFER TO SHEET G-001 FOR PROJECT DESIGN NOTES.
2. ALL TRACKS UNDER CA-4 OVERPASS SHOWN FOR CLARITY.



PHASE 2

1. REMOVE PORTION OF EXISTING LEAD TRACK.
2. CONNECT EX. LEAD TRACK AND EX. TRK. 812 TO COMPLETE TRK. DTRK2 FINAL ALIGNMENT.
3. CONNECT TRK. LT-2 TO EX. LEAD TRACK.
4. REMOVE PORTION OF EX. TRK. 808, 809, 810A AND 811XO.
5. CONNECT TRK. 808, 809, 810A AND 811XO WITH TRK. DTRK.
6. REMOVE PORTION OF EX. TRK. 846.
7. CONNECT TRK. 846 WITH NEW TRK. 846.
8. REMOVE PORTION OF EX. TRK. 050 AND 845.
9. CONNECT TRK 007 WITH EX. TRK. 006 AND 050, AND CONNECT EX. TRK. 845 WITH TRK. 007.

N

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PORT OF STOCKTON
RAIL CAPACITY IMPROVEMENTS

2201 W. WASHINGTON STREET
STOCKTON, CA 95203

SHEET TITLE: DOUBLE TRACK LONG LEAD PHASING PLAN

PROJ NO: 18341	SHEET NO. CT-611
SCALE: AS NOTED	SHEET 25 OF 29
DATE: 4/5/2021	
DESIGNED BY: AG	

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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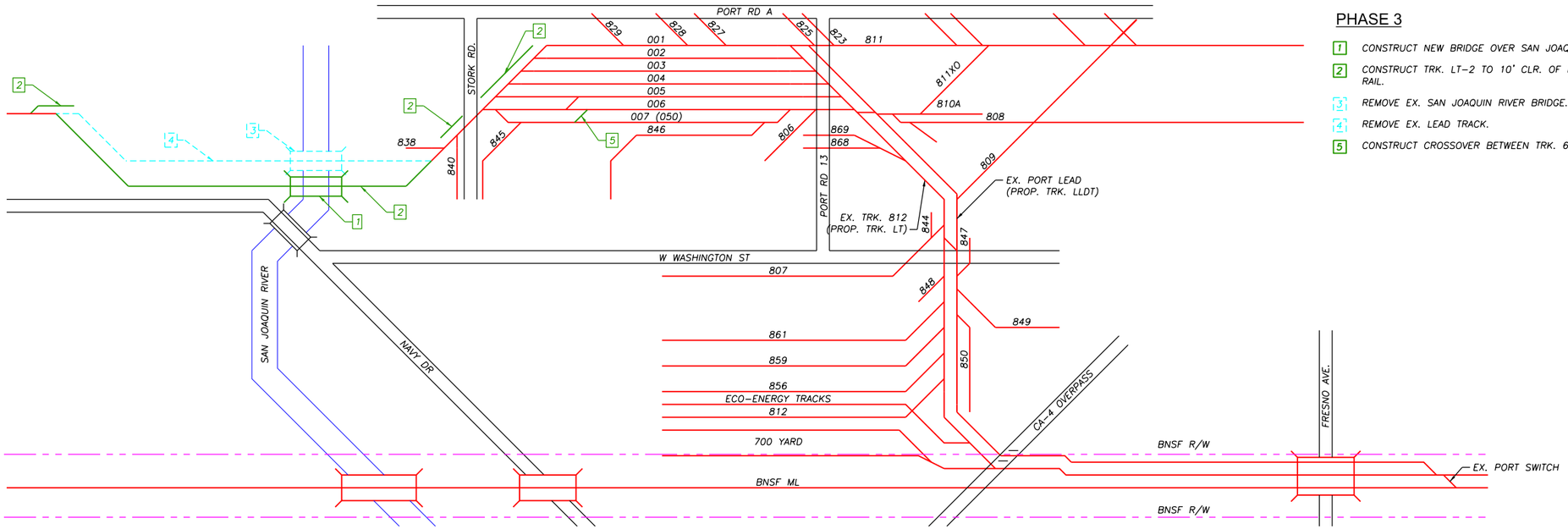
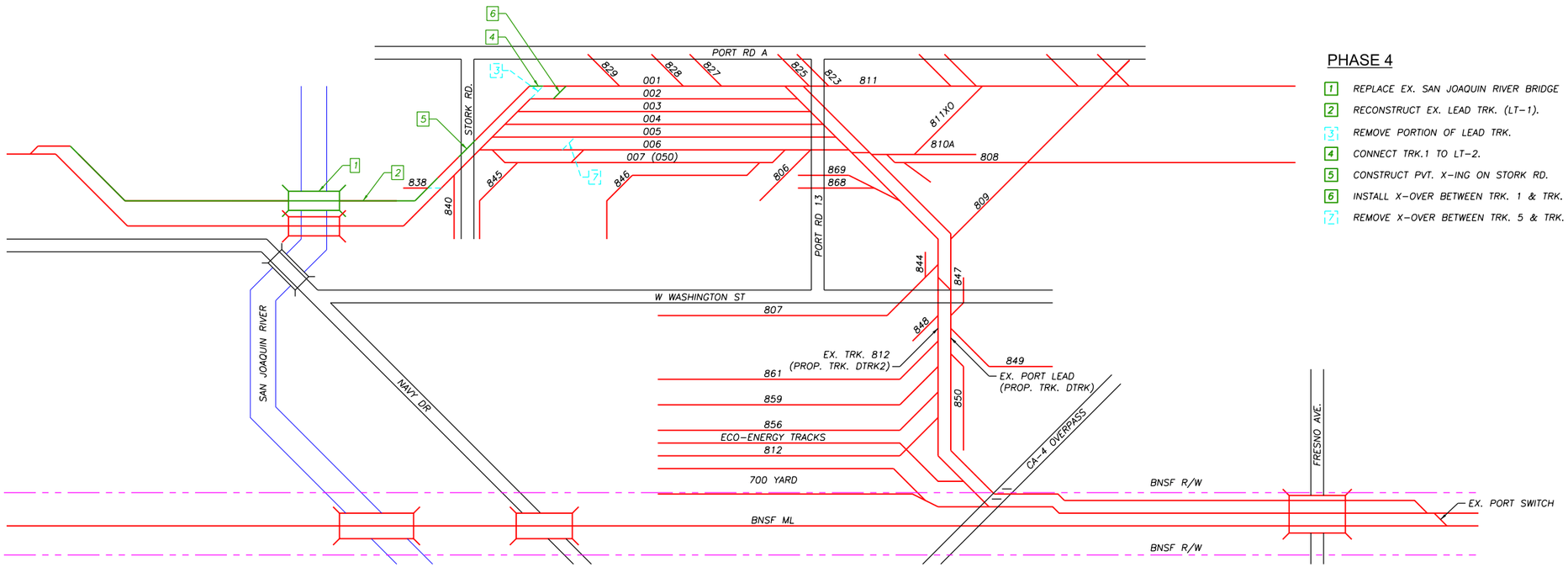


PHASE 3

1. CONSTRUCT NEW BRIDGE OVER SAN JOAQUIN RIVER.
2. CONSTRUCT TRK. LT-2 TO 10' CLR. OF ROAD OR RAIL.
3. REMOVE EX. SAN JOAQUIN RIVER BRIDGE.
4. REMOVE EX. LEAD TRACK.
5. CONSTRUCT CROSSOVER BETWEEN TRK. 6 AND TRK. 7.

DESIGN NOTES:

1. REFER TO SHEET G-001 FOR PROJECT DESIGN NOTES.
2. ALL TRACKS UNDER CA-4 OVERPASS SHOWN FOR CLARITY.



PHASE 4

1. REPLACE EX. SAN JOAQUIN RIVER BRIDGE
2. RECONSTRUCT EX. LEAD TRK. (LT-1).
3. REMOVE PORTION OF LEAD TRK.
4. CONNECT TRK.1 TO LT-2.
5. CONSTRUCT PVT. X-ING ON STORK RD.
6. INSTALL X-OVER BETWEEN TRK. 1 & TRK. 2.
7. REMOVE X-OVER BETWEEN TRK. 5 & TRK. 6.

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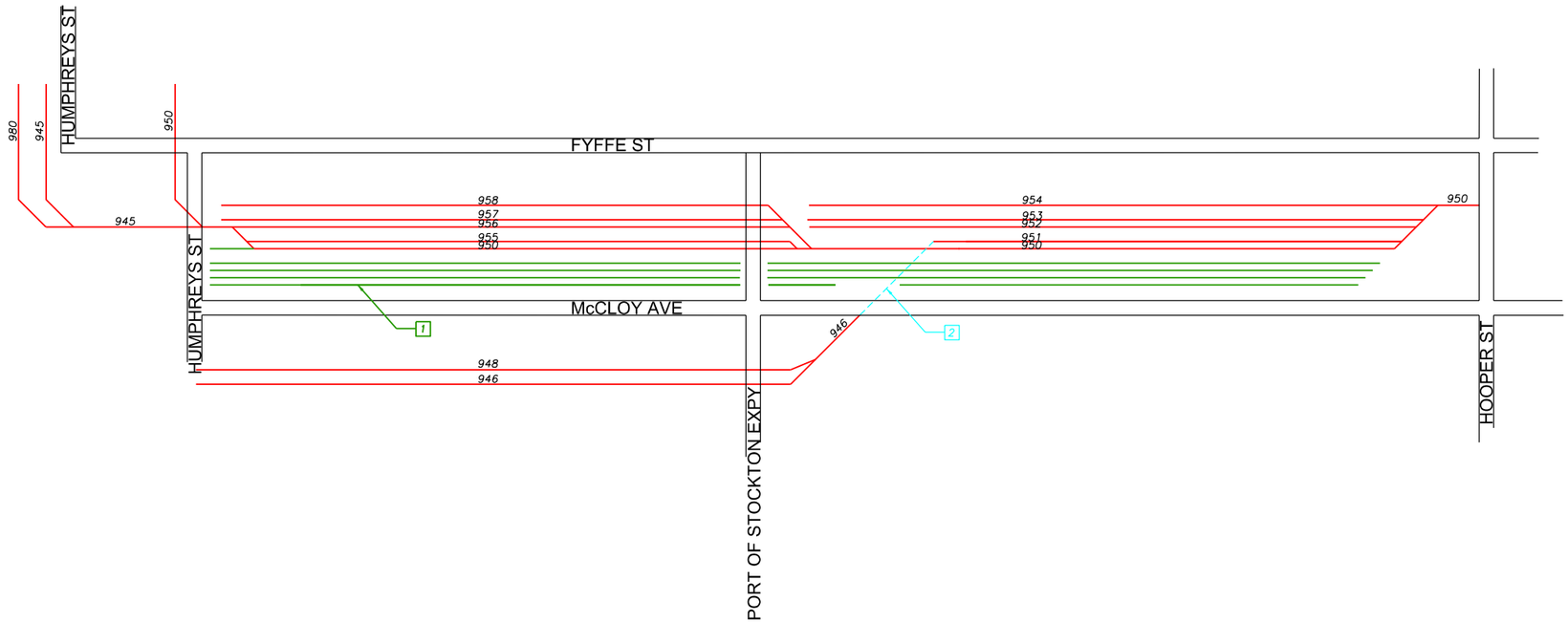


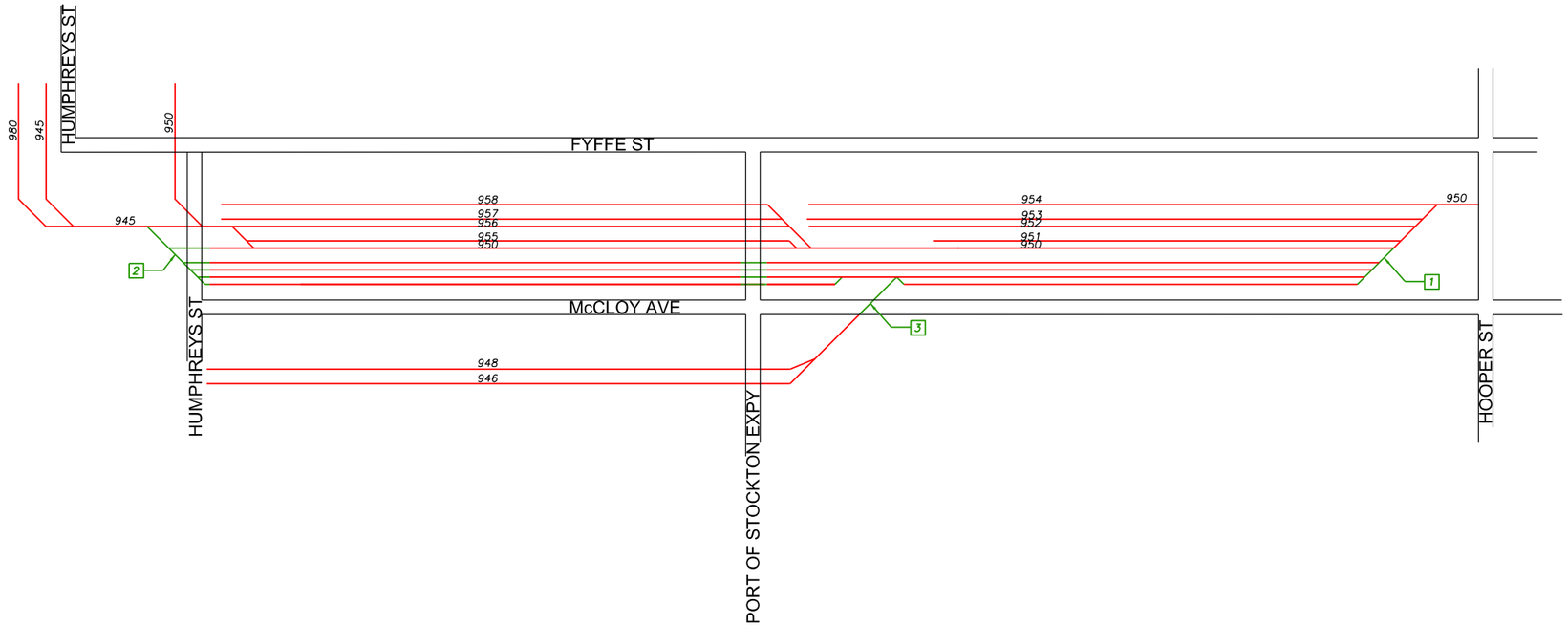
PHASE 1

1 CONSTRUCT YARD TRACKS TO 10' CLEAR OF EXISTING RAILS AND ROADS.

2 DEMOLISH PORTION OF TRK 946

DESIGN NOTES:

1. REFER TO SHEET G-001 FOR PROJECT DESIGN NOTES.



PHASE 2

1 CONNECT YARD TRACKS TO TRK. 950

2 CONNECT YARD TRACKS TO TRK. 945

3 CONNECT TRK. 946 TO YARD TRACKS AND MODIFY EX. PVT. AT-GRADE X-ING.

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Appendix C
Air Quality and GHG Assumptions and Emissions Modeling Results

Table 1
Emissions Calculation Methodology
Rail Bridge & Rail Improvements Project
Stockton, California

Type	Source		Methodology and Formula	Reference
Construction Equipment	Off-Road Equipment[1]		$E_c = \Sigma(EFc * HP * LF * Hr * C)$	OFFROAD2017 and CARB/USEPA Engine Standards
Construction On-Road Mobile Sources[2]	Exhaust and Evaporative Sources	Running Exhaust, Running Loss	$E_R = \Sigma(EF_R * VMT * C)$, where VMT = Trip Length * Trip Number	EMFAC2021
		Idling Exhaust, Starting Exhaust, Diurnal Evaporation, Hotsoak Evaporation, Rest Loss Evaporation	$E_T = \Sigma(EF_T * Trip\ Number * C)$	EMFAC2021
	Fugitive Sources	Brakewear/Tirewear	$E_{BWTW} = \Sigma(EF_{BWTW} * VMT * C)$, where VMT = Trip Length * Trip Number	EMFAC2021
		Road Dust	$E_D = \Sigma(EF_D * VMT * C)$, where VMT = Trip Length * Trip Number	CARB Miscellaneous Process Mthodology 7.9
Construction Onsite Truck Activity[3]	Onsite Trucking		Shown in Table 4	--
Rail Sources[4]	On-Site Exhaust - Running		$E_{R\text{-}on}$ = EF * On-Site Running Hours * Number of Locomotives * HP * LF / C	CARB
	On-Site Exhaust - Idling		$E_{I\text{-}on}$ = EF * On-Site Idling Hours * Number of Locomotives * HP * LF / C	CARB

Notes:

1. E_c: off-road equipment exhaust emissions (lb).
   EF_c: emission factor (g/hp-hr). CalEEMod 2016.3.2 default emission factors used.
   HP: equipment horsepower. OFFROAD2017.
   LF: equipment load factor. OFFROAD2017.
   Hr: equipment hours.
   C: unit conversion factor.
2. On-road mobile sources include truck and passenger vehicle trips. Emissions associated with mobile sources were calculated using the following formulas. Details about emission factors are included in Table 7.
   E_R: running exhaust and running losses emissions (lb).
   EF_R: running-based emission factor (g/mile). From EMFAC2021.
   VMT: vehicle miles traveled
   C: unit conversion factor
   E_T: vehicle trip emissions (lb).
   EF_T: vehicle emission factor (g/hr-trip). From EMFAC2021.
   C: unit conversion factor.
   E_{BWTW}: brakewear and tirewear emissions (lb).
   EF_{BWTW}: brakewear and tirewear emission factor (g/mile). From EMFAC2021.
   VMT: vehicle miles traveled
   C: unit conversion factor
   E_D: resuspended road dust emissions (lb).
   EF_D: road dust emission factor, derived in Table 7.
   C: unit conversion factor.
3. The methodology and formulas for emissions estimated from onsite truck activity are shown in Table 4.
4. Rail sources include on-site running and on-site idling. Emissions associated with rail sources were calculated using the following formulas.
   $E_{R\text{-}on}$: on-site running exhaust emissions (lb).
   EF: emission factor (g/gal). From CARB.
   HP: horsepower. Typical for locomotives in Project area.
   LF: load factor. From USEPA based on throttle notch position from EPA and typical for Project area movements.
   C: unit conversion factor (hp-hr/gal). From CARB.

Table 1
Emissions Calculation Methodology
Rail Bridge & Rail Improvements Project
Stockton, California

Notes, continued:

$E_{I\text{-}on}$: on-site idling exhaust emissions (lb).

EF: emission factor (g/gal). From CARB.

HP: horsepower. Typical for locomotives in Project area.

LF: load factor. From USEPA based on throttle notch position from EPA and typical for Project area movements.

C: unit conversion factor (hp-hr/gal). From CARB.

Abbreviations:

CARB: California Air Resources Board
EF: emission factor
EMFAC: EMission FACtor Model
g: gram
HP: horsepower
lb: pound
LF: load factor
mi: mile
USEPA: United States Environmental Protection Agency
VMT: vehicle miles traveled

References:

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California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod®), Version 2016.3.2. Available online at http://www.caleemod.com/

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Table 2
Construction Phasing Schedule
Rail Bridge & Rail Improvements Project
Stockton, California

Construction Project[1]	Construction Phase[1]	Construction Subphase[1]	Start Date	End Date[2]	Number of Work Days	Days per Week	Hours per Day
Rail Bridge Replacement	Main Track 2 Construction	South Temporary Work Platform	7/1/2023	8/11/2023	30	5	10
		MT2 Bridge Foundations	8/5/2023	10/27/2023	60	5	10
		Bridge Piers	7/1/2024	8/14/2024	32	5	10
		Erection of Superstructure on MT2	8/5/2024	8/22/2024	13	5	10
		Removal of South Temporary Work Platform	8/15/2024	9/26/2024	30	5	10
	Main Track 1 Construction	North Temporary Work Platform	7/1/2025	8/12/2025	30	5	10
		Existing Bridge Removal	8/13/2025	9/25/2025	31	5	10
		MT1 Bridge Foundations	8/5/2025	9/18/2025	32	5	10
		Bridge Piers	9/5/2025	10/21/2025	32	5	10
		Erection of Superstructure on MT1	10/22/2025	11/10/2025	13	5	10
		Removal of North Temporary Work Platform	10/10/2025	11/21/2025	30	5	10
Second Lead Tracks	Earthwork	Earthwork, Trackwork, and Underpass Construction	7/1/2023	11/14/2023	97	5	8
		Earthwork and Track Construction - Port	11/15/2023	12/29/2023	32	5	8
	Track Removal & Reconnection	Port Side	1/1/2024	2/20/2024	36	5	8
		SJR Bridge Approaches	2/21/2024	5/22/2024	65	5	8
Port Yard Improvements	McCloy Yard	Earthwork and Trackwork	7/1/2023	4/26/2024	215	5	8
		Track Removal and Track Reconnection	4/29/2024	7/10/2024	52	5	8

Notes:

1. All construction phasing information provided by the Project Sponsor.
2. Per the Project Sponsor, operational improvements are expected to start in 2025.

Table 3
Construction Equipment
Rail Bridge & Rail Improvements Project
Stockton, California

Construction Project	Construction Phase	Construction Subphase	Equipment[1]	CalEEMod Equipment[2,3,4]	Number[1]	Average Daily Usage over Duration[5,6] (hours/day)	Horsepower[1]
Rail Bridge Replacement	Main Track 2 Construction	South Temporary Work Platform	180-ton Service Crane	Cranes	2	5.2	231
			Pile Driving Hammer	Crushing/Proc. Equipment	1	2.8	85
			Welder	Welders	1	4.3	46
			Plasma Cutter	Concrete/Industrial Saws	1	0.21	81
			Excavator	Excavators	1	0.27	158
			Bulldozer	Rubber Tired Dozers	1	0.083	247
			Roller	Rollers	1	0.083	80
		MT2 Bridge Foundations	180-ton Service Crane	Cranes	1	8.0	231
			Pile Driving Hammer	Crushing/Proc. Equipment	1	2.3	85
			Welder	Welders	1	2.3	46
			300-ton Crane	Cranes	1	5.3	231
			Drill Rig	Bore/Drill Rigs	1	1.3	221
			Excavator	Excavators	1	1.3	158
			Dump Truck	N/A[7]	1	1.3	--
			Concrete Pump Truck	N/A[7]	1	2.1	--
			Concrete Truck	N/A[7]	1	6.0	--
		Bridge Piers	180-ton Service Crane	Cranes	1	6.0	231
			Manlift	Aerial Lifts	2	5.6	63
			Concrete Pump Truck	N/A[7]	1	2.0	--
			Concrete Truck	N/A[7]	1	2.0	--
			Vibration Equipment	Other General Industrial Equipment	1	0.50	88
		Erection of Superstructure on MT2	180-ton Service Crane	Cranes	1	4.3	231
			Welder	Welders	1	0.19	46
			300-ton Crane	Cranes	1	3.7	231
			Manlift	Aerial Lifts	2	6.9	63
		Removal of South Temporary Work Platform	180-ton Service Crane	Cranes	1	8.0	231
			Manlift	Aerial Lifts	1	5.0	63
			Plasma Cutter	Concrete/Industrial Saws	1	0.42	81
			Vibratory Hammer	Other General Industrial Equipment	1	5.0	88
	Main Track 1 Construction	North Temporary Work Platform	180-ton Service Crane	Cranes	2	5.2	231
			Pile Driving Hammer	Crushing/Proc. Equipment	1	2.8	85
			Welder	Welders	1	4.3	46
			Plasma Cutter	Concrete/Industrial Saws	1	0.21	81
			Excavator	Excavators	1	0.27	158
			Bulldozer	Rubber Tired Dozers	1	0.083	247
			Roller	Rollers	1	0.083	80
		Existing Bridge Removal	300-ton Crane	Cranes	1	5.9	231
			Manlift	Aerial Lifts	1	3.1	63
			180-ton Service Crane	Cranes	1	3.1	231
			Plasma Cutter	Concrete/Industrial Saws	1	0.12	81
			Vibratory Hammer	Other General Industrial Equipment	1	2.7	88
			Excavator	Excavators	1	0.65	158
		MT1 Bridge Foundations	180-ton Service Crane	Cranes	1	8.0	231
			Pile Driving Hammer	Crushing/Proc. Equipment	1	2.5	85
			Welder	Welders	1	2.5	46
			Drill Rig	Bore/Drill Rigs	1	1.3	221
			Excavator	Excavators	1	1.3	158
			Dump Truck	N/A[7]	1	1.3	--
			300-ton Crane	Cranes	1	2.0	231
			Concrete Pump Truck	N/A[7]	1	2.0	--
			Concrete Truck	N/A[7]	1	5.6	--
		Bridge Piers	180-ton Service Crane	Cranes	1	6.0	231
			Manlift	Aerial Lifts	2	5.6	63
			Concrete Pump Truck	N/A[7]	1	2.0	--
			Concrete Truck	N/A[7]	1	2.0	--
			Vibration Equipment	Other General Industrial Equipment	1	0.50	88
		Erection of Superstructure on MT1	180-ton Service Crane	Cranes	1	4.3	231
			Welder	Welders	1	0.19	46
			300-ton Crane	Cranes	1	3.7	231
			Manlift	Aerial Lifts	2	6.9	63
		Removal of North Temporary Work Platform	180-ton Service Crane	Cranes	1	8.0	231
			Manlift	Aerial Lifts	1	5.0	63
			Plasma Cutter	Concrete/Industrial Saws	1	0.42	81
			Vibratory Hammer	Other General Industrial Equipment	1	5.0	88

Table 3
Construction Equipment
Rail Bridge & Rail Improvements Project
Stockton, California

Construction Project	Construction Phase	Construction Subphase	Equipment[1]	CalEEMod Equipment[2,3,4]	Number[1]	Average Daily Usage over Duration[5,6] (hours/day)	Horsepower[1]
Second Lead Tracks	Earthwork	Earthwork, Trackwork, and Underpass Construction	Bull Dozer	Rubber Tired Dozers	2	3.8	92
			Trucks	N/A[7]	4	2.0	--
			Excavator	Excavators	2	3.8	120
			Crane 90 Ton All terrain	Cranes	1	2.8	225
			Haul/Dump Truck	N/A[7]	20	2.5	--
			Compactor	Plate Compactors	2	3.8	100
			Lincoln Welding Units	Welders	1	2.8	16
			Generators	Generator Sets	1	8.0	16
			Pile Driving Rig	Bore/Drill Rigs	1	0.43	100
			Skid Steer Loader	Skid Steer Loaders	1	2.0	100
			Frontend Loader w/Back Hoe	Tractors/Loaders/Backhoes	1	2.6	120
			Inflator / Diesel / Electric	Other Construction Equipment	2	4.0	100
			Long Reach Fork Lift	Forklifts	2	4.0	150
		Earthwork and Track Construction - Port	Trucks	N/A[7]	4	2.0	--
			Excavator	Excavators	2	2.3	120
			Haul/Dump Truck	N/A[7]	10	1.5	--
			Lincoln Welding Units	Welders	1	3.8	16
			Generators	Generator Sets	1	8.0	16
			Skid Steer Loader	Skid Steer Loaders	1	2.0	100
			Frontend Loader w/Back Hoe	Tractors/Loaders/Backhoes	1	1.5	120
			Inflator / Diesel / Electric	Other Construction Equipment	2	4.0	100
			Long Reach Fork Lift	Forklifts	1	4.0	150
	Track Removal & Reconnection	Port Side	Trucks	N/A[7]	4	2.0	--
			Lincoln Welding Units	Welders	1	3.7	16
			Generators	Generator Sets	1	8.0	16
			Skid Steer Loader	Skid Steer Loaders	1	2.0	100
			Inflator / Diesel / Electric	Other Construction Equipment	2	4.0	100
			Long Reach Fork Lift	Forklifts	1	4.0	150
		SJR Bridge Approaches	Bull Dozer	Rubber Tired Dozers	2	1.8	92
			Trucks	N/A[7]	4	2.0	--
			Excavator	Excavators	2	6.0	120
			Haul/Dump Truck	N/A[7]	20	1.2	--
			Compactor	Plate Compactors	2	1.8	100
			Lincoln Welding Units	Welders	1	3.6	16
			Generators	Generator Sets	1	8.0	16
			Skid Steer Loader	Skid Steer Loaders	1	2.0	100
			Frontend Loader w/Back Hoe	Tractors/Loaders/Backhoes	1	1.5	120
			Inflator / Diesel / Electric	Other Construction Equipment	2	4.0	100
			Long Reach Fork Lift	Forklifts	2	4.0	150
Port Yard Improvements	McCloy Yard	Earthwork and Trackwork	Bull Dozer	Rubber Tired Dozers	4	1.3	92
			Trucks	N/A[7]	4	2.0	--
			Excavator	Excavators	2	2.1	120
			Haul/Dump Truck	N/A[7]	20	0.56	--
			Compactor	Plate Compactors	4	1.3	100
			Lincoln Welding Units	Welders	4	3.9	16
			Generators	Generator Sets	2	8.0	16
			Skid Steer Loader	Skid Steer Loaders	2	2.0	100
			Frontend Loader w/Back Hoe	Tractors/Loaders/Backhoes	2	0.84	120
			Inflator / Diesel / Electric	Other Construction Equipment	2	4.0	100
			Long Reach Fork Lift	Forklifts	2	4.0	150
		Track Removal and Track Reconnection	Trucks	N/A[7]	4	2.0	--
			Lincoln Welding Units	Welders	4	5.5	16
			Generators	Generator Sets	2	8.0	16
			Skid Steer Loader	Skid Steer Loaders	2	2.0	100
			Inflator / Diesel / Electric	Other Construction Equipment	2	4.0	100
			Long Reach Fork Lift	Forklifts	2	4.0	150

Notes:

1. Equipment lists were provided by the Project Sponsor. Where horsepower was not provided, CalEEMod® defaults were assumed.
2. CalEEMod equipment types are assigned using CalEEMod User's Guide Appendix D.
3. All equipment is conservatively assumed to be diesel-fueled.
4. The engine tier is assumed to be consistent with the fleet average tier from CalEEMod®.
5. Construction activities are assumed to occur during 6AM to 9PM hours, consistent with the performance standards in the San Joaquin County Development Title (Section 9-1025.9).
6. Average daily hours of use throughout subphase duration is estimated using the number of days of operation and hours of daily operation provided by the Project Sponsor.
7. Onsite trucks were not estimated as off-road equipment. These emissions are calculated separately using EMFAC2021 in Table 4.

Abbreviations:

CalEEMod - California Emissions Estimator Model
EMFAC2021 - Emission Inventory Model for Onroad Motor Vehicles in California

References:

CalEEMod v2016.3.2 Available online at: http://www.caleemod.com/
California Air Resources Board. EMFAC2021 v1.0.0. Available online at: https://arb.ca.gov/emfac/
San Joaquin County. 2020. Development Title, Section 9-1025-9. Available online at:
https://library.municode.com/ca/san_joaquin_county/codes/development_title?nodeId=TIT9DETI_DIV10DERE_CH9-1025PEST_9-1025.9NO

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Table 4
Project Construction On-Site Truck Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Construction Project	Construction Phase	Construction Subphase	Year	Onsite Truck Use[1]		Onsite Truck Emissions[2,3]									
				Hours	Total Vehicles	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
						(lbs)						(MT)			
Rail Bridge Replacement	Main Track 2 Construction	MT2 Bridge Foundations	2023	568	180	0.11	7.2	3.0	0.0083	0.016	0.015	0.40	2.2E-06	6.3E-05	0.41
		Bridge Piers	2024	128	64	0.035	2.2	1.0	0.0029	0.0046	0.0044	0.14	7.5E-07	2.2E-05	0.15
	Main Track 1 Construction	MT1 Bridge Foundations	2025	284	96	0.050	3.6	1.6	0.0044	0.0056	0.0054	0.21	1.1E-06	3.3E-05	0.22
		Bridge Piers	2025	128	64	0.033	2.2	1.0	0.0029	0.0037	0.0036	0.14	7.0E-07	2.2E-05	0.15
Second Lead Tracks	Earthwork	Earthwork, Trackwork, and Underpass Construction	2023	5,576	2,328	1.4	87	38	0.11	0.20	0.19	5.1	2.9E-05	8.1E-04	5.4
		Earthwork and Track Construction - Port	2023	736	448	0.27	16	7.4	0.021	0.039	0.037	1.0	5.6E-06	1.6E-04	1.0
	Track Removal & Reconnection	Port Side	2024	288	144	0.080	5.0	2.4	0.0066	0.010	0.010	0.32	1.7E-06	5.0E-05	0.33
		SJR Bridge Approaches	2024	2,120	1,560	0.86	51	26	0.072	0.11	0.11	3.4	1.8E-05	5.4E-04	3.6
Port Yard Improvements	McCloy Yard	Earthwork and Trackwork	2023	2,529	3,168	1.9	100	52	0.15	0.28	0.26	7.0	4.0E-05	0.0011	7.3
		Earthwork and Trackwork	2024	1,591	1,992	1.1	61	33	0.091	0.14	0.14	4.4	2.3E-05	6.9E-04	4.6
		Track Removal and Track Reconnection	2024	416	208	0.12	7.3	3.4	0.010	0.015	0.014	0.46	2.4E-06	7.2E-05	0.48

Notes:

1. Onsite Truck (MHDT) usage data were based on the following assumptions:
   - Number of MHDT vehicles and schedule are provided in Table 3.
   - Hours are calculated as number of equipment * number of construction days * hours/day as provided in Table 3.
   - Trips are calculated as hours * 1 trip/hour.
   - Miles are calculated as hours * 15 miles per hour.
   - Total Vehicles are calculated as number of equipment * number of construction days as provided in Table 2.
2. Personnel Trucks, Onsite Dump Trucks and Water Trucks are assumed to be similar to medium heavy duty trucks (MHDT) as defined in EMFAC2021. Emission factors are from EMFAC2021 ("Emission Rates" mode) for MHDT diesel vehicles (aggregated model year) in San Joaquin County. RUNEX emission factors are specific to vehicle speed of 15 mph. All other emission factor types are for aggregated speed. Emission factors were multiplied by the appropriate usage parameter based on the units. Emission factors in units of g/trip, g/mi, and g/vehicle/day, were multiplied by trips, miles, and total vehicles, respectively, in order to obtain mass emissions. Emission factors are shown in Table 6.
3. Global warming potentials used in the calculation of CO_2e are 1, 25, and 298 for CO_2, CH_4, and N_2O, respectively.

Abbreviations:

CH_4 - Methane
CO_2 - Carbon Dioxide
CO_2e - Carbon Dioxide Equivalents
EMFAC2021 - Emission Inventory Model for Onroad Motor Vehicles in California
lb - pound
MT - metric ton
N_2O - nitrous oxide
NO_X - nitrous oxide
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_X - sulfur oxide

References:

California Air Resources Board. EMFAC2021 v1.0.0. Available online at: https://arb.ca.gov/emfac/

Table 5
Construction Trips
Rail Bridge & Rail Improvements Project
Stockton, California

Construction Project	Construction Phase	Construction Subphase	Days	Haul Amount (CY)	Construction Trip Rates		Trip Lengths[3] (miles/one way trip)	
					Worker[1] (one way trip/day)	Hauling[2] (one way trip/phase)	Worker Trips	Hauling Trips
Rail Bridge Replacement	Main Track 2 Construction	South Temporary Work Platform	30	N/A[4]	20	3,532	17	20
		MT2 Bridge Foundations	60		23		17	20
		Bridge Piers	32		15		17	20
		Erection of Superstructure on MT2	13		13		17	20
		Removal of South Temporary Work Platform	30		10		17	20
	Main Track 1 Construction	North Temporary Work Platform	30		20		17	20
		Existing Bridge Removal	31		15		17	20
		MT1 Bridge Foundations	32		23		17	20
		Bridge Piers	32		15		17	20
		Erection of Superstructure on MT1	13		13		17	20
		Removal of North Temporary Work Platform	30		10		17	20
Second Lead Tracks	Earthwork	Earthwork, Trackwork, and Underpass Construction	97	30,000	100	3,750	17	20
		Earthwork and Track Construction - Port	32	10,800	58	1,350	17	20
	Track Removal & Reconnection	Port Side	36	--	25	--	17	20
		SJR Bridge Approaches	65	10,000	95	1,250	17	20
Port Yard Improvements	McCloy Yard	Earthwork and Trackwork	215	15,220	120	1,903	17	20
		Track Removal and Track Reconnection	52	--	40	--	17	20

Notes:

1. Worker trips are estimated using CalEEMod® methodology, which assumes 1.25 workers per piece of equipment.
2. Hauling trip rates for the Second Lead Tracks and Port Yard Improvements projects are calculated based on the import and export quantities provided by the Project Sponsor. Import and export quantities are converted from cubic yards to corresponding one-way trips per phase by assuming 16 cubic yards per truck. Default truck capacities are consistent with CalEEMod® User's Guide Appendix A.
3. Worker and hauling trip lengths are based on CalEEMod Appendix D defaults for San Joaquin County.
4. The total number of hauling trips for the Rail Bridge Replacement project was provided by the Project Sponsor and assumed to be a constant rate throughout the project construction.

Abbreviations:

CalEEMod - California Emissions Estimator Model

CY - cubic yard

References:

CalEEMod v2016.3.2 Available online at: http://www.caleemod.com/

Table 6
Mobile Emission Factors for Construction Trips
Rail Bridge & Rail Improvements Project
Stockton, California

Fleet[2]	Year	Process	Units	Emission Factors for Mobile Sources[1]								
				ROG	NOx	CO	SOx	PM_{10}[3]		$PM_{2.5}$[3]		CO_2e
								Exhaust	Fugitive	Exhaust	Fugitive	
Worker	2023	Brake Wear	g/mile	--	--	--	--	--	0.0093	--	0.0033	--
		Diurnal	g/trip	0.50	--	--	--	--	--	--	--	--
		Hotsoak	g/trip	0.13	--	--	--	--	--	--	--	--
		Running Exhaust	g/mile	0.020	0.088	1.2	0.0031	0.0017	--	0.0016	--	319
		Running Loss	g/mile	0.045	--	--	--	--	--	--	--	--
		Starting Exhaust	g/trip	0.48	0.36	4.5	8.0E-04	0.0025	--	0.0023	--	94
		Tire Wear	g/mile	--	--	--	--	--	0.0080	--	0.0020	--
	2024	Brake Wear	g/mile	--	--	--	--	--	0.0094	--	0.0033	--
		Diurnal	g/trip	0.47	--	--	--	--	--	--	--	--
		Hotsoak	g/trip	0.12	--	--	--	--	--	--	--	--
		Running Exhaust	g/mile	0.017	0.078	1.1	0.0031	0.0016	--	0.0015	--	311
		Running Loss	g/mile	0.042	--	--	--	--	--	--	--	--
		Starting Exhaust	g/trip	0.44	0.34	4.2	7.8E-04	0.0024	--	0.0022	--	91
		Tire Wear	g/mile	--	--	--	--	--	0.0080	--	0.0020	--
	2025	Brake Wear	g/mile	--	--	--	--	--	0.0094	--	0.0033	--
		Diurnal	g/trip	0.45	--	--	--	--	--	--	--	--
		Hotsoak	g/trip	0.12	--	--	--	--	--	--	--	--
		Running Exhaust	g/mile	0.015	0.068	1.0	0.0030	0.0015	--	0.0014	--	304
		Running Loss	g/mile	0.040	--	--	--	--	--	--	--	--
		Starting Exhaust	g/trip	0.41	0.32	3.9	7.6E-04	0.0023	--	0.0021	--	89
		Tire Wear	g/mile	--	--	--	--	--	0.0080	--	0.0020	--

Table 6
Mobile Emission Factors for Construction Trips
Rail Bridge & Rail Improvements Project
Stockton, California

Fleet[2]	Year	Process	Units	Emission Factors for Mobile Sources[1]								
				ROG	NOx	CO	SOx	PM_{10}[3]		$PM_{2.5}$[3]		CO_2e
								Exhaust	Fugitive	Exhaust	Fugitive	
Hauling	2023	Brake Wear	g/mile	--	--	--	--	--	0.077	--	0.027	--
		Diurnal	g/trip	2.1E-04	--	--	--	--	--	--	--	--
		Hotsoak	g/trip	5.7E-05	--	--	--	--	--	--	--	--
		Idling Exhaust	g/trip	0.38	4.6	5.7	0.0086	0.0022	--	0.0021	--	961
		Running Exhaust	g/mile	0.016	1.8	0.23	0.015	0.029	--	0.027	--	1,673
		Running Loss	g/mile	6.0E-05	--	--	--	--	--	--	--	--
		Starting Exhaust	g/trip	1.5E-07	2.8	0.0010	1.8E-07	9.7E-07	--	8.9E-07	--	0.022
		Tire Wear	g/mile	--	--	--	--	--	0.035	--	0.0089	--
	2024	Brake Wear	g/mile	--	--	--	--	--	0.077	--	0.027	--
		Diurnal	g/trip	1.3E-04	--	--	--	--	--	--	--	--
		Hotsoak	g/trip	3.5E-05	--	--	--	--	--	--	--	--
		Idling Exhaust	g/trip	0.38	4.6	5.7	0.0084	0.0021	--	0.0020	--	938
		Running Exhaust	g/mile	0.016	1.7	0.22	0.015	0.028	--	0.027	--	1,646
		Running Loss	g/mile	3.7E-05	--	--	--	--	--	--	--	--
		Starting Exhaust	g/trip	1.2E-07	2.8	9.0E-04	1.2E-07	5.6E-07	--	5.1E-07	--	0.014
		Tire Wear	g/mile	--	--	--	--	--	0.035	--	0.0089	--
	2025	Brake Wear	g/mile	--	--	--	--	--	0.077	--	0.027	--
		Diurnal	g/trip	1.0E-04	--	--	--	--	--	--	--	--
		Hotsoak	g/trip	2.8E-05	--	--	--	--	--	--	--	--
		Idling Exhaust	g/trip	0.38	4.5	5.6	0.0082	0.0020	--	0.0019	--	915
		Running Exhaust	g/mile	0.015	1.6	0.21	0.015	0.028	--	0.026	--	1,617
		Running Loss	g/mile	3.1E-05	--	--	--	--	--	--	--	--
		Starting Exhaust	g/trip	1.2E-07	2.8	8.4E-04	9.8E-08	4.6E-07	--	4.2E-07	--	0.011
		Tire Wear	g/mile	--	--	--	--	--	0.035	--	0.0089	--

Table 6
Mobile Emission Factors for Construction Trips
Rail Bridge & Rail Improvements Project
Stockton, California

Fleet[2]	Year	Process	Units	Emission Factors for Mobile Sources[1]								
				ROG	NOx	CO	SOx	PM_{10}[3]		$PM_{2.5}$[3]		CO_2e
								Exhaust	Fugitive	Exhaust	Fugitive	
Onsite Trucks[4]	2023	Brake Wear	g/mile	--	--	--	--	--	0.061	--	0.022	--
		Idling Exhaust	g/vehicle/day	0.27	13	7.5	0.02	0.039	--	0.038	--	2,305
		Running Exhaust	g/mile	0.11	2.3	0.30	0.0150	0.035	--	0.033	--	1,647
		Starting Exhaust	g/trip	--	1.6	--	--	--	--	--	--	--
		Tire Wear	g/mile	--	--	--	--	--	0.012	--	0.0030	--
	2024	Brake Wear	g/mile	--	--	--	--	--	0.061	--	0.022	--
		Idling Exhaust	g/vehicle/day	0.25	13	7.4	0.02	0.033	--	0.031	--	2,290
		Running Exhaust	g/mile	0.093	2.2	0.27	0.0149	0.029	--	0.028	--	1,637
		Starting Exhaust	g/trip	--	1.6	--	--	--	--	--	--	--
		Tire Wear	g/mile	--	--	--	--	--	0.012	--	0.0030	--
	2025	Brake Wear	g/mile	--	--	--	--	--	0.061	--	0.022	--
		Idling Exhaust	g/vehicle/day	0.24	12	7.4	0.02	0.027	--	0.025	--	2,273
		Running Exhaust	g/mile	0.079	2.1	0.25	0.0148	0.024	--	0.023	--	1,626
		Starting Exhaust	g/trip	--	1.6	--	--	--	--	--	--	--
		Tire Wear	g/mile	--	--	--	--	--	0.012	--	0.0030	--

Notes:

1. Emission factors for construction trips were estimated using EMFAC2021 for San Joaquin county.
2. Construction fleet definitions are consistent with CalEEMod®: the worker fleet assumes 50% passenger cars (LDA), 25% light-duty trucks smaller than 3,750 lbs (LDT1), and 25% light duty trucks between 3,751 lbs and 5,750 lbs (LDT2); the hauling fleet assumes 100% heavy-heavy-duty trucks (HHDT).
3. Consistent with CalEEMod®, emissions of particulate matter are quantified separately for exhaust sources (running, idling, and starting exhaust) and fugitive sources (brake and tire wear).
4. Onsite trucks are assumed to be diesel-fueled and 100% Medium Heavy-Duty Trucks (MHDT).

Abbreviations:

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimate Model
CH_4 - methane
CO - carbon monoxide
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
EMFAC2021 - Emission Inventory Model for Onroad Motor Vehicles in California
GHG - greenhouse gas
lb - pound
MT- metric tons
N_2O - nitrous oxide
NO_X - nitrous oxide
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_X - sulfur oxide

Table 7
Fugitive Road Dust Emission Factors
Rail Bridge & Rail Improvements Project
Stockton, California

Silt Loading Factor Derivation[1]

Entrained Roadway Dust Constants for San Joaquin County		
Roadway Category	**Silt Loading (g/m^2)**	**Travel Fraction**
Freeway	0.015	45.6%
Major	0.032	35.1%
Collector	0.032	11.7%
Local	0.32	7.8%
Weighted Silt Loading Factor	0.047	100%

Road Dust Equation[2]

E [lb/VMT] = k*(sL)^0.91 * (W)^1.02 * (1-P/4N)

Parameter[3]	**Value**
E = annual average emission factor in the same units as k	[calculated]
k = particle size multiplier for particle size range and units of interest	
PM_{10} (lb/VMT)	0.0022
$PM_{2.5}$ (lb/VMT)	3.3E-04
sL = road surface silt loading (grams per square meter) (g/m^2)	0.047
W = average weight (tons) of all the vehicles traveling the road	2.4
P = number of "wet" days with at least 0.01 in of precipitation during averaging period[4]	51
N number of days in the averaging period	365

Scenario	**Fugitive PM_{10}**	**Fugitive $PM_{2.5}$**	**Units**
Emission Factor	3.20E-04	4.79E-05	lb/VMT

Notes:

1. Travel fraction by roadway category and silt loading are from the ARB's Entrained Road Travel Emission Inventory Source Methodology, Tables 6 and 7, respectively.
2. The road dust equation for paved roads is from the California Air Resources Board's (ARB) 2018 Miscellaneous Process Methodology 7.9 for Entrained Road Travel, Paved Road Dust.
3. Silt loading emission factor calculated above using roadway travel fractions. Other parameters are from ARB 2016. $PM_{2.5}$ is assumed to be 15% of PM_{10} based on paved road dust sampling in California (ARB Speciation Profile #471), which is a more representative fraction than provided in the older AP-42 fugitive dust methodology as discussed in ARB 2018 (page 10).
4. The number of "wet" days for San Joaquin County is from CalEEMod® Appendix D Table 1.1 (51 days).

Abbreviations:

ARB - Air Resources Board
CalEEMod® - California Emissions Estimator Model
g - grams
lb - pounds
m - meter
PM - particulate matter
VMT - vehicle miles traveled

References:

California ARB. 2018. Miscellaneous Processes Methodologies - Paved Entrained Road Dust. Available online at: https://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf

USEPA. 1996. AP 42. Compilation of Air Pollutant Emission Factors, Volume 1. Fifth Edition. Chapter 13.2.1, Paved Roads. Available online at: http://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf. Accessed January 2016.

Table 8
Summary of Construction Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Construction Project	Construction Phase	Construction Subphase	Year	Construction Emissions[1]								
				CAPs								GHGs[2]
				ROG	NOx	CO	SOx	PM_{10}		$PM_{2.5}$		CO_2e
								Exhaust	Fugitive	Exhaust	Fugitive	
				lb/year								MT/year
Rail Bridge Replacement	Main Track 2 Construction	South Temporary Work Platform	2023	27	242	192	0.64	9.5	7.2	9.0	1.4	30
		MT2 Bridge Foundations	2023	61	611	437	1.8	23	17	21	3.0	68
		Bridge Piers	2024	13	155	129	0.57	4.6	7.0	4.3	1.3	24
		Erection of Superstructure on MT2	2024	6.1	71	59	0.22	2.3	2.5	2.1	0.51	11
		Removal of South Temporary Work Platform	2024	16	176	137	0.51	6.6	5.4	6.1	1.1	24
	Main Track 1 Construction	North Temporary Work Platform	2025	24	209	182	0.63	7.8	7.2	7.3	1.4	29
		Existing Bridge Removal	2025	16	165	132	0.53	6.1	6.5	5.6	1.3	25
		MT1 Bridge Foundations	2025	25	237	200	0.85	8.2	8.9	7.7	1.6	32
		Bridge Piers	2025	12	144	126	0.56	4.3	7.0	4.0	1.3	23
		Erection of Superstructure on MT1	2025	5.8	66	58	0.22	2.1	2.5	2.0	0.51	10
		Removal of North Temporary Work Platform	2025	15	162	134	0.51	5.9	5.4	5.5	1.1	24
Second Lead Tracks	Earthwork	Earthwork, Trackwork, and Underpass Construction	2023	253	2,439	2,123	9.0	90	114	84	19	280
		Earthwork and Track Construction - Port	2023	37	409	361	1.9	14	28	13	5.3	71
	Track Removal & Reconnection	Port Side	2024	25	196	218	0.52	10	6.1	9.0	0.90	16
		SJR Bridge Approaches	2024	121	1,066	1,192	3.9	41	56	38	9.4	129
Port Yard Improvements	McCloy Yard	Earthwork and Trackwork	2023	306	2,216	2,569	6.8	94	115	89	19	239
			2024	183	1,322	1,567	4.3	54	72	51	12	149
		Track Removal and Track Reconnection	2024	62	444	487	1.1	21	14	19	2.1	39

Summary of Emissions by Year							
Year	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$	CO_2e
	ton/year						MT/year
2023	0.34	3.0	2.8	0.010	0.26	0.13	689
2024	0.21	1.7	1.9	0.0056	0.15	0.079	392
2025	0.049	0.49	0.42	0.0017	0.036	0.020	144
Threshold[3]	10	10	100	27	15	15	--

Notes:

1. Emissions were estimated using on-road emission factors from EMFAC2021 and off-road construction equipment emission factors from OFFROAD. On-road trips and off-road construction equipment use were provided by the Project Sponsor. Off-road equipment assume a fleet-average tier. Emission sources also include on-road fugitive dust.
2. Carbon dioxide equivalent emissions were determined using IPCC 5th Assessment Report Global Warming Potentials for CH_4 and N_2O.
3. Annual emissions are compared to the SJVAPCD Thresholds of Significance.

Abbreviations:

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimate Model
CH_4 - methane
CO - carbon monoxide
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
GHG - greenhouse gas
IPCC - Intergovernmental Panel on Climate Change
lb - pound
MT- metric tons
N_2O - nitrous oxide
NO_x - oxides of nitrogen
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide

References:

Intergovernmental Panel on Climate Change. 2014. IPCC 5th Assessment Report (AR5). Available online at: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf

Table 9
Operational Inputs
Rail Bridge & Rail Improvements Project
Stockton, California

Rail Activity Detail

Destination of Train[1]	Number of Trains[1]		Locomotive Type[2]	Trips[2]		Distance Travelled[1,3]		Running Time[4]	Idle Time[5]		
									General	700-Yard Block	Lead Block
	Trains/week	%		trips/train	trips/week	feet/trip	feet/week	Hours			
Future Without Project											
East Complex	23	82%	Class I	2	46	10,728	493,480	69	24	28	62
			Class III	1.9	43	16,770	721,120	101	23	26	58
West Complex	5	18%	Class I	2	10	35,825	358,250	50	5.3	6.2	13
			Class III	1	5	15,300	76,500	11	2.6	3.1	6.7
Total[1]	**28**	**100%**	**All**	**--**	**104**	**--**	**1,649,350**	**231**	**55**	**64**	**140**
Future With Project											
East Complex	25	74%	Class I	2	50	10,728	536,391	71	27	--	31
			Class III	1.9	47	16,770	783,826	104	25	--	29
West Complex	9	26%	Class I	2	18	35,825	644,850	86	10	--	11
			Class III	1	9	15,300	137,700	18	4.9	--	5.5
Total[1]	**34**	**100%**	**All**	**--**	**124**	**--**	**2,102,767**	**280**	**67**	**--**	**76**

Rail Activity Summary

Locomotive Type	Future Without Project		Future With Project	
	Running	Idling	Running	Idling
	Hours/Week			
Class I	119	139	157	79
Class III	112	120	123	64
Total	231	259	280	143

Notes:

1. Weekly trains to east/west complexes, total engine use times, and travel distance for "Future Without Project" and "Future With Project" scenarios were provided by JMA. Hours were allocated to the destination location and locomotive type by number of trips and distance traveled within the Port of Stockton. The "Future With Project" scenario assumes there will be an additional 6 trains, with 2 going to the East Complex and 4 going to the West Complex.
2. There are two types of locomotives in the Port of Stockton: Class I locomotives and Class III locomotives. Class I locomotives are assumed to have 2 engines while Class III locomotives are assumed to have 1 engine. Class I locomotives are assumed to make two trips while in the Port area, 1 inbound and 1 outbound trip. Class III locomotives are assumed to take 1-2 trips within the Port area to sort and deliver rail cars to customers. The average trips/train is assumed to stay constant between the two scenarios. Trips/week are calculated by trains/week * trips/train.
3. The average travel distance per trip is assumed to stay constant between the two scenarios. The total travel distance is the trains/week * average trips/train * average trip distance (feet/trip).
4. The total running time was provided by JMA. Total running time was split between locations and locomotive type by percent of total distance travelled.
5. The total idling time by category (general, 700-yard block, and lead block) was provided by JMA. The total idling time was split between locations and locomotive type by the percentage of overall trips.

Table 10
Percent Time Running and Idling
Rail Bridge & Rail Improvements Project
Stockton, California

Class I Percent Time Running/Idling

Scenario	Destination of Train	Running	Idling		
			General	700-Yard Block	Lead Block
Future Without Project	East Complex	58%	17%	20%	44%
	West Complex	42%	3.8%	4.4%	10%
Future With Project	East Complex	45%	34%	0%	39%
	West Complex	55%	12%	0%	14%

Class III Percent Time Running/Idling

Scenario	Destination of Train	Running	Idling		
			General	700-Yard Block	Lead Block
Future Without Project	East Complex	90%	19%	22%	48%
	West Complex	10%	2.2%	2.6%	5.6%
Future With Project	East Complex	85%	39%	0%	45%
	West Complex	15%	7.6%	0%	8.6%

Notes:

1. The table above shows the percentage of overall running and idling time for each location and locomotive type, based on the operational activity in Table 9. This is used to spatially allocate emissions in the health risk assessment.

Table 11
Class I (Line Haul) Emission Factors
Rail Bridge & Rail Improvements Project
Stockton, California

Line Haul Emission Factors[1]

Tier	U.S. EPA Emission Factors (g/gal)					
	PM_{10}	$PM_{2.5}$	HC	ROG	NOx	CO
Pre-Tier	6.7	6.1	10	12	270	27
Tier 0	6.7	6.1	10	12	179	27
Tier 0+	4.2	3.8	6.2	7.6	150	27
Tier 1	6.7	6.1	9.8	12	139	27
Tier 1+	4.2	3.8	6.0	7.3	139	27
Tier 2	3.7	3.4	5.4	6.5	103	27
Tier 2+	1.7	1.5	2.7	3.3	103	27
Tier 3	1.7	1.5	2.7	3.3	103	27
Tier 4	0.31	0.29	0.83	1.0	21	27

Conversion Factors

Tier	Conversion Factor
	bhp-hr/gal fuel
Pre-Tier	15.2
Tier 0	15.2
Tier 0+	18.2
Tier 1	18.2
Tier 1+	18.2
Tier 2	20.8
Tier 2+	20.8
Tier 3	20.8
Tier 4	20.8

Line Haul Locomotives Tier Distribution[2]

Year	Pre-Tier	Tier 0	Tier 0+	Tier 1	Tier 1+	Tier 2	Tier 2+	Tier 3	Tier 4
2025	0.032%	2.0%	2.2%	0.093%	30%	2.5%	35%	21%	7.6%

Fleet Average Line Haul Project Emission Factors[3]

Year	Emission Factors (g/gal)				
	PM_{10}	$PM_{2.5}$	ROG	NOx	CO
2025	2.5	2.3	4.7	110	27

Fleet Average Conversion Factor[4]

Conversion Factor
bhp-hr/gal fuel
19.9

Rail Bridge Manifest Train Emission Factors[5,6]

Year	Emissions Factors (lb/gal)						
	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SOx	CO_2e
2025	0.0103	0.2428	0.0055	0.0051	0.0587	0.0002	23

EPA Default Power Distribution for Line-Haul Locomotives[7]

Throttle Position	Rated Horsepower (bhp)	Percent Run Time in Notch (%)	Power in Notch (bhp)	Load Factor
Idle	4000	--	22	0.0056
Dynamic Brake	4000	--	110	0.027
1	4000	45%	167	0.042
2	4000	40%	412	0.10
3	4000	8.4%	894	0.22
4	4000	2.4%	1,340	0.33
5	4000	1.0%	1,947	0.49
6	4000	0.0%	2,613	0.65
7	4000	0.0%	3,408	0.85
8	4000	0.2%	4,006	1.0

Idling LF[8]	**0.0056**
Running LF[8]	**0.10**

Table 11
Class I (Line Haul) Emission Factors
Rail Bridge & Rail Improvements Project
Stockton, California

Notes:

1. Line haul emission factors are based on the CARB 2017 Line Haul / Class I Documentation, Table 4-8. The $PM_{2.5}$ emission factor is 92% of PM_{10} for locomotive operations, and the emission factor for PM and PM_{10} are equivalent. The emission factor for reactive organic gases is estimated as 1.21 times the emission factor for hydrocarbons (HC).
2. Line haul locomotives tier distribution is from the CARB 2021 Emissions Inventory Aggregated at County/Air Basin/State.
3. Fleet average emission factors were calculated by applying CARB Tier distributions to the line haul emission factors for each operational year.
4. A fleet average conversion factor was determined using CARB tier distributions and bhp-hr/gal fuel conversion factors based on CARB 2017 Short Line / Class III Documentation, Table 5.2.
5. The SO_2 emission factor was calculated based on the methodology described in the CARB 2017 Line Haul / Class I Documentation, Equation 4.5. See Table 13 for this calculation.
6. The CO_2e emission factor was calculated using individual GHG emission factors for diesel fuel provided by the Climate Registry. See Table 13 for this calculation.
7. The percent time in notch for running throttle positions was calculated based on Table 3-4 in the Stockton Railyard TAC Emissions Inventory, which shows hourly activity by throttle position for BNSF trains at Stockton. The power in notch was calculated using data from Appendix B of US EPA's Locomotive Emission Standards Regulatory Support Document. Data for locomotives with a rated horsepower of 4000 was not available, so power in notch was derived by interpolating between data provided for 3800 and 4100 HP engines.
8. The load factor for Class I locomotives in "idling" mode was assumed to be equal to the load factor in the Idle throttle notch postion. The load factor for Class I locomotives in "running" mode was calculated by taking the weighted average of percent time in notch and load factors for throttle positions 1 through 8.

Abbreviations:

bhp - brake horsepower
CARB - California Air Resources Board
CO - carbon monoxide
g - gram
gal - gallon
GHG - greenhouse gas
HC - hydrocarbons
HP - horsepower
hr - hour
lb - pound
MW - molecular weight
NOx - nitrogen oxides
PM - particulate matter
ppm - parts per million
ROG - reactive organic gases
SOx - sulfur oxides
TAC - toxic air contaminant
US EPA - United States Environmental Protection Agency

References:

CARB. 2017 Line Haul / Class I Documentation. Last accessed on 4/5/2021 at: https://www.arb.ca.gov/msei/ordiesel.htm.

CARB. 2017 Short Line/ Class III Documentation. Last accessed on 03/31/2021 at: https://www.arb.ca.gov/msei/ordiesel.htm.

CARB. 2021 Emissions Inventory Aggregated at County/Air Basin/State. Last accessed on 4/19/2021 at: https://www.arb.ca.gov/msei/ordiesel.htm.
EPA, 1998. Locomotive Emissions Standards: Regulatory Support Document. Available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100F9QT.PDF?Dockey=P100F9QT.PDF

The Climate Registry, April 2020. Available online at: https://www.theclimateregistry.org/wp-content/uploads/2020/04/The-Climate-Registry-2020-Default-Emission-Factor-Document.pdf
Stockton Railyard TAC Emissions Inventory, December 2006. Available online at:
https://ww2.arb.ca.gov/sites/default/files/classic/railyard/hra/env_stock_ei_122006.pdf?_ga=2.201048109.260582392.1618188240-1022049123.1542235619

Table 12
Summary of Class I Rail Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Inputs

Parameter	Class I Locomotive Engine Mode		Units
	Running	Idling	
# Engines[1]	2		--
Engine HP[2]	4,000		bhp
Load Factor[3]	10%	0.56%	--
Fuel Usage[4]	19	1.1	gal/hr
Future Without Project Operating Schedule	119	139	Hours/Week
	52		Weeks/Year
Future With Project Operating Schedule	157	79	Hours/Week
	52		Weeks/Year

Line Haul Emission Factors[5]

Engine Type	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SOx	CO_2e
	lb/gal						
2025 Fleet Average	0.010	0.24	0.0055	0.0051	0.059	2.1E-04	23

Line Haul Emission Rates[6]

Scenario	Engine Mode	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SOx	CO_2e
		ton/year						MT/year
Future Without Project	Running	0.62	15	0.33	0.31	3.5	0.013	1,245
	Idling	0.042	1.0	0.023	0.021	0.24	8.7E-04	84
	Total	0.66	16	0.36	0.33	3.8	0.014	1,329
Future With Project	Running	0.82	19	0.44	0.41	4.7	0.017	1,641
	Idling	0.024	0.56	0.013	0.012	0.13	4.9E-04	47
	Total	0.84	20	0.45	0.42	4.8	0.017	1,689
Net Change	Running	0.20	4.7	0.11	0.10	1.1	0.0041	397
	Idling	-0.018	-0.43	-0.010	-0.0091	-0.10	-3.8E-04	-37
	Total	0.18	4.2	0.10	0.089	1.0	0.0037	360

Notes:

1. The number of locomotives per train was provided by the Project sponsor.
2. Engine horsepower is based on the average horsepower for on-site line-haul activity specified in the Port of Los Angeles DSEIR, which represents a mix of UPPR and BNSF locomotives.
3. Load factor is derived from US EPA's Locomotive Emission Standards Regulatory Support Document as shown in Table 11.
4. Fuel usage is calculated using the rated brake horsepower, load factor, and tier-specific conversion factor between bhp-hr and gallons of fuel. See Table 11 for conversion factor.
5. Emission factor derivations are shown in Table 11.
6. Line-haul locomotive emission rates calculated using operating schedule, fuel consumption rate, and emission factors.

Abbreviations:

CO - carbon monoxide
CO2e - carbon dioxide equivalent
bhp - brake horse power
gal - gallon
hr - hour
lb - pound
MT - metric ton
NOx - nitrogen oxides
PM - particulate matter
ROG - reactive organic gases
SOx - sulfur oxides
UPPR - Union Pacific Railroad
BNSF- Burlington Northern Santa Fe Railway

References:

Port of Los Angeles. 2018 Recirculated Draft Supplemental EIR. Last accessed on 04/15/2021 at: https://kentico.portoflosangeles.org/getmedia/c94cd0dd-7b69-47b8-a1a1-5dc5795a5fcc/Appendix_B1_Air_Emissions_CS_DRSEIR

Table 13
Class III (Switcher) Emission Factor Derivation
Rail Bridge & Rail Improvements Project
Stockton, California

Diesel SO_2 Emission Factor Derivation[1]

Parameter	Value	Units
Diesel Density	7.1	lb/gal
Fraction of fuel sulfur converted to SO_2	100	%
Sulfur (S) Content	15	ppm
	1.1E-04	lb/gal
Sulfur Molecular Weight	32	lb/lbmol
SO_2 Molecular Weight	64	lb/lbmol
SO_2 Content	2.1E-04	lb/gal

Greenhouse Gas Emission Factors[2]

Pollutant	Value	Units
CO_2	23	lb/gal
CH_4	0.0018	lb/gal
N_2O	5.6E-04	lb/gal

Switching Emission Factors[3]

Tier	PM_{10}	HC	NOx	CO
	g/bhp-hr			
Pre-Tier	0.32	0.48	13	1.28
Tier 0	0.32	0.48	8.6	1.28
Tier 0+	0.2	0.3	7.2	1.28
Tier 1	0.32	0.47	6.7	1.28
Tier 1+	0.2	0.29	6.7	1.28
Tier 2	0.18	0.26	5.0	1.28
Tier 2+	0.08	0.13	5.0	1.28
Tier 3	0.08	0.13	5.0	1.28
Tier 4	0.02	0.04	1.0	1.28

Conversion Factors

Tier	Conversion Factor
	bhp-hr/gal fuel
Pre-Tier	15.2
Tier 0	15.2
Tier 0+	18.2
Tier 1	18.2
Tier 1+	18.2
Tier 2	20.8
Tier 2+	20.8
Tier 3	20.8
Tier 4	20.8

Switching Emission Factors

Tier	PM_{10}	HC	NOx	CO
	g/gal			
Pre-Tier	4.9	7.3	198	19
Tier 0	4.9	7.3	131	19
Tier 0+	3.6	5.5	131	23
Tier 1	5.8	8.6	122	23
Tier 1+	3.6	5.3	122	23
Tier 2	3.7	5.4	103	27
Tier 2+	1.7	2.7	103	27
Tier 3	1.7	2.7	103	27
Tier 4	0.42	0.83	21	27

EPA Default Power Distribution for Switcher Locomotives[4]

Throttle Position	Rated Horsepower (bhp)	Percent Time in Notch (%)	Power in Notch (bhp)	Load Factor
Idle	1500	59.8%	15	0.010
Dynamic Brake	1500	0.0%	70	0.047
1	1500	12.4%	72	0.048
2	1500	12.3%	233	0.16
3	1500	5.8%	440	0.29
4	1500	3.6%	569	0.38
5	1500	3.6%	885	0.59
6	1500	1.5%	1109	0.74
7	1500	0.2%	1372	0.91
8	1500	0.8%	1586	1.1

Table 13
Class III (Switcher) Emission Factor Derivation
Rail Bridge & Rail Improvements Project
Stockton, California

Calculation of Weighted Average Load Factor for Switcher Locomotives in Running Mode

Throttle Position	Percent Time in Running Notch (%)	Load Factor
1	31%	0.048
2	31%	0.16
3	14%	0.29
4	9%	0.38
5	9%	0.59
6	4%	0.74
7	0%	0.91
8	2%	1.1
Running Mode Weighted Average:		0.24

Notes:

1. The SO_2 emission factor was calculated based on the methodology described in the CARB 2017 Line Haul / Class I Documentation, Equation 4.5
2. Greenhouse gas emissions factors are based on default values provided by The Climate Registry.
3. Line haul emission factors are based on the CARB 2017 Short Line / Class III Documentation, Table 5-1 and Table 5-2. The $PM_{2.5}$ emission factor is 92% of PM_{10} for locomotive operations, and the emission factors for PM and PM_{10} are equivalent. The emission factor for reactive organic gases is estimated as 1.21 times the emission factor for hydrocarbons (HC).
4. Percent time in notch and power in notch values based on US EPA's Locomotive Emission Standards Regulatory Support Document, Table 4-3 and Appendix B.

Abbreviations:

bhp - brake horsepower
CARB - California Air Resources Board
CH_4 - methane
CO - carbon monoxide
CO_2 - carbon dioxide
g - gram
gal - gallon
HC - hydrocarbons
hr - hour
lb - pound
lbmol - pound-mole
MT - metric ton
N2O - nitrous oxide
NOx - nitrogen oxides
PM - particulate matter
ROG - reactive organic gases
SO_2 - sulfur dioxide
US EPA - United States Environmental Protection Agency

References:

The Climate Registry, April 2020. Available online at: https://www.theclimateregistry.org/wp-content/uploads/2020/04/The-Climate-Registry-2020-Default-Emission-Factor-Document.pdf
CARB. 2017 Short Line/ Class III Documentation. Last accessed on 03/31/2021 at: https://www.arb.ca.gov/msei/ordiesel.htm.
EPA, 1998. Locomotive Emissions Standards: Regulatory Support Document. Available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100F9QT.PDF?Dockey=P100F9QT.PDF

Table 14
Class III (Switcher) Emission Factors
Rail Bridge & Rail Improvements Project
Stockton, California

Switching Emission Factors[1,2]

Engine Model	Engine Tier	# at Port	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SOx	CO_2e
			lb/gal						
SW1500	Tier 0	4	0.019	0.29	0.011	0.010	0.043	2.1E-04	23
Brookville Genset	Tier 4	3	0.0022	0.046	9.2E-04	8.4E-04	0.059	2.1E-04	23
Weighted Average	--	All	0.012	0.18	0.0065	0.0060	0.050	2.1E-04	23

Port Switcher Engine Inputs

Parameter	Switch Locomotive Engine Mode		Switch Locomotive Engine Mode		Units
	Running	Idling	Running	Idling	
Engine Model	SW 1500		Brookville Genset		--
Engine Tier[3]	Tier 0		Tier 4		--
# Engines	4		3		--
Engine HP	1,500		1,200		bhp
Load Factor[4]	24%	1.0%	24%	1.0%	--
Fuel Usage[5]	24	1.0	14	0.6	gal/hr

Notes:

1. The CO_2e emission factor was calculated using global warming potentials and individual GHG emission factors for diesel fuel provided by the Climate Registry.
2. Emission factor derivations are shown in Table 13.
3. Engine tier based on Lehigh Southwest Stockton Terminal Project DEIR.
4. Load factor is derived from US EPA's Locomotive Emission Standards Regulatory Support Document as shown in Table 13.
5. Fuel usage is calculated using the rated brake horsepower, load factor, and tier-specific conversion factor between bhp-hr and gallons of fuel. See Table 13 for conversion factor.

Abbreviations:

CO - carbon monoxide
CO2e - carbon dioxide equivalent
DEIR - Draft Environmental Impact Report
gal - gallon
HP - horsepower
hr - hour
lb - pound
NOx - nitrogen oxides
PM - particulate matter
ROG - reactive organic gases
SO_2 - sulfur dioxide

References:

Lehigh Southwest Stockton Terminal Project DEIR, available online at: https://www.portofstockton.com/wp-content/uploads/2020/05/LehighSWStocktonTerminal_2019100510_DEIR_small.pdf

Table 15
Summary of Class III Rail Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Inputs

Parameter	Average Port Switch Locomotive Engine Mode		Units
	Running	Idling	
# Engines/Train	1		--
Average Fuel Usage[1]	20	0.81	gal/hr
Future Without Project Operating Schedule	111.7	119.54	Hours/Week
	52		Weeks/Year
Future With Project Operating Schedule	122.7	64.42	Hours/Week
	52		Weeks/Year

Switching Emissions[2]

Scenario	Engine Mode	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SOx	CO_2e
		ton/year						MT/year
Future Without Project	Running	0.70	11	0.38	0.35	2.9	0.012	1,188
	Idling	0.030	0.46	0.016	0.015	0.13	5.4E-04	52
	Total	0.73	11	0.39	0.36	3.0	0.013	1,240
Future With Project	Running	0.76	12	0.41	0.38	3.1	0.013	1,305
	Idling	0.016	0.25	0.0089	0.0081	0.067	2.9E-04	28
	Total	0.78	12	0.42	0.39	3.2	0.014	1,333
Net Change	Running	0.069	1.0	0.037	0.034	0.28	0.0012	117
	Idling	-0.014	-0.21	-0.0076	-0.0070	-0.058	-2.5E-04	-24
	Total	0.054	0.83	0.029	0.027	0.22	0.0010	93

Notes:

1. A weighted average fuel usage is calculated based on the average Port Switch Locomotive from Table 14.
2. Switcher locomotive emission are calculated using the fuel consumption rate above, the operating schedule from Table 9, and the emissions fractors from Table 14.

Abbreviations:

CO - carbon monoxide
CO2e - carbon dioxide equivalent
gal - gallon
hr - hour
MT - metric ton
NOx - nitrogen oxides
PM - particulate matter
ROG - reactive organic gases
SO_2 - sulfur dioxide

Table 16
Summary of Operational Rail Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Scenario	Engine Type	Engine Mode	CAP Emissions ton/year						GHG Emissions MT/yr
			ROG	NO_x	PM_{10}	$PM_{2.5}$	CO	SOx	CO_2e
Future Without Project	Class I Engine	Running	0.62	15	0.33	0.31	3.5	0.013	1,245
		Idling	0.042	1.0	0.023	0.021	0.24	8.7E-04	84
	Class III Engine	Running	0.70	11	0.38	0.35	2.9	0.012	1,188
		Idling	0.030	0.46	0.016	0.015	0.13	5.4E-04	52
	Total		1.4	27	0.75	0.69	6.8	0.027	2,569
Future With Project	Class I Engine	Running	0.82	19	0.44	0.41	4.7	0.017	1,641
		Idling	0.024	0.56	0.013	0.012	0.13	4.9E-04	47
	Class III Engine	Running	0.76	12	0.41	0.38	3.1	0.013	1,305
		Idling	0.016	0.25	0.0089	0.0081	0.067	2.9E-04	28
	Total		1.6	32	0.88	0.81	8.0	0.031	3,022
Net Change	Class I Engine	Running	0.20	4.7	0.11	0.10	1.1	0.0041	397
		Idling	-0.018	-0.43	-0.010	-0.0091	-0.10	-3.8E-04	-37
	Class III Engine	Running	0.069	1.0	0.037	0.034	0.28	0.0012	117
		Idling	-0.014	-0.21	-0.0076	-0.0070	-0.058	-2.5E-04	-24
	Total[1]		0.23	5.1	0.13	0.12	1.2	0.0047	453

SJVAPCD Air Quality Thresholds of Significance

Source Designation	ROG	NO_x	PM_{10}	$PM_{2.5}$	CO	SOx
	tons/year					
Non-Permitted Equipment and Activities	10	10	15	15	100	27

Notes:
1. There are no GHG emissions thresholds in the CEQA Guidelines.

Abbreviations:
CAP - Criteria Air Pollutant
CO - carbon monoxide
CO_2e - carbon dioxide equivalent
GHG - greenhouse gas
lb - pounds
NOx - nitrogen oxides
PM - particulate matter
ROG - reactive organic gases
SJVAPCD - San Joaquin Valley Air Pollution Control District
SOx - sulfur oxide

Table 17
Construction HRA Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Year	Construction Source			DPM Emissions (g/s)[1]
2023	Rail Bridge Replacement	Off-Road Equipment Exhaust		6.6E-04
		Truck Hauling		4.3E-06
	Second Lead Tracks	Off-Road Equipment Exhaust[2]	Port Side Tracks	0.0021
		Truck Hauling		1.3E-05
	Port Yard Improvements	Off-Road Equipment Exhaust		0.0020
		Truck Hauling		6.0E-06
2024	Rail Bridge Replacement	Off-Road Equipment Exhaust		2.7E-04
		Truck Hauling		3.3E-06
	Second Lead Tracks	Off-Road Equipment Exhaust[2]	Port Side Tracks	2.1E-04
			Bridge Approaches	8.4E-04
		Truck Hauling		4.2E-06
	Port Yard Improvements	Off-Road Equipment Exhaust		0.0016
		Truck Hauling		4.1E-06
2025	Rail Bridge Replacement	Off-Road Equipment Exhaust		6.9E-04
		Truck Hauling		7.4E-06

Notes:

1. All PM_{10} exhaust emissions from diesel-fueled equipment and vehicles were assumed to be DPM. The emission rate is estimated by annualizing emissions over the course of the year. Annual emission rates were converted to grams per second rates using modeled construction activity hours (16 hours/day of potential activity).
2. The off-road equipment for the Second Lead Tracks project was divided into two modeled sources to capture the spatial distribution of emissions.
3. All worker trucks were assumed to be diesel-fueled.

Abbreviations:

DPM - diesel particulate matter

g/s - gram per second

PM_{10} - particulate matter less than 10 microns in diameter

Table 18
Operational HRA Emissions
Rail Bridge & Rail Improvements Project
Stockton, California

Scenario	Location	Locomotive Type	Process	DPM Total[1]	DPM Day	DPM Night	DPM Total[2]	DPM Day	DPM Night
				lbs/yr			g/s		
Future Without Project	East	Class I Engine	Running	0.19	0.15	0.048	--	4.2E-06	4.2E-06
			General Idling	0.0039	--	--	8.5E-08	--	--
			700 Yard Block Idling	0.0046	--	--	9.9E-08	--	--
			Lead Block Idling	0.010	--	--	2.2E-07	--	--
		Class III Engine	Running	0.34	0.25	0.085	--	7.3E-06	7.3E-06
			General Idling	0.0031	--	--	6.7E-08	--	--
			700 Yard Block Idling	0.0036	--	--	7.9E-08	--	--
			Lead Block Idling	0.0080	--	--	1.7E-07	--	--
	West	Class I Engine	Running	0.14	0.11	0.035	--	3.0E-06	3.0E-06
			General Idling	8.6E-04	--	--	1.8E-08	--	--
			700 Yard Block Idling	0.0010	--	--	2.2E-08	--	--
			Lead Block Idling	0.0022	--	--	4.7E-08	--	--
		Class III Engine	Running	0.036	0.027	0.0090	--	7.8E-07	7.8E-07
			General Idling	3.6E-04	--	--	7.8E-09	--	--
			700 Yard Block Idling	4.2E-04	--	--	9.1E-09	--	--
			Lead Block Idling	9.3E-04	--	--	2.0E-08	--	--
Future with Project	East	Class I Engine	Running	0.20	0.15	0.050	--	4.3E-06	4.3E-06
			General Idling	0.0044	--	--	9.5E-08	--	--
			700 Yard Block Idling	--	--	--	--	--	--
			Lead Block Idling	0.0050	--	--	1.1E-07	--	--
		Class III Engine	Running	0.35	0.26	0.088	--	7.6E-06	7.6E-06
			General Idling	0.0035	--	--	7.5E-08	--	--
			700 Yard Block Idling	--	--	--	--	--	--
			Lead Block Idling	0.0039	--	--	8.5E-08	--	--
	West	Class I Engine	Running	0.24	0.18	0.060	--	5.2E-06	5.2E-06
			General Idling	0.0016	--	--	3.4E-08	--	--
			700 Yard Block Idling	--	--	--	--	--	--
			Lead Block Idling	0.0018	--	--	3.9E-08	--	--
		Class III Engine	Running	0.062	0.046	0.015	--	1.3E-06	1.3E-06
			General Idling	6.7E-04	--	--	1.4E-08	--	--
			700 Yard Block Idling	--	--	--	--	--	--
			Lead Block Idling	7.6E-04	--	--	1.6E-08	--	--
Net Change	East	Class I Engine	Running	0.0065	0.0049	0.0016	--	1.4E-07	1.4E-07
			General Idling	4.4E-04	--	--	9.6E-09	--	--
			700 Yard Block Idling	-0.0046	--	--	-9.9E-08	--	--
			Lead Block Idling	-0.0051	--	--	-1.1E-07	--	--
		Class III Engine	Running	0.011	0.0085	0.0028	--	2.5E-07	2.5E-07
			General Idling	3.5E-04	--	--	7.6E-09	--	--
			700 Yard Block Idling	-0.0036	--	--	-7.9E-08	--	--
			Lead Block Idling	-0.0040	--	--	-8.7E-08	--	--
	West	Class I Engine	Running	0.10	0.075	0.025	--	2.2E-06	2.2E-06
			General Idling	7.2E-04	--	--	1.6E-08	--	--
			700 Yard Block Idling	-0.0010	--	--	-2.2E-08	--	--
			Lead Block Idling	-3.9E-04	--	--	-8.4E-09	--	--
		Class III Engine	Running	0.026	0.019	0.0064	--	5.5E-07	5.5E-07
			General Idling	3.1E-04	--	--	6.6E-09	--	--
			700 Yard Block Idling	-4.2E-04	--	--	-9.1E-09	--	--
			Lead Block Idling	-1.7E-04	--	--	-3.6E-09	--	--

Notes:

1. Running emissions were split between day and night to line up with modeling parameters. Port activity generally occurs from 6AM-10PM. The model used daytime hours of 7AM-7PM and nighttime hours of 7PM-7AM. Based off of this assumption, 75% of running emissions were assumed to occur in the day timeframe.
2. Annual emission rates converted to grams per second rates using port activity hours (12 hours/day for daytime and 4 hours/day for nighttime).

Abbreviations:

DPM - diesel particulate matter
g - gram
HRA - health risk assessment
lbs - pounds
s - second
yr - year

Table 19
Construction Model Source Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Source[1]	Source Type	Number of Sources[2]	Release Height[3]	Initial Lateral Dimension[4]	Initial Vertical Dimension[5]
			(m)	(m)	(m)
Construction Equipment	Area	9	5	--	1.16
On-Road Trucks	Volume	375	2.55	Varies	2.37

Notes:

1. Construction activities are assumed to occur from 6am to 10pm, consistent with the Port of Stockton operating schedule.
2. The number of modeled construction equipment sources was based on the number of distinct construction work areas. These areas include the McCloy Yard, Bridge Replacement, and seven rail track improvement areas. The number of on-road vehicle sources was based on the geometry of the truck or traffic routes, with the sources comprising three distinct routes. In the first route, trucks enter the Port from the Port of Stockton Expressway and continue onto McCloy Avenue near the MCloy Yard construction area. In the second route, trucks enter the Port from Navy Drive and travel west across the bridge to the intersection with W. Charter Way. In the third route, trucks enter the Port from W. Washington Street and then continue south along S. Fresno Avenue.
3. SJVAPCD does not have guidance on construction modeling, therefore construction equipment parameters used were based on BAAQMD's San Francisco Community Risk Reduction Plan-Health Risk Assessment (CRRP-HRA). According to the CRRP-HRA methodology, release height of a modeled area source representing construction equipment is set to 5 meters. On-road truck release height was based on USEPA haul road guidance, assuming vehicle heights of 3 meters for heavy-duty vehicles.
4. Initial lateral dimension for on-road trucks calculated based on USEPA haul road guidance and varies with road width.
5. According to USEPA's AERMOD guidance, initial vertical dimension of the modeled construction equipment area sources is the release height divided by 4.3. According to the USEPA Haul Road Guidance, the initial vertical dimension for volume sources is the top of plume height divided by 2.15, where the top of the plume is equal to 2*Release Height.

Abbreviations:

AERMOD - Atmospheric Dispersion MODeling
BAAQMD - Bay Area Air Quality Management District
m - meter
SJVAPCD - San Joaquin Valley Air Pollution Control District
USEPA - United States Environmental Protection Agency

References:

San Francisco Department of Public Health. February 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation. Available online at: https://www.sfdph.org/dph/files/EHSdocs/AirQuality/Air_Pollutant_Exposure_Zone_Technical_Documentation_2020.pdf

San Joaquin County. 2020. Development Title, Section 9-1025-9. Available online at: https://library.municode.com/ca/san_joaquin_county/codes/development_title?nodeId=TIT9DETI_DIV10DERE_CH9-1025PEST_9-1025.9NO

United States Environmental Protection Agency (USEPA). 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. U.S. EPA Office of Air Quality and Planning Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf

USEPA. 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. U.S. EPA Office of Air Quality and Planning Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf

USEPA. 2019. User's Guide for the AMS/EPA Regulatory Model (AERMOD). U.S. EPA Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf

Table 20
Operational Model Source Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Source[1,2]	Source Type	Number of Sources[3]	Release Height	Initial Lateral Dimension	Initial Vertical Dimension
			(m)	(m)	(m)
Rail Running Onsite - East - Day[1,2]	Volume	291	5.60	4.28	2.60
Rail Running Onsite - East - Night[1,2]	Volume	291	14.60	4.28	6.79
Rail Running Onsite - West - Day[1,2]	Volume	808	5.60	4.28	2.60
Rail Running Onsite - West - Night[1,2]	Volume	808	14.60	4.28	6.79
Rail Idling[1]	Area	4	4.78	--	2.22

Notes:

1. Rail source parameters were derived from the Roseville Rail Yard Study (CARB, 2004). The plume heights vary by day and night due to differences in atmospheric stability conditions.
2. Rail Running – Day (East and West) are modeled from 7am – 7pm. Rail Running – Night (East and West) are modeled from 6am – 7am and 7pm – 10pm.
3. The number of rail running sources was based on the geometry of the routes. The east route starts at the entrance of the Port and ends at the East Complex, and the west route starts at the entrance of the Port and ends at the West Complex. The number of modeled rail idling sources was based on the number of distinct idling areas. These areas include the Port Lead, 700 Yard, East (general), and West (general) areas.

Abbreviations:

AERMOD - Atmospheric Dispersion MODeling

m - meter

References:

CARB. 2004. Roseville Rail Yard Study. Available online at: https://ww2.arb.ca.gov/sites/default/files/classic/diesel/documents/rrstudy/rrstudy101404.pdf

USEPA. 2019. User's Guide for the AMS/EPA Regulatory Model (AERMOD). U.S. EPA Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. Available at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf

Table 21
AERMOD Input Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Parameter	Assumptions
Model Control Options	
Use Regulatory Default	Yes
Urban or Rural Option	Rural
Flagpole Receptor Height	0 meters
Source Options	
Include Building Downwash	No
Receptor Information	
Classifications	Residential, Worker, Recreational
Spacing	20 x 20 meter grid
Meteorological Information	
Meteorological Station[1]	Stockton
Station Base Elevation	10
Meteorological Data Years	2013 - 2017
Output	
Averaging Times	Annual

Notes:

1. Five complete years of pre-processed meteorological data for Stockton was obtained from the San Joaquin Valley Air Pollution Control District.

References:

San Joaquin Valley Air Pollution Control District. September 2020. Meteorological data for Stockton. Available online at: http://www.valleyair.org/busind/pto/Tox_Resources/Modeling-Sites/stockton.htm

Table 22
Exposure Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Construction + Operation Scenario

Receptor Type	Year	Age Group	Daily Breathing Rate[1,2,3]	Exposure Duration[4]	Fraction of Time at Home[5]	Exposure Frequency[6]	Age Sensitivity Factor[7]	Averaging Time	ASF-Weighted Intake Factor, Inhalation	Cumulative Intake Factor, Inhalation
			[L/kg-day]	[years]	[unitless]	[days/year]		[days]	[m^3/kg-day]	[m^3/kg-day]
Residential	2023	3rd Trimester	361	0.50	1	350	10	25,550	0.025	0.10
		0-<2	1,090	0.50					0.074	
	2024			1					0.15	0.15
	2025			0.75					0.11	0.12
		2-<16	572	0.25			3		0.0059	
	2026			1					0.024	0.024
	2027			1					0.024	0.024
	2028			1					0.024	0.024
	2029			1					0.024	0.024
	2030			1					0.024	0.024
	2031			1					0.024	0.024
	2032			1					0.024	0.024
	2033			1					0.024	0.024
	2034			1					0.024	0.024
	2035			1					0.024	0.024
	2036			1					0.024	0.024
	2037			1					0.024	0.024
	2038			1					0.024	0.024
	2039			0.75					0.018	0.018
		16-30	261	0.25	0.73		1		6.5E-04	
	2040			1					0.0026	0.0026
	2041			1					0.0026	0.0026
	2042			1					0.0026	0.0026
	2043			1					0.0026	0.0026
	2044			1					0.0026	0.0026
	2045			1					0.0026	0.0026
	2046			1					0.0026	0.0026
	2047			1					0.0026	0.0026
	2048			1					0.0026	0.0026
	2049			1					0.0026	0.0026
	2050+			3.8					0.010	0.010

Table 22
Exposure Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Construction + Operation Scenario

Receptor Type	Year	Age Group	Daily Breathing Rate[1,2,3]	Exposure Duration[4]	Fraction of Time at Home[5]	Exposure Frequency[6]	Age Sensitivity Factor[7]	Averaging Time	ASF-Weighted Intake Factor, Inhalation	Cumulative Intake Factor, Inhalation
			[L/kg-day]	[years]	[unitless]	[days/year]		[days]	[m^3/kg-day]	[m^3/kg-day]
Worker	2023	16-70	230	1	--	250	1	25,550	0.0023	0.0023
	2024			1					0.0023	0.0023
	2025			1					0.0023	0.0023
	2026			1					0.0023	0.0023
	2027			1					0.0023	0.0023
	2028			1					0.0023	0.0023
	2029			1					0.0023	0.0023
	2030			1					0.0023	0.0023
	2031			1					0.0023	0.0023
	2032			1					0.0023	0.0023
	2033			1					0.0023	0.0023
	2034			1					0.0023	0.0023
	2035			1					0.0023	0.0023
	2036			1					0.0023	0.0023
	2037			1					0.0023	0.0023
	2038			1					0.0023	0.0023
	2039			1					0.0023	0.0023
	2040			1					0.0023	0.0023
	2041			1					0.0023	0.0023
	2042			1					0.0023	0.0023
	2043			1					0.0023	0.0023
	2044			1					0.0023	0.0023
	2045			1					0.0023	0.0023
	2046			1					0.0023	0.0023
	2047			1					0.0023	0.0023

Table 22
Exposure Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Construction + Operation Scenario

Receptor Type	Year	Age Group	Daily Breathing Rate[1,2,3]	Exposure Duration[4]	Fraction of Time at Home[5]	Exposure Frequency[6]	Age Sensitivity Factor[7]	Averaging Time	ASF-Weighted Intake Factor, Inhalation	Cumulative Intake Factor, Inhalation
			[L/kg-day]	[years]	[unitless]	[days/year]		[days]	[m^3/kg-day]	[m^3/kg-day]
Recreational	2023	0-<2	900	1	--	52	10	25,550	0.0183	0.018
	2024			1					0.018	0.018
	2025	2-<16	390	1			3		0.0024	0.0024
	2026			1					0.0024	0.0024
	2027			1					0.0024	0.0024
	2028			1					0.0024	0.0024
	2029			1					0.0024	0.0024
	2030			1					0.0024	0.0024
	2031			1					0.0024	0.0024
	2032			1					0.0024	0.0024
	2033			1					0.0024	0.0024
	2034			1					0.0024	0.0024
	2035			1					0.0024	0.0024
	2036			1					0.0024	0.0024
	2037			1					0.0024	0.0024
	2038			1					0.0024	0.0024
	2039	16-30	180	1			1		0.00037	0.0004
	2040			1					0.00037	0.00037
	2041			1					0.00037	0.00037
	2042			1					0.00037	0.00037
	2043			1					0.00037	0.00037
	2044			1					0.00037	0.00037
	2045			1					0.00037	0.00037
	2046			1					0.00037	0.00037
	2047			1					0.00037	0.00037
	2048			1					0.00037	0.00037
	2049			1					0.00037	0.00037
	2050+			3					0.0011	0.0011

Table 22
Exposure Parameters
Rail Bridge & Rail Improvements Project
Stockton, California

Operation Only Scenario

Receptor Type	Age Group	Daily Breathing Rate[1,2,3]	Exposure Duration[4]	Fraction of Time at Home[5]	Exposure Frequency[6]	Age Sensitivity Factor[7]	Averaging Time	ASF-Weighted Intake Factor, Inhalation	Cumulative Intake Factor, Inhalation
		[L/kg-day]	[years]	[unitless]	[days/year]		[days]	[m^3/kg-day]	[m^3/kg-day]
Residential	3rd Trimester	361	0.25	1	350	10	25,550	0.012	0.68
	0-<2	1,090	2	1	350	10	25,550	0.30	
	2-<16	572	14	1	350	3	25,550	0.33	
	16-30	261	14	0.73	350	1	25,550	0.037	
Worker	16-70	230	25	--	250	1	25,550	0.056	0.056
Recreational	0-<2	900	2	--	52	10	25,550	0.037	0.075
	2-<16	390	14	--	52	3	25,550	0.033	
	16-30	180	14	--	52	1	25,550	0.0051	

Notes:

1. Daily breathing rates for residents reflect default breathing rates from Cal/EPA 2015 as follows:
   95th percentile 24-hour daily breathing rate for age 3rd trimester and 0-<2 years
   80th percentile 24-hour daily breathing rate for age 2-<16 years
   80th percentile 24-hour daily breathing rate for age 16-30 years
2. Daily breathing rates for workers are based on the OEHHA Risk Assessment Guidelines 2015 as follows:
   95th percentile moderate intensity 8-hour daily breathing rate for age 16-70
3. Daily breathing rates for recreational receptors assume 95th Percentile Eight-Hour Breathing Rates for Moderate Intensity Activities, scaled to 6 hours per day.
4. Exposure duration represents the fraction of the year each age bin is exposed to Project emissions.
5. Fraction of time spent at home is conservatively assumed to be 1 (i.e., 24 hours/day) for all age bins except Age 16-30 Years. Fraction of time spent at home is assumed to be 0.73 for Ages 16-30 Years.
6. Exposure frequency was determined as follows:
   Residents: reflects default residential exposure frequency from Cal/EPA 2015.
   Workers: reflects default worker exposure frequency from Cal/EPA 2015.
   Recreational: reflects 52 days per year, assuming recreational receptors play a round of golf or go to the park once a week.
7. Age sensitivity factors account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the OEHHA Technical Support Document (Cal/EPA 2009) and current OEHHA guidance (Cal/EPA 2015).

Abbreviations:

AT - averaging time
Cal/EPA - California Environmental Protection Agency
DBR - daily breathing rate
EF - exposure frequency
FAH - fraction of time at home
kg - kilogram
L - liter

Reference:

Cal/EPA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 23
Toxicity
Rail Bridge & Rail Improvements Project
Stockton, California

Source	Chemical[1]	CAS Number	Cancer Potency Factor	Chronic Noncancer Reference Exposure Level
			$(mg/kg\text{-}day)^{-1}$	$(\mu g/m^3)$
PM_{10}	Diesel PM	9-90-1	1.1	5.0

Notes:

1. Toxicity values are taken from ARB's Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values.

Abbreviations:

ARB - Air Resources Board

Cal/EPA - California Environmental Protection Agency

CAS - chemical abstract services

mg/kg-day - milligrams per kilogram per day

OEHHA - Office of Environmental Health Hazard Assessment

$\mu g/m^3$ - micrograms per cubic meter

Reference:

Cal/EPA. 2016. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. March. Available at: http://www.arb.ca.gov/toxics/healthval/contable.pdf.

Table 24
Maximum Project Excess Lifetime Cancer Risk and Chronic HI
Rail Bridge & Rail Improvements Project
Stockton, California

Source Category	Source	Excess Lifetime Cancer Risk	Chronic HI
		in a million	unitless ratio
Construction Sources	Off-Road Equipment Exhaust	2.2	0.020
	On-Road Mobile Vehicles	0.0060	1.8E-07
	On-Site Truck Exhaust	0.16	2.1E-04
Operational Sources[1]	Class I Locomotives	0.0022	1.8E-06
	Class III Locomotives	6.3E-04	4.8E-07
Total		**2.3**	**0.020**
Significance Threshold		**20**	**1.0**
Exceeds Threshold?		**No**	**No**
Location			
Year Occurred		--	2025
UTMx		648,000	646,120
UTMy		4,200,540	4,201,320
Receptor Type			
Classification		Residential	Worker

Notes:

1. Excess lifetime cancer risk and chronic HI from operational sources represent the incremental increase in activity (i.e., Future With Project - Future Without Project) expected as a result of the Project.
2. Excess lifetime cancer risks were estimated using the following equation:

   $Risk_{inh} = \Sigma C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

   Where:

   $Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)
   C_i = Annual Average Air Concentration for Chemical "i" ug/m^3
   CF = Conversion Factor (mg/ug)
   IF_{inh} = Intake Factor for Inhalation $(m^3/kg\text{-}day)$
   CPF_i = Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$
   ASF = Age Sensitivity Factor (unitless)
3. Excess lifetime cancer risk was evaluated for two exposure scenarios, with the intent of identifying the most conservative scenario. Scenario 1 started exposure at the start of construction; Scenario 2 started exposure at the start of operation. Scenario 1 included overlapping construction and operational emissions, whereas Scenario 2 included operational emissions only. Ultimately, Scenario 1 yielded the highest risk results of the exposure scenarios, which are shown in the table above. The other scenario resulted in lower risks, which are not presented for that reason.
4. Chronic HI for each receptor was estimated using the following equation:

   $HI_{inh} = \Sigma C_i / cREL$

   Where:

   HI_{inh} = Chronic HI for the Inhalation Pathway (unitless)
   C_i = Annual Average Air Concentration for Chemical "i" (ug/m^3)
   cREL = Chronic Reference Exposure Level (ug/m^3)
5. Thresholds of significance are based on information from San Joaquin Valley Air Pollution Control District, Air Quality Thresholds of Significance - Toxic Air Contaminants.
6. This table shows the maximum exposed individual receptor, but three different receptor types were analyzed for this analysis: residential, worker, and recreational.
7. Potential Maximally Exposed Individual (MEI) locations were screened to remove any receptors located over roadways or open space. Further, only the subset of off-site receptors located on residential buildings or homes were considered residential receptors.

References:

San Joaquin Valley Air Pollution Control District, Air Quality Thresholds of Significance - Toxic Air Contaminants. Available at: http://www.valleyair.org/transportation/0714-GAMAQI-TACs-Thresholds-of-Significance.pdf.

Appendix D
Special-Status Species Potentially Present in the Project Area

Table D-1
Special-Status Species Potentially Present in the Project Area

Species	Federal	State	Habitat Association	Potential to Occur
Invertebrates				
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T	-	Riparian scrub in association with blue elderberry (*Sambucus mexicana*)	Moderate potential to occur in elderberry plants within project area.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	E	-	Valley and foothill grassland; vernal pool; wetland	No potential to occur. Habitat not present.
Crotch bumble bee (*Bombus crotchii*)	-	CE	Generalist, found on flowering plants	Potential to occur throughout vegetated portions of study area.
Western bumble bee (*Bombus occidentalis*)	-	CE	Generalist, found on flowering plants	Potential to occur throughout vegetated portions of study area.
Amphibians				
California tiger salamander (*Ambystoma californiense*)	T	T	Cismontane woodland; meadow and seep; riparian woodland; valley and foothill grassland	No potential to occur. Habitat not present.
Western pond turtle (*Emys marmorata*)	-	SSC	Aquatic; flowing waters; standing waters; wetland	Moderate potential to occur on shoreline banks.
Western spadefoot (*Spea hammondii*)	-	SSC	Primarily in grassland habitats; vernal pools required for breeding and egg-laying	No potential to occur. Habitat not present.
Birds				
Tricolored blackbird (*Agelaius tricolor*)	-	CE; SSC	Freshwater marsh; marsh and swamp; swamp; wetland	No potential to occur. Habitat not present.
Burrowing owl (*Athene cunicularia*)	-	SSC	Prairie; scrub; grassland	No potential to occur. Habitat not present.
White-tailed kite (*Elanus leucurus*)	-	FP	Open grasslands; savanna; open woodlands; marshes; desert grassland; partially cleared lands; cultivated fields	Moderate potential to forage or nest in trees within project area.
Swainson's hawk (*Buteo swainsoni*)	-	T	Great Basin grassland; riparian forest; riparian woodland; valley and foothill grassland	Moderate potential to forage or nest in trees within project area.

Species	Federal	State	Habitat Association	Potential to Occur
Palmate-bracted bird's beak (*Chloropyron plamatum*)	E	E	Chenopod scrub; valley and foothill grassland	No potential to occur. Habitat not present.
Least Bell's vireo (*Vireo bellii pusillus*)	E	E	Riparian forest; riparian scrub; riparian woodland	No potential to occur. Habitat not present.
California black rail (*Laterallus jamaicensis coturniculus*)	-	T; FP	Brackish marsh; freshwater marsh; marsh and swamp; salt marsh; wetland	No potential to occur. Habitat not present.
Song sparrow ("Modesto" population) (*Melospiza melodia*)	-	SSC	Riparian shrub-scrub	No potential to occur. Habitat not present.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	-	SSC	Marsh and swamp; wetland	No potential to occur. Habitat not present.
Loggerhead shrike (*Lanius ludovicianus*)	-	SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojave Desert scrub, piñon and juniper woodlands, riparian woodland, Sonoran Desert scrub	No potential to occur. Habitat not present.
Mammals				
Riparian brush rabbit (*Sylvilagus bachmani riparius*)	E	E	Riparian forest	No potential to occur. Habitat not present.
American badger (*Taxidea taxus*)	-	SSC	Variety of terrestrial habitats	Very low potential to occur. Habitat marginal and only a single occurrence in nine quadrangle search area taken in 1938.
Fish				
Green sturgeon – Southern DPS (*Acipenser medirostris*)	E	-	Aquatic; estuary	Moderate potential to occur in San Joaquin River.
Delta smelt (*Hypomesus transpacificus*)	T	E	Aquatic; estuary	Very low potential to occur in San Joaquin River.
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus*)	T	-	Aquatic; Sacramento/San Joaquin flowing waters	Moderate potential to occur in San Joaquin River.
Chinook salmon – Central Valley spring run ESU (*Oncorhynchus tshawytscha*)	T	-	Aquatic; estuary	Moderate potential to occur in San Joaquin River.
Longfin smelt (*Spirinchus thaleichthys*)	C	T; SSC	Aquatic; estuary	Moderate potential to occur in San Joaquin River.

Species	Federal	State	Habitat Association	Potential to Occur
Reptiles				
Giant garter snake (*Thamnophis gigas*)	T	T	Marsh and swamp; riparian scrub; wetland	No potential to occur. Habitat not present.
Plants				
Palmate-bracted salty bird's-beak (*Chloropyron palmatum*)	E	E; 1B.1	Chenopod scrub; meadow and seep; valley and foothill grassland; wetland	No potential to occur. Habitat not present.
Delta button-celery (*Eryngium racemosum*)	-	E; 1B.1	Riparian scrub; wetland	No potential to occur. Habitat not present.

Notes:
Sources:
California Natural Diversity Database 2021 search of project area and surrounding quadrangles (Stockton West, Terminous, Lodi South, Waterloo, Stockton East, Manteca, Lathrop, Union Island, and Holt).
50 Code of Federal Regulations 226
NOAA 2009
1B.1: California Rare Plant Rank defined as rare, threatened, or endangered in California and elsewhere; seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
C: candidate
DPS: distinct population segment
E: endangered
ESU: evolutionary significant unit
FP: California Department of Fish and Wildlife fully protected
SSC: state species of special concern
T: threatened

Appendix E
CNPS List Plant Species with the Potential to Occur in the Project Area

Table E-1
CNPS List Plant Species with the Potential to Occur in the Project Area

Common Name	Scientific Name	California Rare Plant Rank
Alkali milk-vetch	*Astragalus tener var. tener*	1B.2
Heartscale	*Atriplex cordulata var. cordulata*	1B.2
Big tarplant	*Blepharizonia plumosa*	1B.1
Watershield	*Brasenia schreberi*	2B.3
Bristly sedge	*Carex comosa*	2B.1
Palmate-bracted salty bird's-beak	*Chloropyron palmatum*	1B.1 (Federal Endangered; State Endangered)
Slough thistle	*Cirsium crassicaule*	1B.1
Recurved larkspur	*Delphinium recurvatum*	1B.2
Delta button-celery	*Eryngium racemosum*	1B.1 (State Endangered)
San Joaquin spearscale	*Extriplex joaquinana*	1B.2
Woolly rose-mallow	*Hibiscus lasiocarpos var. occidentalis*	1B.2
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	1B.2
Mason's lilaeopsis	*Lilaeopsis masonii*	1B.1
Delta mudwort	*Limosella australis*	2B.1
Sanford's arrowhead	*Sagittaria sanfordii*	1B.2
Side-flowering skullcap	*Scutellaria lateriflora*	2B.2
Suisun Marsh aster	*Symphyotrichum lentum*	1B.2
Wright's trichocoronis	*Trichocoronis wrightii var. wrightii*	2B.1
Saline clover	*Trifolium hydrophilum*	1B.2
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	1B.1

Notes:
Source: California Department of Fish and Wildlife, 2021. California Native Diversity Database Rarefind 5 Program Search of Stockton West Terminous, Lodi South, Waterloo, Stockton East, Manteca, Lathrop, Union Island, and Holt quadrangles.
1B.1: rare, threatened, or endangered in California and elsewhere; seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
1B.2: rare, threatened, or endangered in California and elsewhere; fairly threatened in California (20% to 80% of occurrences threatened/moderate degree and immediacy of threat)
2B.1: rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
2B.2: rare, threatened, or endangered in California, but more common elsewhere; moderately threatened in California (20% to 80% of occurrences threatened/moderate degree and immediacy of threat)
2B.3: rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
CNPS: California Native Plant Society

Appendix F
Department of Parks and Recreation Forms for Port of Stockton San Joaquin Rail Bridge

State of California - The Resources Agency	Primary # P –
DEPARTMENT OF PARKS AND RECREATION	HRI#
PRIMARY RECORD	Trinomial CA –
	NRHP Status Code 3D
Other Listings Review Code	Reviewer Date

Page 1 **of** 7 ***Resource Name or #: (Assigned by recorder)** Port of Stockton San Joaquin Rail Bridge

P1. Other Identifier:

***P2. Location:** ☒ Not for Publication ☐ Unrestricted ***a. County** San Joaquin

***b. USGS 7.5' Quad** Stockton West; **Date:** 1968 PR 1987 **Unsectioned** **T** 1**N R** 6 **E S**; ¼ of ¼; MDM

c. Address N/A **City** Stockton **Zip** 95203

d. UTM: Northwestern terminus: **Zone** 10 ; 4201320 **mE/** 646053 **mN NAD**

Southeastern terminus: **Zone** 10 ; 4201320 **mE/** 646139 **mN NAD**

e. Other Locational Data: None.

***P3a. Description:**

The property contains a railroad bridge that spans the San Joaquin River at the Port of Stockton, California, connecting the port's east complex with facilities on Rough and Ready Island. It carries the east-west alignment of the Port's Belt Line Railway, operated by the Central California Traction Company. The bridge is a subdivided through-Warren, single-truss, swing railroad bridge with one track. It has a total length of 285 feet, consisting of a 220-foot long swing span and two trestle approaches. The single truss forms the swing span, which consists of steel construction with riveted joints. The swing span is supported by a large pier and drum at the bridge's center and rectangular fixed piers at its east and west extents. It pivots to open and close the bridge to river traffic by rotating on a central bearing and sets of steel balance wheels around a central axis. This assemblage rests on a circular pivot pier with a steel and concrete base, set atop a foundation of timber pile construction. Two rows of bundled timber piles placed in the river extend north and south from the central pier parallel to the river and in a perpendicular alignment from the bridge's closed position. Each alignment ends at a triangular-shaped structure of timber piles and wood beam construction at both the north and south. In

(Continued)

***P3b. Resource Attributes: (List attributes and codes)** HP11. Engineering Structure; HP19. Bridge

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing:

P5b. Description of Photograph:
San Joaquin Rail Bridge, looking southeast; date 3/23/2021

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1933 (Port of Stockton)

***P7. Owner and Address:**
Port of Stockton
2201 West Washington Street
Stockton, CA 95203

***P8. Recorded by:**
Christopher Hetzel, Anchor QEA LLC
1203 3rd Ave #2600
Seattle, WA 98101

***P9. Date Recorded:** 4/1/2021

***P10. Survey Type: (Describe)**
Reconnaissance Level Survey

***Attachments:** ☐ NONE ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other:

P3a. Description (Continued):

combination with the pile bundles, these structures serve as a guide to align the bridge when it is open and are designed to support the swing bridge and direct river traffic on the river at these times. On the east and west, the rectangular support piers are constructed of vertical timber piles with heavy concrete caps. The truss rests on cast steel expansion bearings at the east and west piers, and supports an open deck of wood floor beams and stringers atop a steel deck plate girder. The bridge deck features a single standard-gauge railroad track flanked by timber-plank walkway platforms. The platforms are edged by simple wood railings. A set of non-original pipelines span the bridge's south side, affixed to the bridge deck. The truss is approached by short, fixed deck spans on the east and west. Both spans consist of timber trestle construction resting on a combination of concrete abutments and timber trestle supports.

Photographs:

San Joaquin Rail Bridge, view south; date 3/23/2021

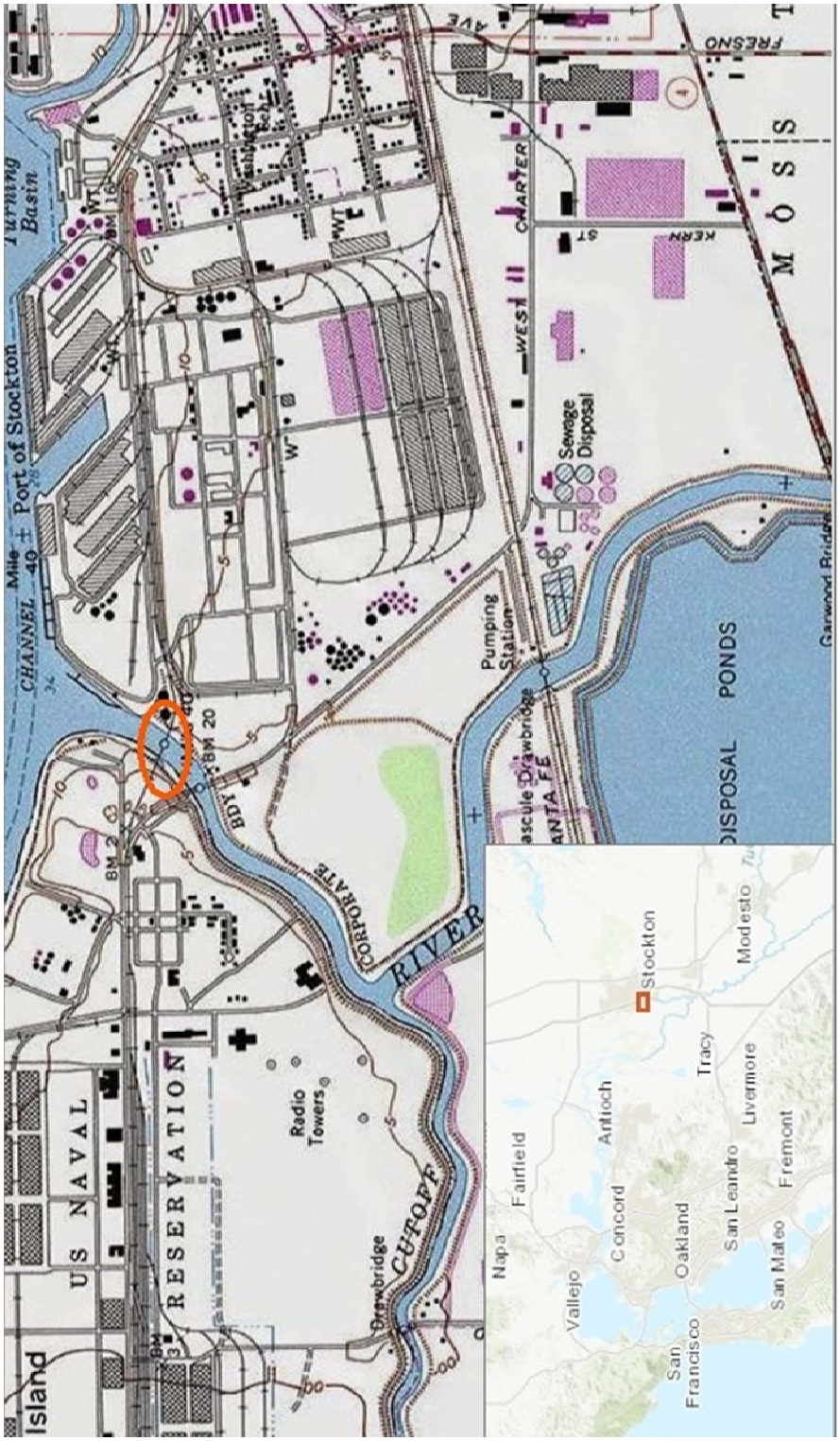
San Joaquin Rail Bridge, view east; date 3/23/2021

San Joaquin Rail Bridge, view southeast; date 3/23/2021

San Joaquin Rail Bridge, view west; date 3/23/2021

San Joaquin Rail Bridge, view east; date 3/23/2021

San Joaquin Rail Bridge, detail of east pier; date 3/23/2021



Port of Stockton Rail Bridge
USGS 7.5' Quad, Stockton West

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 3D

 ***Resource Name or #:** (Assigned by recorder) Port of Stockton San Joaquin Rail Bridge

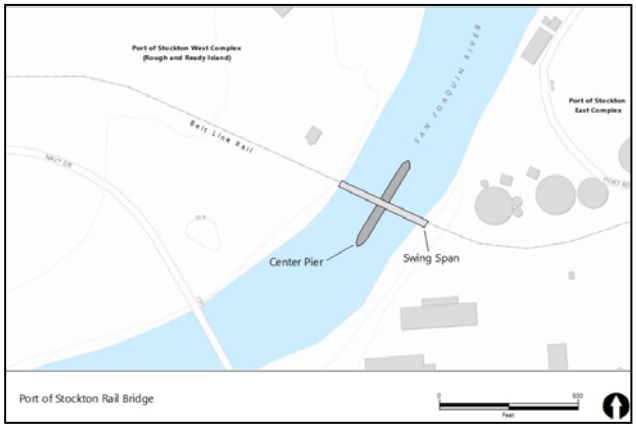
B1. Historic Name: Unknown
B2. Common Name: San Joaquin Rail Bridge, CCT - Rough and Ready Island Bridge
B3. Original Use: Railroad Bridge **B4. Present Use:** Railroad Bridge
***B5. Architectural Style:** n/a
***B6. Construction History:** *(Construction date, alterations, and date of alterations)* The railroad bridge was constructed in 1933 and modified to its current form circa 1953.
***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** N/A **Original Location:** N/A
***B8. Related Features:**
B9a. Architect: Unknown **b. Builder** Unknown
***B10. Significance: Theme** Transportation, Commerce **Area** Stockton/San Joaquin County
Period of Significance 1944-1965 **Property Type** Bridge **Applicable Criteria** A, C
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity).

The Port of Stockton San Joaquin Rail Bridge was evaluated at a reconnaissance level in a cultural resources study completed for the Port of Stockton, SB1 Rail Project. The railroad bridge was originally constructed as part of an extension of the Port of Stockton's Belt Line Railway to industrial facilities on Rough and Ready Island in 1933. It was previously inventoried in 1996 by the "Historic and Archaeological Resources Protection Plan for the Naval Communication Station, Stockton, California" (Uribe & Associates 1996) and was determined eligible for listing in the National Register of Historic Places (National Register) as a contributor to the Naval Supply Annex Stockton National Historic District on adjacent Rough and Ready Island (3D, Appears eligible for NR as a contributor to a NR eligible district through survey evaluation). This district's period of significance is 1944 to 1965. The historic district's status was reviewed and updated during a reconnaissance-level survey undertaken by the Port of Stockton in 2018 (Terracon 2018). The 2018 study did not address the eligibility of the San Joaquin Rail Bridge.

The Naval Supply Annex Stockton National Historic District is considered eligible for listing in the National Register under criteria A and C at the national level of significance. Under National Register Criterion A, the Naval Supply Annex Stockton National Historic District is recognized as historically significant for its association with two periods of development in the history of the US Navy. These include efforts to modernize and streamline the transportation of goods from 1944 to 1946, including the establishment of Naval Supply Annex Stockton as an inland Naval supply depot and its important role in the development of palletization and forklifts as the standardized method for the storage and transportation of goods, and the continued use and development of the installation in the postwar period, culminating in the operations of Naval Communication Station Stockton from 1960 to 1965. Under criterion C, Naval Supply Annex Stockton best embodies the US Navy's redesign of its standard warehouse and transportation facility designs to accommodate pallets and forklift trucks as the first and only depot completely built to accommodate this means of cargo handling (Uribe & Associates, 2; Terracon, 51). (Continued)

B11. Additional Resource Attributes: (List attributes and codes) None
***B12. References:** (See Continuation Sheet)

B13. Remarks: None.



***B14. Evaluator:** (See Continuation Sheet)
***Date of Evaluation** 4/1/2021

(This space reserved for official comments.)

B10. Significance (Continued):

The Port of Stockton San Joaquin Rail Bridge contributes to the historical significance of the Naval Supply Annex Stockton National Historic District because of its 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 of Stockton's Belt Line Railway and its existing railroad bridge spanning the San Joaquin River to Rough and Ready Island. The San Joaquin Railroad Bridge was an important component of Naval Supply Annex Stockton's transportation network, and it served the facility through its entire period of operation. Without the San Joaquin Rail Bridge, the important associations recognized by the Naval Supply Annex Stockton National Historic District would likely not have been possible.

Background

The Port of Stockton was established in 1925 following the authorization of General Obligation Harbor Bonds by the City of Stockton and the dredging of the San Joaquin River channel by the U.S. government (authorized in 1927, carried out in 1933 to 1940). In 1927, the Port of Stockton began the construction of a belt line railway to facilitate the shipment of goods and products at the port, under the direction of then Stockton Mayor and City Engineer, Con Franke, who drove the last spike in 1932. The Belt Line Railway connected the Port of Stockton to three transcontinental railroad lines—the Southern Pacific, Union Pacific, and Burlington Northern-Santa Fe railroads. The City of Stockton had worked hard to reach an operating and financial agreement with the three transcontinental railroad companies, recognizing that a reliable transportation mode was crucial to the Port's success (Bundy and Hetzel 2020).

In 1933, the City of Stockton purchased 104 acres on the north side of Rough and Ready Island and re-zoned it for industrial development in association with the Port of Stockton. The San Joaquin Railroad Bridge was constructed over the river to extend the Port's Belt Line Railway to this property, providing it with important railroad links to the three transcontinental railroad systems and increasing its value. This property was subsequently developed by two private oil companies with storage tanks for distribution of gasoline and other petroleum products in the Central Valley. The property still remains in oil company use (Historic American Buildings Survey, 6; Uribe & Associates, 10; Terracon, 8).

In 1944, the US Navy purchased almost all of Rough and Ready Island from the island's private land owners, and began construction of Naval Supply Annex Stockton to support the United States' wartime activities in the Pacific Theatre of World War II. Rough and Ready Island was an ideal choice for a naval supply annex. It was an inland location that offered better protection than other coastal facilities; It was adjacent to a serviceable deep-water channel; it was in relatively close proximity to US naval installations in Oakland and San Francisco; and it was served by an industrial railway with access to transcontinental rail lines (Historic American Building Survey, 7; Uribe & Associates, 10 and 14).

The US Navy retained the use of Rough and Ready Island through the Korean War in the 1950s, with decreasing presence in the 1960s. The levees around the island were improved twice after World War II. The River and Harbor Act of 17 May 1950 provided for dredging a 30-foot channel and building up the levees all around Rough and Ready Island, along the Stockton Deep Water Channel, the San Joaquin River, and the Burns Cut Off. As part of this work, the San Joaquin Railroad Bridge was modified to its current form, circa 1953 (Terracon, 10; Uribe & Associates, 14).

The Naval Communication Station Stockton was constructed on Rough and Ready Island between 1956 and 1957 and operated from the naval installation until 1965. Naval Supply Annex Stockton was officially decommissioned in 1965. In 2010, the Port of Stockton purchased the property from the US government (Terracon, 22).

Evaluation

The Port of Stockton San Joaquin Railroad Bridge is recommended eligible for listing in the National Register as a contributor to the Naval Supply Annex Stockton National Historic District. The railroad bridge was previously determined National Register eligible in

1996 for its association with the establishment and operations of the Naval Supply Annex Stockton. The condition and integrity of the bridge does not appear to have substantively changed since this evaluation. Therefore, Anchor QEA LLC concurs with the prior evaluation.

B12. References (Continued):

Bridgehunter.com. "CCT - Rough and Ready Island Bridge," Inventory Number 44430. Online resource, accessed 4/1/2021: https://bridgehunter.com/ca/san-joaquin/bh44430/.

Bundy, Barbara, and Christopher Hetzel. "Lehigh Southwest Stockton Terminal Project, Cultural Resources Assessment." Prepared for the US Army Corps of Engineers, December 2020.

Historic American Buildings Survey. "Naval Supply Annex Documentation, Photographs, Written Historical and Descriptive Data," HABS CA-2682. San Francisco, CA: National Park Service, Department of the Interior.

Terracon Consultants. "Rough and Ready Island: Determination of Eligibility Report." Prepared for the Port of Stockton, September 2018.

Uribe & Associates. "Historic and Archaeological Resources Protection Plan for the Naval Communication Station, Stockton, California." Prepared for Engineering Field Activity, West Naval Facilities Engineering Command, November 1996.

B14. Evaluator (Continued):

Christopher Hetzel, Anchor QEA, LLC
1201 3rd Ave #2600, Seattle, WA 98101

Appendix G
Noise Modeling Assumptions and Results

Summary

File Name on Meter	21040100.LD0.s
File Name on PC	LxT_0004654-20210401 100056-21040100.LD0.ldbi
Serial Number	0004654
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	LTNM1-1
Start	2021-04-01 10:00:56
Stop	2021-04-01 12:00:00
Duration	01:59:03.3
Run Time	01:59:03.3
Pause	00:00:00.0
Pre-Calibration	2021-04-01 09:58:43
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/3 Octave
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.9 dB

	A	C	Z
Under Range Peak	99.8	96.8	**101.8** dB
Under Range Limit	**37.0**	36.6	43.7 dB
Noise Floor	27.9	27.5	34.5 dB

Results

LA_{Eq}	54.0	
LAFE	92.6	
EAF	200.419	µPa²h
EAF8	808.038	µPa²h
EAF40	4.040	mPa²h
$LZ_{Fpeak\ (max)}$	2021-04-01 10:01:41	107.5 dB
LAF_{max}	2021-04-01 10:01:41	84.6 dB
LAF_{min}	2021-04-01 11:56:48	47.8 dB
SEA	-99.94 dB	

LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

LC_{Feq}	69.8	dB
LA_{Feq}	54.0	dB
LC_{Feq} - LAF_{eq}	15.8	dB
LAI_{eq}	58.7	dB
LA_{eq}	54.0	dB
LAI_{eq} - LA_{eq}	4.6	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	54.0					
$L_{F(max)}$	84.6	2021/04/01 10:01:41				
$L_{F(min)}$	47.8	2021/04/01 11:56:48				
$L_{Peak(max)}$					107.5	2021/04/01 10:01:41

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	0.00 %
Projected Dose	-99.94	0.00 %
TWA (Projected)	-99.94	11.3 dB
TWA (t)	-99.94	1.2 dB
Lep (t)	48.0	48.0 dB

Statistics

LAI2.50	58.5 dB
LAI8.00	54.4 dB
LAI10.00	54.0 dB
LAI25.00	52.6 dB
LAI50.00	51.6 dB
LAI90.00	50.0 dB

Summary

File Name on Meter	21040101.LD0.s
File Name on PC	LxT_0004654-20210401 120000-21040101.LD0.ldbi
Serial Number	0004654
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS LTNM1-2
Start	2021-04-01 12:00:00
Stop	2021-04-02 00:00:00
Duration	12:00:00.0
Run Time	12:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 09:58:43
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/3 Octave
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.9 dB

	A	C	Z	
Under Range Peak	99.8	96.8	**101.8**	dB
Under Range Limit	**37.0**	36.6	43.7	dB
Noise Floor	27.9	27.5	34.5	dB

Results

LA_{Eq}	55.9		
LAFE	102.3		
EAF	1.875	mPa^2h	
EAF8	1.250	mPa^2h	
EAF40	6.251	mPa^2h	
$LZ_{Fpeak\ (max)}$	2021-04-01 21:05:26	110.6	dB
LAF_{max}	2021-04-01 15:44:37	91.1	dB
LAF_{min}	2021-04-01 15:11:55	42.8	dB
SEA	-99.94	dB	

LAF > 85.0 dB (Exceedance Counts / Duration)	7	8.5	s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Fpeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Fpeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Fpeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

LC_{Feq}	69.8	dB
LA_{Feq}	55.9	dB
LC_{Feq} - LAF_{eq}	13.9	dB
LAI_{eq}	58.8	dB
LA_{eq}	55.9	dB
LAI_{eq} - LA_{eq}	2.9	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	55.9					
$L_{F(max)}$	91.1	2021/04/01 15:44:37				
$L_{F(min)}$	42.8	2021/04/01 15:11:55				
$L_{Peak(max)}$					110.6	2021/04/01 21:05:26

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	0.00	0.03	%
Projected Dose	0.00	0.02	%
TWA (Projected)	-3.1	29.4	dB
TWA (t)	-0.2	32.3	dB
Lep (t)	57.7	57.7	dB

Statistics

LAI2.50	58.6	dB
LAI8.00	55.1	dB
LAI10.00	54.7	dB
LAI25.00	53.2	dB
LAI50.00	51.6	dB
LAI90.00	48.0	dB

Summary

File Name on Meter	21040200.LD0.s
File Name on PC	LxT_0004654-20210402 000000-21040200.LD0.ldbi
Serial Number	0004654
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	LTNM1-3
Start	2021-04-02 00:00:00
Stop	2021-04-02 10:48:39
Duration	10:48:39.9
Run Time	10:48:39.9
Pause	00:00:00.0
Pre-Calibration	2021-04-01 09:58:43
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/3 Octave
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.9 dB

	A	C	Z	
Under Range Peak	99.8	96.8	**101.8**	dB
Under Range Limit	**37.0**	36.6	43.7	dB
Noise Floor	27.9	27.5	34.5	dB

Results

LA_{Eq}	56.8	
LAFE	102.7	
EAF	2.089	mPa^2h
EAF8	1.546	mPa^2h
EAF40	7.730	mPa^2h
$LZ_{Fpeak\ (max)}$	2021-04-02 10:33:33	107.4 dB
LAF_{max}	2021-04-02 00:32:42	86.0 dB
LAF_{min}	2021-04-02 10:21:48	47.4 dB
SEA	-99.94 dB	

LAF > 85.0 dB (Exceedance Counts / Duration)	1	0.4 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

LC_{Feq}	70.7	dB
LA_{Feq}	56.8	dB
LC_{Feq} - LAF_{eq}	13.9	dB
LAI_{eq}	59.0	dB
LA_{eq}	56.8	dB
LAI_{eq} - LA_{eq}	2.1	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	56.8					
$L_{F(max)}$	86.0	2021/04/02 0:32:42				
$L_{F(min)}$	47.4	2021/04/02 10:21:48				
$L_{Peak(max)}$					107.4	2021/04/02 10:33:33

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	0.01 %
Projected Dose	-99.94	0.00 %
TWA (Projected)	-99.94	18.2 dB
TWA (t)	-99.94	20.4 dB
Lep (t)	58.1	58.1 dB

Statistics

LAI2.50	61.9 dB
LAI8.00	58.8 dB
LAI10.00	58.5 dB
LAI25.00	57.0 dB
LAI50.00	55.1 dB
LAI90.00	51.1 dB

Summary

File Name on Meter	21040201.LD0.s
File Name on PC	LxT_0004654-20210402 122053-21040201.LD0.ldbi
Serial Number	0004654
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS LTNM1-4
Start	2021-04-02 12:20:53
Stop	2021-04-03 00:00:00
Duration	11:39:06.8
Run Time	11:39:06.8
Pause	00:00:00.0
Pre-Calibration	2021-04-02 12:18:29
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/3 Octave
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.8 dB

	A	C	Z	
Under Range Peak	99.7	96.7	**101.7**	dB
Under Range Limit	**36.9**	36.6	43.6	dB
Noise Floor	27.8	27.4	34.5	dB

Results

LAFeq	54.0	
LAFE	100.3	
EAF	1.183	mPa²h
EAF8	812.449	µPa²h
EAF40	4.062	mPa²h
LZFpeak (max)	2021-04-02 12:21:41	112.2 dB
LAFmax	2021-04-02 12:21:01	80.9 dB
LAFmin	2021-04-02 17:27:38	48.5 dB
SEA	-99.94	dB
LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZFpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZFpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZFpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LCFeq	72.9	dB
LAFeq	54.0	dB
LCFeq - LAFeq	18.9	dB
LAIeq	56.1	dB
LAeq	54.0	dB
LAIeq - LAeq	2.1	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	54.0					
LF(max)	80.9	2021/04/02 12:21:01				
LF(min)	48.5	2021/04/02 17:27:38				
LPeak(max)					112.2	2021/04/02 12:21:41

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.94	-99.94	dB
TWA (t)	-99.94	-99.94	dB
Lep (t)	55.7	55.7	dB

Statistics

LAI2.50	57.1	dB
LAI8.00	55.4	dB
LAI10.00	55.2	dB
LAI25.00	54.4	dB
LAI50.00	53.6	dB
LAI90.00	51.6	dB

Summary

File Name on Meter	21040200.LD0.s
File Name on PC	LxT_0004656-20210402 120851-21040200.LD0.ldbi
Serial Number	0004656
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS LTNM2-1
Start	2021-04-02 12:08:51
Stop	2021-04-03 00:00:00
Duration	11:51:08.3
Run Time	11:51:08.3
Pause	00:00:00.0
Pre-Calibration	2021-03-26 07:53:07
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/3 Octave
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.8 dB

	A	C	Z	
Under Range Peak	100.7	97.7	**102.7**	dB
Under Range Limit	**37.9**	37.6	44.6	dB
Noise Floor	28.8	28.4	35.5	dB

Results

LA_{Eq}	54.4		
LAFE	100.7		
EAF	1.320	mPa^2h	
EAF8	890.859	μPa^2h	
EAF40	4.454	mPa^2h	
$LZ_{Fpeak\ (max)}$	2021-04-02 12:21:04	113.9	dB
LAF_{max}	2021-04-02 12:09:06	78.7	dB
LAF_{min}	2021-04-02 16:51:58	48.6	dB
SEA	-99.94	dB	

LAF > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Fpeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Fpeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Fpeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

LC_{Feq}	74.1	dB
LA_{Feq}	54.4	dB
LC_{Feq} - LAF_{eq}	19.7	dB
LAI_{eq}	56.7	dB
LA_{eq}	54.4	dB
LAI_{eq} - LA_{eq}	2.2	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	54.4					
$L_{F(max)}$	78.7	2021/04/02 12:09:06				
$L_{F(min)}$	48.6	2021/04/02 16:51:58				
$L_{Peak(max)}$					113.9	2021/04/02 12:21:04

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Dose Settings

Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.94	-99.94	dB
TWA (t)	-99.94	-99.94	dB
Lep (t)	56.2	56.2	dB

Statistics

LAI2.50	57.8	dB
LAI8.00	56.1	dB
LAI10.00	55.9	dB
LAI25.00	55.0	dB
LAI50.00	54.0	dB
LAI90.00	51.4	dB

Summary

File Name on Meter	21040300.LD0.s
File Name on PC	LxT_0004656-20210403 000000-21040300.LD0.ldbi
Serial Number	0004656
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	Data at end of measurement was removed from averages due to noise associated with meter removal

Measurement

Description	POS LTNM2-2
Start	2021-04-03 00:00:00
Stop	2021-04-03 11:44:04
Duration	11:44:04.8
Run Time	11:44:04.8
Pause	00:00:00.0
Pre-Calibration	2021-03-26 07:53:07
Post-Calibration	2021-04-03 11:44:09
Calibration Deviation	0.00 dB

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/3 Octave
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.6 dB

	A	C	Z	
Under Range Peak	100.6	97.6	**102.6**	dB
Under Range Limit	**37.8**	37.4	44.5	dB
Noise Floor	28.7	28.3	35.4	dB

Results

L_{AFeq}	77.3	
LAFE	123.6	
EAF	254.852	mPa²h
EAF8	173.743	mPa²h
EAF40	868.715	mPa²h
$LZ_{Fpeak\ (max)}$	2021-04-03 11:43:58	131.7 dB
LAF_{max}	2021-04-03 11:43:56	115.0 dB
LAF_{min}	2021-04-03 11:10:27	50.9 dB
SEA	143.4 dB	
LAF > 85.0 dB (Exceedance Counts / Duration)	1	9.2 s
LAF > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Fpeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{Feq}	81.3 dB	
LA_{Feq}	77.3 dB	
LC_{Feq} - LAF_{eq}	3.9 dB	
LAI_{eq}	77.4 dB	
LA_{eq}	77.4 dB	
LAI_{eq} - LA_{eq}	0.0 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	77.4					
$L_{F(max)}$	115.0	2021/04/03 11:43:56				
$L_{F(min)}$	50.9	2021/04/03 11:10:27				
$L_{Peak(max)}$					131.7	2021/04/03 11:43:58

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	0.87	0.87 %
Projected Dose	0.59	0.59 %
TWA (Projected)	53.0	53.0 dB
TWA (t)	55.8	55.8 dB
Lep (t)	79.0	79.0 dB

Statistics

LAI2.50	59.8 dB
LAI8.00	57.4 dB
LAI10.00	57.1 dB
LAI25.00	56.1 dB
LAI50.00	55.3 dB
LAI90.00	54.0 dB

Summary

File Name on Meter	LxT_Data.007.s
File Name on PC	LxT_0005439-20210401 162528-LxT_Data.007.ldbir
Serial Number	0005439
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS STNM1
Start	2021-04-01 16:25:28
Stop	2021-04-01 17:25:28
Duration	01:00:00.0
Run Time	01:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 16:25:10
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.5 dB

	A	C	Z	
Under Range Peak	99.5	96.5	**101.5**	dB
Under Range Limit	**36.7**	36.4	43.4	dB
Noise Floor	27.6	27.2	34.3	dB

Results

LA_{Seq}	51.8		
LASE	87.3		
EAS	60.161	µPa²h	
EAS8	481.287	µPa²h	
EAS40	2.406	mPa²h	
$LZ_{Speak\ (max)}$	2021-04-01 17:00:23	98.9	dB
LAS_{max}	2021-04-01 17:13:41	74.1	dB
LAS_{min}	2021-04-01 16:41:30	39.7	dB
SEA	-99.94	dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Speak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Speak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Speak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

LC_{Seq}	66.4	dB
LA_{Seq}	51.8	dB
LC_{Seq} - LA_{Seq}	14.6	dB
LAI_{eq}	56.0	dB
LA_{eq}	51.8	dB
LAI_{eq} - LA_{eq}	4.2	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	51.8					
$L_{S(max)}$	74.1	2021/04/01 17:13:41				
$L_{S(min)}$	39.7	2021/04/01 16:41:30				
$L_{Peak(max)}$					98.9	2021/04/01 17:00:23

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Dose Settings

Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.94	-99.94	dB
TWA (t)	-99.94	-99.94	dB
Lep (t)	42.7	42.7	dB

Statistics

LAI2.50	59.0	dB
LAI8.00	55.0	dB
LAI10.00	54.1	dB
LAI25.00	50.1	dB
LAI50.00	47.1	dB
LAI90.00	43.3	dB

Summary

File Name on Meter	LxT_Data.006.s
File Name on PC	LxT_0005439-20210401 151721-LxT_Data.006.ldbir
Serial Number	0005439
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Pause	POS STNM2
Start	2021-04-01 15:17:21
Stop	2021-04-01 16:17:21
Duration	01:00:00.0
Run Time	01:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 15:16:22
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.1 dB

	A	C	Z
Under Range Peak	100.0	97.0	**102.0** dB
Under Range Limit	**37.2**	36.9	43.9 dB
Noise Floor	28.1	27.8	34.8 dB

Results

LA_{Seq}	61.1	
LASE	96.6	
EAS	513.505	µPa²h
EAS8	4.108	mPa²h
EAS40	20.540	mPa²h
$LZ_{Speak\ (max)}$	2021-04-01 16:01:51	101.8 dB
LAS_{max}	2021-04-01 16:01:51	79.2 dB
LAS_{min}	2021-04-01 15:33:49	46.3 dB
SEA	-99.94 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Speak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Speak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{Speak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

LC_{Seq}	70.6 dB
LA_{Seq}	61.1 dB
LC_{Seq} - LA_{Seq}	9.6 dB
LAI_{eq}	62.4 dB
LA_{eq}	61.1 dB
LAI_{eq} - LA_{eq}	1.4 dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	61.1					
$L_{S(max)}$	79.2	2021/04/01 16:01:51				
$L_{S(min)}$	46.3	2021/04/01 15:33:49				
$L_{Peak(max)}$					101.8	2021/04/01 16:01:51

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.94	-99.94	dB
TWA (t)	-99.94	-99.94	dB
Lep (t)	52.1	52.1	dB

Statistics

LAI2.50	66.5 dB
LAI8.00	63.6 dB
LAI10.00	63.1 dB
LAI25.00	61.3 dB
LAI50.00	59.3 dB
LAI90.00	54.1 dB

Summary

File Name on Meter	LxT_Data.005.s
File Name on PC	LxT_0005439-20210401 140728-LxT_Data.005.ldbir
Serial Number	0005439
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS STNM3
Start	2021-04-01 14:07:28
Stop	2021-04-01 15:07:28
Duration	01:00:00.0
Run Time	01:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 14:07:02
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.3 dB

	A	C	Z	
Under Range Peak	100.3	97.3	**102.3**	dB
Under Range Limit	**37.5**	37.1	44.2	dB
Noise Floor	28.3	28.0	35.0	dB

Results

LASeq	63.6	
LASE	99.1	
EAS	909.668	µPa²h
EAS8	7.277	mPa²h
EAS40	36.387	mPa²h
LZSpeak (max)	2021-04-01 14:44:41	107.6 dB
LASmax	2021-04-01 14:44:41	85.9 dB
LASmin	2021-04-01 14:49:56	43.5 dB
SEA	-99.94	dB
LAS > 85.0 dB (Exceedance Counts / Duration)	1	7.2 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZSpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZSpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZSpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LCSeq	71.5	dB
LASeq	63.6	dB
LCSeq - LASeq	7.9	dB
LAleq	66.3	dB
LAeq	63.6	dB
LAleq - LAeq	2.8	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	63.6					
LS(max)	85.9	2021/04/01 14:44:41				
LS(min)	43.5	2021/04/01 14:49:56				
LPeak(max)					107.6	2021/04/01 14:44:41

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	0.04 %
Projected Dose	-99.94	0.32 %
TWA (Projected)	-99.94	48.6 dB
TWA (t)	-99.94	33.6 dB
Lep (t)	54.5	54.5 dB

Statistics

LAI2.50	63.6 dB
LAI8.00	58.4 dB
LAI10.00	57.9 dB
LAI25.00	55.9 dB
LAI50.00	53.4 dB
LAI90.00	48.9 dB

Summary

File Name on Meter	LxT_Data.004.s
File Name on PC	LxT_0005439-20210401 123415-LxT_Data.004.ldbir
Serial Number	0005439
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS STNM4
Start	2021-04-01 12:34:15
Stop	2021-04-01 13:34:15
Duration	01:00:00.0
Run Time	01:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 12:33:25
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.0 dB

	A	C	Z	
Under Range Peak	100.0	97.0	**102.0**	dB
Under Range Limit	**37.2**	36.9	43.9	dB
Noise Floor	28.1	27.7	34.8	dB

Results

LASeq	47.5		
LASE	83.1		
EAS	22.687	µPa²h	
EAS8	181.496	µPa²h	
EAS40	907.482	µPa²h	
LZSpeak (max)	2021-04-01 13:32:01	97.5	dB
LASmax	2021-04-01 13:33:48	61.8	dB
LASmin	2021-04-01 13:09:14	36.8	dB
SEA	-99.94	dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZSpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZSpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZSpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s
LCSeq	60.1	dB	
LASeq	47.5	dB	
LCSeq - LASeq	12.6	dB	
LAIeq	50.9	dB	
LAeq	47.5	dB	
LAIeq - LAeq	3.4	dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	47.5					
LS(max)	61.8	2021/04/01 13:33:48				
LS(min)	36.8	2021/04/01 13:09:14				
LPeak(max)					97.5	2021/04/01 13:32:01

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.94	-99.94	dB
TWA (t)	-99.94	-99.94	dB
Lep (t)	38.5	38.5	dB

Statistics

LAI2.50	56.3	dB
LAI8.00	51.6	dB
LAI10.00	50.4	dB
LAI25.00	45.8	dB
LAI50.00	43.6	dB
LAI90.00	40.7	dB

Summary

File Name on Meter	LxT_Data.003.s
File Name on PC	LxT_0005439-20210401 111848-LxT_Data.003.ldbir
Serial Number	0005439
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS STNM5
Start	2021-04-01 11:18:48
Stop	2021-04-01 12:18:48
Duration	01:00:00.0
Run Time	01:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 11:17:50
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.7 dB

	A	C	Z	
Under Range Peak	99.7	96.7	**101.7**	dB
Under Range Limit	**36.9**	36.6	43.6	dB
Noise Floor	27.8	27.4	34.5	dB

Results

LA_{Seq}	62.2		
LASE	97.8		
EAS	663.781	µPa²h	
EAS8	5.310	mPa²h	
EAS40	26.551	mPa²h	
$LZ_{Speak\ (max)}$	2021-04-01 11:38:25	104.6	dB
LAS_{max}	2021-04-01 11:38:25	90.2	dB
LAS_{min}	2021-04-01 12:18:30	39.1	dB
SEA	-99.94	dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	1	2.3	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Speak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Speak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZ_{Speak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

LC_{Seq}	70.5	dB
LA_{Seq}	62.2	dB
LC_{Seq} - LA_{Seq}	8.3	dB
LAI_{eq}	66.4	dB
LA_{eq}	62.2	dB
LAI_{eq} - LA_{eq}	4.2	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	62.2					
$L_{S(max)}$	90.2	2021/04/01 11:38:25				
$L_{S(min)}$	39.1	2021/04/01 12:18:30				
$L_{Peak(max)}$					104.6	2021/04/01 11:38:25

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	0.00	0.01	%
Projected Dose	0.01	0.05	%
TWA (Projected)	19.4	34.9	dB
TWA (t)	4.4	19.9	dB
Lep (t)	53.2	53.2	dB

Statistics

LAI2.50	71.4	dB
LAI8.00	65.8	dB
LAI10.00	64.2	dB
LAI25.00	54.0	dB
LAI50.00	47.0	dB
LAI90.00	41.8	dB

Summary

File Name on Meter	LxT_Data.002.s
File Name on PC	LxT_0005439-20210401 094808-LxT_Data.002.ldbir
Serial Number	0005439
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	POS STNM6
Start	2021-04-01 09:48:08
Stop	2021-04-01 10:48:08
Duration	01:00:00.0
Run Time	01:00:00.0
Pause	00:00:00.0
Pre-Calibration	2021-04-01 09:41:52
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	143.6 dB

	A	C	Z	
Under Range Peak	99.6	96.6	**101.6**	dB
Under Range Limit	**36.8**	36.4	43.5	dB
Noise Floor	27.7	27.3	34.3	dB

Results

LASeq	48.7		
LASE	84.3		
EAS	29.675	µPa²h	
EAS8	237.403	µPa²h	
EAS40	1.187	mPa²h	
LZSpeak (max)	2021-04-01 09:59:41	86.5	dB
LASmax	2021-04-01 09:50:22	65.5	dB
LASmin	2021-04-01 10:48:08	42.3	dB
SEA	-99.94	dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZSpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZSpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LZSpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

LCSeq	64.5	dB
LASeq	48.7	dB
LCSeq - LASeq	15.8	dB
LAIeq	51.4	dB
LAeq	48.7	dB
LAIeq - LAeq	2.7	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	48.7					
LS(max)	65.5	2021/04/01 9:50:22				
LS(min)	42.3	2021/04/01 10:48:08				
LPeak(max)					86.5	2021/04/01 9:59:41

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Dose Settings

Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.94	-99.94	dB
TWA (t)	-99.94	-99.94	dB
Lep (t)	39.7	39.7	dB

Statistics

LAI2.50	53.2	dB
LAI8.00	50.8	dB
LAI10.00	50.4	dB
LAI25.00	48.8	dB
LAI50.00	47.3	dB
LAI90.00	45.0	dB

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 1 Bridge Rail Replacement

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
N. Temporary Work Platfc	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	2800	0
Crane	No	16		80.6	2800	0
Impact Pile Driver	Yes	20		101.3	2800	0
Welder / Torch	No	40		74	2800	0
Concrete Saw	No	20		89.6	2800	0
Excavator	No	40		80.7	2800	0
Dozer	No	40		81.7	2800	0
Roller	No	20		80	2800	0
Man Lift	No	20		74.7	2800	0

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		45.6	37.6
Crane		45.6	37.6
Impact Pile Driver		66.3	59.3
Welder / Torch		39	35.1
Concrete Saw		54.6	47.6
Excavator		45.7	41.8
Dozer		46.7	42.7
Roller		45	38
Man Lift		39.7	32.7
	Total	**66.3**	**59.9**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 2a Underpass Construction BNSF ROW

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	60	0
Front End Loader	No	40		79.1	60	0
Compressor (air)	No	40		77.7	60	0
Compressor (air)	No	40		77.7	60	0
Man Lift	No	20		74.7	60	0
Man Lift	No	20		74.7	60	0
Impact Pile Driver	Yes	20		101.3	130	0
Crane	No	16		80.6	60	0

Calculated (dBA)

Equipment		*Lmax	Leq
Generator		79	76
Front End Loader		77.5	73.5
Compressor (air)		76.1	72.1
Compressor (air)		76.1	72.1
Man Lift		73.1	66.1
Man Lift		73.1	66.1
Impact Pile Driver		93	86
Crane		79	71
	Total	**93**	**87.1**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 2a Underpass Construction BNSF ROW @ 270 Feet

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	310	0
Front End Loader	No	40		79.1	310	0
Compressor (air)	No	40		77.7	310	0
Compressor (air)	No	40		77.7	310	0
Man Lift	No	20		74.7	310	0
Man Lift	No	20		74.7	310	0
Impact Pile Driver	Yes	20		101.3	130	0
Crane	No	16		80.6	310	0

		Calculated (dBA)	
Equipment		*Lmax	Leq
Generator		64.8	61.8
Front End Loader		63.3	59.3
Compressor (air)		61.8	57.8
Compressor (air)		61.8	57.8
Man Lift		58.9	51.9
Man Lift		58.9	51.9
Impact Pile Driver		93	86
Crane		64.7	56.7
	Total	**93**	**86**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 2b Earthwork and Tractwork BNSF ROW 2 25 Feet

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	60	0
Dozer	No	40		81.7	60	0
Excavator	No	40		80.7	60	0
Excavator	No	40		80.7	60	0
Dump Trucks 80% to represent 20 trucks	No	80		76.5	60	0
Compactor (ground)	No	20	80		60	0
Compactor (ground)	No	20	80		60	0
Welder / Torch	No	40		74	60	0
Generator	No	50		80.6	60	0
Front End Loader	No	40		79.1	60	0
Front End Loader	No	40		79.1	60	0
Compressor (air)	No	40		77.7	60	0
Compressor (air)	No	40		77.7	60	0
Man Lift	No	20		74.7	60	0
Man Lift	No	20		74.7	60	0

Calculated (dBA)

Equipment	*Lmax	Leq
Dozer	80.1	76.1
Dozer	80.1	76.1
Excavator	79.1	75.1
Excavator	79.1	75.1
Dump Trucks 80% to represent 20 trucks	74.9	73.9
Compactor (ground)	78.4	71.4
Compactor (ground)	78.4	71.4
Welder / Torch	72.4	68.4
Generator	79	76
Front End Loader	77.5	73.5
Front End Loader	77.5	73.5
Compressor (air)	76.1	72.1
Compressor (air)	76.1	72.1
Man Lift	73.1	66.1
Man Lift	73.1	66.1
Total	**80.1**	**85.2**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 2b Earthwork and Tractwork BNSF ROW @ 270 Feet

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	310	0
Dozer	No	40		81.7	310	0
Excavator	No	40		80.7	310	0
Excavator	No	40		80.7	310	0
Dump Trucks 80% to represent 20 trucks	No	80		76.5	310	0
Compactor (ground)	No	20	80		310	0
Compactor (ground)	No	20	80		310	0
Welder / Torch	No	40		74	310	0
Generator	No	50		80.6	310	0
Front End Loader	No	40		79.1	310	0
Front End Loader	No	40		79.1	310	0
Compressor (air)	No	40		77.7	310	0
Compressor (air)	No	40		77.7	310	0
Man Lift	No	20		74.7	310	0
Man Lift	No	20		74.7	310	0

		Calculated (dBA)	
Equipment		*Lmax	Leq
Dozer		65.8	61.8
Dozer		65.8	61.8
Excavator		64.9	60.9
Excavator		64.9	60.9
Dump Trucks 80% to represent 20 trucks		60.7	59.7
Compactor (ground)		64.2	57.2
Compactor (ground)		64.2	57.2
Welder / Torch		58.2	54.2
Generator		64.8	61.8
Front End Loader		63.3	59.3
Front End Loader		63.3	59.3
Compressor (air)		61.8	57.8
Compressor (air)		61.8	57.8
Man Lift		58.9	51.9
Man Lift		58.9	51.9
	Total	**65.8**	**71**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Mitigated Phase 2b Earthwork and Tractwork BNSF ROW at 25 Feet

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer 80	No	40		80	95	0
Dozer 80	No	40		80	95	0
Excavator	No	40		80.7	95	0
Excavator	No	40		80.7	95	0
Dump Trucks 80% to represent 20 trucks	No	80		76.5	95	0
Compactor (ground)	No	20	80		95	0
Compactor (ground)	No	20	80		95	0
Welder / Torch	No	40		74	95	0
Generator	No	50		80.6	95	10
Front End Loader	No	40		79.1	95	0
Front End Loader	No	40		79.1	95	0
Compressor (air)	No	40		77.7	95	10
Compressor (air)	No	40		77.7	95	10
Man Lift	No	20		74.7	95	0
Man Lift	No	20		74.7	95	0

		Calculated (dBA)	
Equipment		*Lmax	Leq
Dozer 80		74.4	70.4
Dozer 80		74.4	70.4
Excavator		75.1	71.2
Excavator		75.1	71.2
Dump Trucks 80% to represent 20 trucks		70.9	70
Compactor (ground)		74.4	67.4
Compactor (ground)		74.4	67.4
Welder / Torch		68.4	64.4
Generator		65.1	62
Front End Loader		73.5	69.6
Front End Loader		73.5	69.6
Compressor (air)		62.1	58.1
Compressor (air)		62.1	58.1
Man Lift		69.1	62.1
Man Lift		69.1	62.1
	Total	**75.1**	**79.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 2c Earthwork and Track Construction-Port

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Earthwork & Trackwork	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	285	0
Excavator	No	40		80.7	285	0
Dump Trucks 80% to represent 20 trucks	No	80		76.5	285	0
Welder / Torch	No	40		74	285	0
Generator	No	50		80.6	285	0
Front End Loader	No	40		79.1	285	0
Front End Loader	No	40		79.1	285	0
Compressor (air)	No	40		77.7	285	0
Compressor (air)	No	40		77.7	285	0
Man Lift	No	20		74.7	285	0

Calculated (dBA)

Equipment	*Lmax	Leq
Excavator	65.6	61.6
Excavator	65.6	61.6
Dump Trucks 80% to represent 20 trucks	61.4	60.4
Welder / Torch	58.9	54.9
Generator	65.5	62.5
Front End Loader	64	60
Front End Loader	64	60
Compressor (air)	62.6	58.6
Compressor (air)	62.6	58.6
Man Lift	59.6	52.6
Total	**65.6**	**69.9**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/6/2021
Case Description: Phase 3 Port Yard Improvements

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
McCloy Yard	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer (4)	No	40		87.7	2350	0
Dump Truck 80% to represent 20 trucks	No	80		76.5	2350	0
Excavator	No	40		80.7	2350	0
Excavator	No	40		80.7	2350	0
Compactors (4)	No	20		89.2	2350	0
Welders (4)	No	40		80	2350	0
Generator	No	50		80.6	2350	0
Generator	No	50		80.6	2350	0
Front End Loader	No	40		79.1	2350	0
Front End Loader	No	40		79.1	2350	0
Compressor (air)	No	40		77.7	2350	0
Compressor (air)	No	40		77.7	2350	0
Man Lift	No	20		74.7	2350	0
Man Lift	No	20		74.7	2350	0

	Calculated (dBA)	
Equipment	*Lmax	Leq
Dozer (4)	54.3	50.3
Dump Truck 80% to represent 20 trucks	43.1	42.1
Excavator	47.3	43.3
Excavator	47.3	43.3
Compactors (4)	55.8	48.8
Welders (4)	46.6	42.6
Generator	47.2	44.2
Generator	47.2	44.2
Front End Loader	45.7	41.7
Front End Loader	45.7	41.7
Compressor (air)	44.2	40.2
Compressor (air)	44.2	40.2
Man Lift	41.3	34.3
Man Lift	41.3	34.3
Total	**55.8**	**55.6**

*Calculated Lmax is the Loudest value.

Construction Scenario: Pile Driving Alone

8-Hour Leq	
Time	**1Hr Leq**
7:00 AM	87.0
8:00 AM	87.0
9:00 AM	87.0
10:00 AM	87.0
11:00 AM	87.0
Ambient	52.7
1:00 PM	87.0
2:00 PM	87.0
8 Hr Leq	**86**

Ldn		
Hour	**Leq**	**With Penalty**
Ambient	57.8	67.83672
Ambient	55.2	65.23178
Ambient	56.0	65.95206
Ambient	56.1	66.14732
Ambient	57.3	67.3134
Ambient	56.3	66.284
Ambient	59.3	69.3
7:00-8:00	87.0	87
8:00-9:00	87.0	87
9:00-10:00	87.0	87
10:00-11:00	87.0	87
11:00-12:00	87.0	87
LUNCH	52.7	52.65026
1:00-2:00	87.0	87
2:00-3:00	87.0	87
3:00-4:00	87.0	87
Ambient	55.3	55.26924
Ambient	53.2	53.21861
Ambient	50.8	50.82623
Ambient	54.0	54.0
Ambient	56.4	56.4
Ambient	54.9	54.9
Ambient	53.8	63.75014
Ambient	54.0	64.03848
	Ldn	**82**

Construction Scenario: Phase 1 Rail Bridge Replacement

8-Hour Leq		Ldn		
Time	**1Hr Leq**	**Hour**	**Leq**	**With Penalty**
7:00 AM	60.0	Ambient	57.8	67.83672
8:00 AM	60.0	Ambient	55.2	65.23178
9:00 AM	60.0	Ambient	56.0	65.95206
10:00 AM	60.0	Ambient	56.1	66.14732
11:00 AM	60.0	Ambient	57.3	67.3134
Ambient	52.7	Ambient	56.3	66.284
1:00 PM	60.0	Ambient	59.3	69.3
2:00 PM	60.0	7:00-8:00	60.0	60
		8:00-9:00	60.0	60
8 Hr Leq	**60**	9:00-10:00	60.0	60
		10:00-11:00	60.0	60
		11:00-12:00	60.0	60
		LUNCH	52.7	52.65026
		1:00-2:00	60.0	60
		2:00-3:00	60.0	60
		3:00-4:00	60.0	60
		Ambient	55.3	55.26924
		Ambient	53.2	53.21861
		Ambient	50.8	50.82623
		Ambient	54.0	54.0
		Ambient	56.4	56.4
		Ambient	54.9	54.9
		Ambient	53.8	63.75014
		Ambient	54.0	64.03848
			Ldn	**63**

Construction Scenario: Phase 2a at 25 Feet

8-Hour Leq		Ldn		
Time	**1Hr Leq**	**Hour**	**Leq**	**With Penalty**
7:00 AM	87.0	Ambient	57.8	67.83672
8:00 AM	87.0	Ambient	55.2	65.23178
9:00 AM	87.0	Ambient	56.0	65.95206
10:00 AM	87.0	Ambient	56.1	66.14732
11:00 AM	87.0	Ambient	57.3	67.3134
Ambient	52.7	Ambient	56.3	66.284
1:00 PM	87.0	Ambient	59.3	69.3
2:00 PM	87.0	7:00-8:00	87.0	87
		8:00-9:00	87.0	87
8 Hr Leq	**86**	9:00-10:00	87.0	87
		10:00-11:00	87.0	87
		11:00-12:00	87.0	87
		LUNCH	52.7	52.65026
		1:00-2:00	87.0	87
		2:00-3:00	87.0	87
		3:00-4:00	87.0	87
		Ambient	55.3	55.26924
		Ambient	53.2	53.21861
		Ambient	50.8	50.82623
		Ambient	54.0	54.0
		Ambient	56.4	56.4
		Ambient	54.9	54.9
		Ambient	53.8	63.75014
		Ambient	54.0	64.03848
			Ldn	**82**

Construction Scenario: Phase 2a @ 270 Feet

8-Hour Leq		Ldn		
Time	**1Hr Leq**	**Hour**	**Leq**	**With Penalty**
7:00 AM	86.0	Ambient	57.8	67.83672
8:00 AM	86.0	Ambient	55.2	65.23178
9:00 AM	86.0	Ambient	56.0	65.95206
10:00 AM	86.0	Ambient	56.1	66.14732
11:00 AM	86.0	Ambient	57.3	67.3134
Ambient	52.7	Ambient	56.3	66.284
1:00 PM	86.0	Ambient	59.3	69.3
2:00 PM	86.0	7:00-8:00	86.0	86
		8:00-9:00	86.0	86
8 Hr Leq	**85**	9:00-10:00	86.0	86
		10:00-11:00	86.0	86
		11:00-12:00	86.0	86
		LUNCH	52.7	52.65026
		1:00-2:00	86.0	86
		2:00-3:00	86.0	86
		3:00-4:00	86.0	86
		Ambient	55.3	55.26924
		Ambient	53.2	53.21861
		Ambient	50.8	50.82623
		Ambient	54.0	54.0
		Ambient	56.4	56.4
		Ambient	54.9	54.9
		Ambient	53.8	63.75014
		Ambient	54.0	64.03848
			Ldn	**81**

Construction Scenario: Phase 2b at 25 Feet

8-Hour Leq	
Time	**1Hr Leq**
7:00 AM	85.0
8:00 AM	85.0
9:00 AM	85.0
10:00 AM	85.0
11:00 AM	85.0
Ambient	52.7
1:00 PM	85.0
2:00 PM	85.0
8 Hr Leq	**84**

Ldn		
Hour	**Leq**	**With Penalty**
Ambient	57.8	67.83672
Ambient	55.2	65.23178
Ambient	56.0	65.95206
Ambient	56.1	66.14732
Ambient	57.3	67.3134
Ambient	56.3	66.284
Ambient	59.3	69.3
7:00-8:00	85.0	85
8:00-9:00	85.0	85
9:00-10:00	85.0	85
10:00-11:00	85.0	85
11:00-12:00	85.0	85
LUNCH	52.7	52.65026
1:00-2:00	85.0	85
2:00-3:00	85.0	85
3:00-4:00	85.0	85
Ambient	55.3	55.26924
Ambient	53.2	53.21861
Ambient	50.8	50.82623
Ambient	54.0	54.0
Ambient	56.4	56.4
Ambient	54.9	54.9
Ambient	53.8	63.75014
Ambient	54.0	64.03848
	Ldn	**80**

Construction Scenario:Phase 2b @ 270 Feet

8-Hour Leq	
Time	**1Hr Leq**
7:00 AM	71.0
8:00 AM	71.0
9:00 AM	71.0
10:00 AM	71.0
11:00 AM	71.0
Ambient	52.7
1:00 PM	71.0
2:00 PM	71.0
8 Hr Leq	**70**

Ldn		
Hour	**Leq**	**With Penalty**
Ambient	57.8	67.83672
Ambient	55.2	65.23178
Ambient	56.0	65.95206
Ambient	56.1	66.14732
Ambient	57.3	67.3134
Ambient	56.3	66.284
Ambient	59.3	69.3
7:00-8:00	71.0	71
8:00-9:00	71.0	71
9:00-10:00	71.0	71
10:00-11:00	71.0	71
11:00-12:00	71.0	71
LUNCH	52.7	52.65026
1:00-2:00	71.0	71
2:00-3:00	71.0	71
3:00-4:00	71.0	71
Ambient	55.3	55.26924
Ambient	53.2	53.21861
Ambient	50.8	50.82623
Ambient	54.0	54.0
Ambient	56.4	56.4
Ambient	54.9	54.9
Ambient	53.8	63.75014
Ambient	54.0	64.03848
	Ldn	**68**

Construction Scenario: Phase 2b at 70 Feet Mitigated

8-Hour Leq		Ldn		
Time	**1Hr Leq**	**Hour**	**Leq**	**With Penalty**
7:00 AM	80.0	Ambient	57.8	67.83672
8:00 AM	80.0	Ambient	55.2	65.23178
9:00 AM	80.0	Ambient	56.0	65.95206
10:00 AM	80.0	Ambient	56.1	66.14732
11:00 AM	80.0	Ambient	57.3	67.3134
Ambient	52.7	Ambient	56.3	66.284
1:00 PM	80.0	Ambient	59.3	69.3
2:00 PM	80.0	7:00-8:00	80.0	80
		8:00-9:00	80.0	80
8 Hr Leq	**79**	9:00-10:00	80.0	80
		10:00-11:00	80.0	80
		11:00-12:00	80.0	80
		LUNCH	52.7	52.65026
		1:00-2:00	80.0	80
		2:00-3:00	80.0	80
		3:00-4:00	80.0	80
		Ambient	55.3	55.26924
		Ambient	53.2	53.21861
		Ambient	50.8	50.82623
		Ambient	54.0	54.0
		Ambient	56.4	56.4
		Ambient	54.9	54.9
		Ambient	53.8	63.75014
		Ambient	54.0	64.03848
			Ldn	**75**

Construction Scenario: Phase 2c

8-Hour Leq	
Time	**1Hr Leq**
7:00 AM	70.0
8:00 AM	70.0
9:00 AM	70.0
10:00 AM	70.0
11:00 AM	70.0
Ambient	52.7
1:00 PM	70.0
2:00 PM	70.0
8 Hr Leq	**69**

Ldn		
Hour	**Leq**	**With Penalty**
Ambient	57.8	67.83672
Ambient	55.2	65.23178
Ambient	56.0	65.95206
Ambient	56.1	66.14732
Ambient	57.3	67.3134
Ambient	56.3	66.284
Ambient	59.3	69.3
7:00-8:00	70.0	70
8:00-9:00	70.0	70
9:00-10:00	70.0	70
10:00-11:00	70.0	70
11:00-12:00	70.0	70
LUNCH	52.7	52.65026
1:00-2:00	70.0	70
2:00-3:00	70.0	70
3:00-4:00	70.0	70
Ambient	55.3	55.26924
Ambient	53.2	53.21861
Ambient	50.8	50.82623
Ambient	54.0	54.0
Ambient	56.4	56.4
Ambient	54.9	54.9
Ambient	53.8	63.75014
Ambient	54.0	64.03848
	Ldn	**67**

Construction Scenario: Phase 3 Port Yard Improvements

8-Hour Leq		Ldn		
Time	**1Hr Leq**	**Hour**	**Leq**	**With Penalty**
7:00 AM	55.6	Ambient	57.8	67.83672
8:00 AM	55.6	Ambient	55.2	65.23178
9:00 AM	55.6	Ambient	56.0	65.95206
10:00 AM	55.6	Ambient	56.1	66.14732
11:00 AM	55.6	Ambient	57.3	67.3134
Ambient	52.7	Ambient	56.3	66.284
1:00 PM	55.6	Ambient	59.3	69.3
2:00 PM	55.6	7:00-8:00	55.6	55.6
		8:00-9:00	55.6	55.6
8 Hr Leq	**55**	9:00-10:00	55.6	55.6
		10:00-11:00	55.6	55.6
		11:00-12:00	55.6	55.6
		LUNCH	52.7	52.65026
		1:00-2:00	55.6	55.6
		2:00-3:00	55.6	55.6
		3:00-4:00	55.6	55.6
		Ambient	55.3	55.26924
		Ambient	53.2	53.21861
		Ambient	50.8	50.82623
		Ambient	54.0	54.0
		Ambient	56.4	56.4
		Ambient	54.9	54.9
		Ambient	53.8	63.75014
		Ambient	54.0	64.03848
			Ldn	**63**

FHWA Sound32 Spreadsheet

750 Heavy Trucks

at 25 Feet

	DAYTIME			NIGHTTIME				
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	ADT	750.00
							SPEED	25.00
							DISTANCE	25.00
INPUT PARAMETERS								
Vehicles per hour	0.00	0.00	15.63	0.00	0.00	15.63	% A	0.00
Speed in MPH	25.00	25.00	25.00	25.00	25.00	25.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	% MT	0.00
NOISE CALCULATIONS								
Reference levels	59.44	71.09	77.24	59.44	71.09	77.24	% HT	100.00
ADJUSTMENTS								
Flow	-42.35	-42.35	7.65	-42.35	-42.35	7.65		
Distance	2.94	2.94	2.94	2.94	2.94	2.94	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	Ldn	69.24
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	62.83
LEQ	-4.97	6.68	62.83	-4.97	6.68	62.83	Day hour	89.00
							Absorbtive?	no
	DAY LEQ	62.83		NIGHT LEQ	62.83		Use hour?	no
	Ldn		69.24					

Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project

Case: Port of Stockton New LLDT

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	64	57	57
Source 1	62	56	56
Source 2	58	52	52
Source 3	0	0	0
Source 4	0	0	0
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS						
Parameter	**Source 1**		**Source 2**		**Source 3**	
Source Num.	Freight Locomotive	9	Freight Cars	10		
Distance (source to receiver)	distance (ft)	94	distance (ft)	94		
Daytime Hours	speed (mph)	30	speed (mph)	30		
(7 AM - 10 PM)	trains/hour	0.15	trains/hour	0.15		
	locos/train	0.15	length of cars (ft) / train	500		
Nighttime Hours	speed (mph)	30	speed (mph)	30		
(10 PM - 7 AM)	trains/hour	0.15	trains/hour	0.15		
	locos/train	0.15	length of cars (ft) / train	500		
Wheel Flats?		Y	% of cars w/ wheel flats	Y		
Jointed Track?	Y/N	Y	Y/N	Y		
Embedded Track?	Y/N	Y	Y/N	Y		
Aerial Structure?	Y/N	N	Y/N	N		
Barrier Present?	Y/N	N	Y/N	N		
Intervening Rows of of Buildings	number of rows		number of rows			