



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



Final Initial Study/Mitigated Negative Declaration for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project

State Clearinghouse No. 2021060578

Prepared for
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1 Final Initial Study/Mitigated Negative Declaration

This Final Initial Study/Mitigated Negative Declaration (IS/MND) is being prepared pursuant to the California Environmental Quality Act (CEQA; Division 13, California Public Resources Code [PRC]). This Final IS/MND meets CEQA content requirements by including a project description; descriptions of the existing 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.

1.1 Proposed Project

The Port of Stockton (Port) has prepared this IS/MND to address the environmental effects of replacing a functionally obsolete rail bridge and constructing a new lead track to increase the overall efficiency of train operations within the Port. The Port is the lead agency for the proposed project under CEQA. 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 the City of Stockton and San Joaquin County right-of-way adjacent to Ventura Avenue and West Scotts Avenue. 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.

1.2 Determination

Based on the analysis provided in this Final IS/MND, the Port finds that the proposed project would not have a significant effect on the environment with mitigation incorporated. The Final IS/MND considers all public comments and includes text edits that clarify or expand upon discussions in the Draft IS/MND. Several mitigation measures were modified in the Final IS/MND to respond to agency comments and expand upon the effectiveness of the mitigation measures. The Port finds that the updated mitigation measures will more effectively reduce potential resources impacts and that they will not cause any potentially significant effects on the environment. There were no modifications to the document that constitute a significant change or significant new information. Therefore, recirculation is not required.

1.3 Final IS/MND Organization

This Final IS/MND has been prepared in accordance with the requirements of CEQA (PRC Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq.), and it includes the following:

- Section 1: An introduction to the Final IS/MND, including the Port's findings
- Section 2: A summary of public and agency comments received on the Draft IS/MND, including details on distribution of the Draft IS/MND and acknowledgement or responses to comments received
- Section 3: Modifications to the Draft IS/MND (none of which affect the impact determinations presented in the Draft IS/MND)
 - Several mitigation measures from the Draft IS/MND were modified in the Final IS/MND to include additional information that increases their effectiveness in response to agency comments.
 - Based on agency comments and while not required to avoid significant impacts, several mitigation measures were added in the Final IS/MND for impact findings that were already found to be less than significant in both the Draft and Final IS/MND to further reduce the potential for impacts.
- Section 4: A summary of mitigation measures
- Section 5: References for cited information in this document

2 Public and Agency Comments

2.1 Distribution of the Draft IS/MND

In accordance with the CEQA statutes and Guidelines, the Draft IS/MND was circulated for the minimum period of 30 days for public review and comment. The review period began on Friday, June 25, 2021, and ended on Monday, July 26, 2021, for a total comment period of 31 days.

The Draft IS/MND was available for review at the Port of Stockton (2201 West Washington Street, Stockton, California 95203), and an electronic copy of the Draft IS/MND was available for review at <https://www.portofstockton.com/ceqa-documents/>. In addition, the Draft IS/MND was filed with the State Clearinghouse (No. 2021060578) and San Joaquin County Clerk.

2.2 Comments and Responses on the Draft IS/MND

During the public review period, responsible agencies and the public had an opportunity to provide written comments on the information contained within the Draft IS/MND. These comments and responses are included in the record and will be considered by the Port during deliberation as to whether necessary approvals should be granted for the proposed project. As stated in Section 21064.5 of the CEQA Guidelines, a project would only be approved when the Port finds that “revisions in the project plans made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur” and “there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.”

The Port received seven comment letters or emails during the review period from the following entities:

- The California Department of Fish and Wildlife (CDFW) submitted a letter dated July 26, 2021.
- The California State Lands Commission (CSLC) submitted a letter dated July 26, 2021.
- The Central Valley Regional Water Quality Control Board (CVRWQCB) submitted a letter dated July 23, 2021.
- John Stagnaro with the San Joaquin Valley Air Pollution Control District (SJVAPCD) submitted an email dated July 1, 2021.
- The San Joaquin County Environmental Health Department (SJCEHD) submitted a letter dated July 20, 2021.
- SJVAPCD submitted a letter dated July 23, 2021.
- The U.S. Coast Guard (USCG) submitted a letter dated July 15, 2021.

The comment letters and email are included as Appendix A. The Port acknowledges the comments included with these correspondences, and the following subsections summarize key comments and responses. Several comments pertain to other regulatory approval processes to be completed for the proposed project by CEQA responsible or federal agencies, while others pertain to specific CEQA resource topics and associated reporting; comments and responses are organized in this Final IS/MND according to these topics. The comments received and responses provided herein do not affect the findings presented in the Draft IS/MND.

2.2.1 Other Regulatory Approval Processes

CSLC confirmed the Port's finding that a tidelands lease is required for the proposed project, consistent with the information presented in Table 1 (Regulatory Agencies and Authority) of the Draft IS/MND. CSLC commented that a Mitigation Monitoring Program, list of mitigation measures that apply to land under CSLC jurisdiction, summary of environmental justice outreach and outcomes, and a summary of tribal cultural resources or consultations must be provided with the CSLC lease application for the proposed project. The Port acknowledges this comment and will provide all of the requested information as part of the CSLC lease application for the proposed project.

CSLC also requested revisions to Figure 5b. Per CSLC's request, the Port added a compass and legend to Figure 5b and included it in Section 3 (revisions to Section 2.4 of the Draft IS/MND). CSLC also requested that the mean high tide line be added to Figure 5b; however, the background in Figure 5b is an aerial photograph and the water elevation at the time the aerial photograph was taken is unknown, so the mean high tide line cannot be accurately added. Regardless, removal of the existing bridge and installation of the new bridge will include work in the San Joaquin River that is certainly below the mean high tide line. Preliminary plan sheets are provided in Appendix B, depicting the general arrangement of the conceptual design and preliminary estimated water elevation information. The channel bathymetry and water elevations will be confirmed in future project design stages. The Port will provide detailed plans showing the requested water elevation information as part of the CSLC lease application.

CDFW confirmed that the proposed project may require a Lake or Streambed Alteration Agreement (SAA). The Port acknowledges this comment and notes this assumption is consistent with Table 1 of the Draft IS/MND. The Port will submit an SAA application to CDFW after 30% design is complete.

USCG confirmed their preliminary support for the proposed replacement of the existing swing bridge with a removable span bridge. The proposed project will require a USCG Bridge Permit, and USCG will also serve as the lead federal agency under the National Environmental Policy Act (NEPA). Additional detail has been added to Table 1 in Section 3 (revisions to Section 1.2 of the Draft IS/MND) to clarify the future approvals needed for the proposed project from USCG. USCG indicated

that they will need sufficient information on the proposed project to complete the NEPA documentation as well as a list of other permitting agencies and adjacent property owners. The Port will provide this information to USCG prior to commencing the NEPA review process.

CVRWQCB shared information about Basin Plans, and also commented that a Water Quality Certification, a Construction General Permit, and a Section 404 permit may be required for the proposed project. As noted in Table 1 of the Draft IS/MND, the proposed project is expected to require a 401 Water Quality Certification and a National Pollutant Discharge Elimination System (NPDES) Construction General Permit from CVRWQCB. Table 1 also notes that the proposed project may require a permit under the Clean Water Act from the U.S. Army Corps of Engineers (USACE). CVRWQCB also commented that wastewater discharge must comply with the Antidegradation Policy as part of the NPDES permitting process. The Port acknowledges this comment and will follow all permitting requirements associated with obtaining an NPDES Construction General Permit.

CVRWQCB commented that if USACE determines that only non-jurisdictional waters of the State are present, the proposed project may require a Waste Discharge Requirement permit. The Port acknowledges this comment.

2.2.2 Project Description

CSLC requested additional details about the in-water work elements proposed as part of the proposed project, including description of the structural integrity of the existing piles, pile removal methods, turbidity management measures, and identification of whether a cofferdam is anticipated to be required. CSLC stated their preference for full pile removal, or if not possible, cutting piles 5 feet below the mudline. The Port acknowledges this comment and will attempt to fully remove all piles with a crane and vibratory hammer. If full removal is not possible with this method, cutting piles below the mudline may be required. For the recent nearby project to replace the Navy Drive Bridge (upstream of the rail bridge), the CSLC lease required removal to a minimum depth of 3 feet below the existing mudline. The area of the San Joaquin River where the proposed project is located is not subject to substantial erosion and is not actively dredged. Because of these conditions and prior lease terms, we have proposed a minimum removal depth of 3 feet below the mudline. Note the foundation for the central swing pier will be removed to at least a depth of -19 feet National Geodetic Vertical Datum of 1929 (NGVD 29) to meet USCG requirements for navigation in the channel. If piles associated with the concrete swing pier cannot be removed with a crane, up to 20 feet of excavation and use of a cofferdam may be required to meet these requirements. The Port has added information responding to these comments to Section 3 (revised Section 2.5.2 of the Draft IS/MND).

CSLC also asked about the resiliency of the new bridge to rising sea levels. The elevation of the new bridge would be resilient to predicted medium- to high-risk sea level rise projections. The Port has

also added information responding to this comment to Section 3 (revised Section 2.5.2 of the Draft IS/MND).

2.2.3 Environmental Factors Potentially Affected

CSLC requested that the Port mark page 33 of the Draft IS/MND to show the resource areas that would be potentially impacted by the proposed project. The Port disagrees with this comment, as the text states that 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.” The proposed project would not result in any residually significant environmental impacts after incorporation of mitigation measures; therefore, no environmental factors should be checked on this page.

2.2.4 Air Quality

Comments were received from SJVAPCD with recommendations for emission reduction strategies as part of Assembly Bill (AB) 617 efforts, including enhanced community participation in land use processes, heavy-duty (HHD) truck rerouting analyses, reduction in HHD truck idling, newer and clean technology for locomotives, and incorporation of vegetative barriers and urban greening. The proposed project will comply with all anti-idling regulations, including those set forth in 13 CCR 2485 and 2480. 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. Additional information on implementation of the AB 617 legislation is also included in the Draft IS/MND Section 1.3.1.2. While impacts associated with the proposed project are less than the significance criteria issued by SJVAPCD and thus mitigation measures such as those suggested by SJVAPCD are not required, the Port has incorporated the suggested mitigation measures into this Final IS/MND (revisions to Section 3.3.3.2 of the Draft IS/MND) to further the goals of the Port’s environmental program and AB 617 efforts.

Comments were received from SJVAPCD with revisions and recommendations for the health risk assessment. In response, the exposure parameters were revised to comply with SJVAPCD’s policy APR-1906 (Framework for Performing Health Risk Assessments), and a risk evaluation was added to account for on-site workers at the Port. These revisions are reflected in Section 3 (revisions to Section 3.3.3.2 of the Draft IS/MND) and Appendix C of this Final IS/MND.

SJVAPCD requested that worker receptors be analyzed at the recreational receptor locations. The health risk assessment was revised to consider worker exposure on the recreational receptor locations; these receptors and parameters do not alter the maximally impacted individual receptors as shown in Appendix C. SJVAPCD also requested all assumptions, emission factors, calculation methodologies, and modeling files be provided for review. These files have been provided to the SJVAPCD to assist in their review, and the information needed to recreate the analysis was also

provided in the Draft IS/MND. In addition, clarification has been added to Appendix C of this Final IS/MND as needed.

SJVAPCD requested clarification of the following items related to the modeling:

- Validity of Linux version of AERMOD: Each version of AERMOD that is downloaded from the U.S. Environmental Protection Agency (USEPA) Support Center for Regulatory Atmospheric Modeling (SCRAM) website is verified through a series of detailed checks.
- Modeling of locomotive idling as area source: Idling regions at the proposed project site were modeled as area sources to account for uncertainty in their location. The Roseville Railyard Study modeled idling as a point source, which assumes that the locomotive's location is static. An area source is more closely aligned with a locomotive's actual non-static activity. Despite the emissions being modeled as spread over areas rather than from a single geographic point, these area sources still represent a conservative approach to the modeling because the additional dispersion found in point sources from buoyancy and vertical momentum are not included in area sources.
- Normalization of TRACK01-06 modeled emission rates: Based on the available data, proposed project emissions were calculated for all rail improvement activities combined. Thus, a normalized emission rate was calculated across all tracks within the East Complex improvement area. This methodology assumes that construction emissions are constant on a per-meter squared basis, which is reasonable given the available data. The modeled area source emission rate is in grams per second per square meter (g/s/m²) and therefore, the assumption that emissions are equally spread over the tracks on a per-meter squared basis removes the influence of the size of the area source from the calculation.

SJVAPCD recommended that the Port advise freight train operators to utilize newer and cleaner technology to reduce the public's exposure to air pollutants. The Port appreciates this suggestion; however, the freight trains are operated by a separate entity, which the Port does not control, and thus the recommendation would not be feasible to implement as a requirement for operators. Furthermore, impacts are less than the significance criteria issued by SJVAPCD and thus mitigation measures, such as those suggested by the SJVAPCD, are not required.

Comments were received from SJVAPCD regarding the potential applicability of SJVAPCD rules and regulations. SJVAPCD indicated that Rule 9510 (Indirect Source Review) is not applicable to the proposed project and thus the proposed project is not subject to the requirements of the rule or associated fees. SJVAPCD indicated that the proposed project may be subject to a series of other SJVAPCD rules including Regulation VIII, Rule 4102, Rule 4601, and Rule 4641. The proposed project will comply with all applicable rules. SJVAPCD also stated that the proposed project may be subject to Rule 4002, which pertains to the renovation or demolition of an existing building. The proposed project does not involve renovation or demolition of any buildings and thus Rule 4002 is not

applicable. Finally, SJVAPCD commented that the proposed project may be subject to rules not discussed in the letter. The proposed project will comply with all applicable rules.

2.2.5 *Biological Resources*

CDFW noted that an Incidental Take Permit (ITP) would be required if the proposed project were to have the potential to result in take of species of plants or animals listed or a candidate under the California Endangered Species Act (CESA). As outlined in the Draft IS/MND and in this document, the proposed project is not anticipated to result in incidental take of CESA-listed species and an ITP is not anticipated to be required.

CDFW requested that surveys be conducted for special-status species at this time. The Port has assumed that all species with the potential to be present could be present in the project area during proposed project construction. Focused species surveys will be conducted at a time much nearer to construction. As noted by CDFW, the Port intends to obtain coverage under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) for the proposed project (as required per mitigation measure MM-BIO-1), as has been successfully completed for other recent capital improvement projects affecting SJMSCP-mapped urban, agricultural, or natural lands. That said, MM-BIO-1 also includes measures that would be undertaken should the proposed project not successfully obtain coverage under the SJMSCP. This outcome is not anticipated, and the Port has already completed pre-application coordination with the San Joaquin Council of Governments (SJCOG) regarding the proposed project.

CDFW commented that the Port should include a bioacoustics evaluation of the proposed installation of piles using an impact hammer to fully disclose potential impacts of the proposed project. In response to this comment, the Port has conducted a bioacoustics evaluation of the largest potential pile sizes proposed as part of the proposed project and added this information to Section 3 (revisions to Section 3.3.4.2 of the Draft IS/MND). In response to CDFW's request to add more underwater noise reduction measures and consistent with CEQA Guidelines Section 15074.1, the Port has substituted the previous mitigation measure MM-BIO-4 with a mitigation measure that is more effective at reducing potential underwater noise impacts on special-status aquatic species that could be present during construction (i.e., green sturgeon). The new MM-BIO-4 requires that the Port use soft-start techniques and a bubble curtain or similar noise attenuation device during impact pile driving. This measure also requires the Port prepare a noise monitoring plan, obtain agency approval of the plan prior to construction, and implement the noise monitoring program during any impact pile-driving activities.

CSLC requested that additional information be added to the IS/MND regarding the presence of Swainson's hawk; this information is provided in Section 3 (revisions to Section 3.3.4.1.3.1 of the Draft IS/MND).

CSLC and CDFW asked for more information on the potential for the proposed project to impact bats. Information on the potential for bats to be present in the project area has been added to Section 3 (new Section 3.3.4.1.3.14 of the Final IS/MND). An assessment of the proposed project's potential impacts on bats provided in Section 3 (revisions to Section 3.3.4.2 of the Draft IS/MND). CDFW suggested that additional swallow avoidance and minimization measures be implemented. In response to CDFW's request to add more bat and swallow avoidance measures and consistent with CEQA Guidelines Section 15074.1, the Port has substituted the previous mitigation measure MM-BIO-1 with a mitigation measure that would be more effective at reducing potential impacts on bats and swallows should they be present during construction. The new MM-BIO-1 in Section 3 (revisions to Section 3.3.4.2 of the Draft IS/MND) still requires that the Port obtain SJMSCP coverage, which will cover special-status bat and swallow species. In the event that the Port is unable to obtain coverage under the SJMSCP, the substituted language in MM-BIO-1 requires the Port implement specific avoidance and minimization steps in accordance with CDFW directive for bats and swallows.

CDFW suggested that further detail be added to some of the Port's mitigation measures and requested that the IS/MND be recirculated. The Draft IS/MND conservatively assumed that certain features will be considered jurisdictional wetlands by CVRWQCB and CDFW; this process will be confirmed during permitting, which is anticipated to commence in 2022. The Draft IS/MND conservatively assumed that impacts to these resources will not be avoided and mitigation measure MM-BIO-5 in the Draft IS/MND required compensatory wetland mitigation be provided for any impacts. In Section 3 (revisions to Section 3.3.4.2 of the Draft IS/MND), MM-BIO-5 has been clarified to denote where compensatory mitigation will occur and that the Port will comply with standard construction best management practices that are common for work in riparian areas. The mitigation measures described in the Draft IS/MND and clarified or substituted in this Final IS/MND address the anticipated impacts of the proposed project. The Port will consider the impact determinations and mitigation measures in determining whether to approve the proposed project. In accordance with CEQA Guidelines Section 15073.5, recirculation of an IS/MND is only required if a project results in a new significant impact; impacts on special-status aquatic species were considered potentially significant in the Draft IS/MND and reduced to a less-than-significant level with incorporation of mitigation. This impact determination remains unchanged in this Final IS/MND.

CDFW commented that any special-status species and natural communities identified during project-related surveys must be reported to the California Natural Diversity Database (CNDDDB) and that the Port must pay CEQA filing fees. The Port will report any special-status species and natural communities observed during surveys or other field efforts undertaken for the proposed project. The Port will pay the CEQA filing fees when the Notice of Determination is issued.

2.2.6 Cultural Resources

CSLC commented that the Port should evaluate potential impacts to submerged cultural resources in the project area such as shipwrecks. Records were requested in response to this comment, and no known shipwreck was found in the CSLC shipwreck database for the area. CSLC also requested revisions to the mitigation measure for inadvertent discovery of archaeological resources (MM-CULT-2). The Port has made clarifications to MM-CULT-2 in Section 3 (revisions to Section 3.3.5.2 of the Draft IS/MND) that address the intent of CSLC's comment.

2.2.7 Geology and Soils

SJCEHD stated that geotechnical drilling should be conducted under permit and inspection by the SJCEHD. The Port appreciates this comment and has added this information to Table 1 in Section 3 (revisions to Section 1.2 of the Draft IS/MND).

2.2.8 Greenhouse Gas Emissions

CSLC noted that the link to the City of Stockton Climate Action Plan (CAP) is no longer working, and requested a discussion of which aspects of the City of Stockton CAP will shape the proposed project within their jurisdiction. The Port appreciates the note of an updated link and has added the revised link to Section 3 (revisions to Section 1.4 of the Draft IS/MND). As noted in Section 3.3.8.1.2 of the Draft IS/MND, the following policies from the City of Stockton's 2040 General Plan would potentially be applicable to the proposed project; these policies also reference the CAP:

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)

While the proposed project is not a passenger project as focused on in Policy TR-3.2, enhancing rail allows for more cargo to move via rail, which is more efficient than trucks. Regarding Policy CH-5.1, the Port includes GHG emissions modeling in all documents that could be incorporated into the City's efforts. In consideration of Policy CH-5.2, the Port has added a requirement to promote construction recycling to Section 3 (revisions to Section 3.3.8.2 of the Draft IS/MND).

2.2.9 Hydrology and Water Quality

SJCEHD commented that no excavations are permitted into the groundwater table without approval from CVRWQCB. As noted in Table 1 of the Draft IS/MND, the Port will apply for permits from CVRWQCB prior to construction of the proposed project. SJCEHD additionally commented that, in accordance with California Water Code, Section 13376, excavated material must not be deposited into any watercourse or in any way contribute to the pollution thereof. Excavated material is not proposed to be deposited in watercourses as part of the proposed project.

2.2.10 Recreation

CSLC commented that the bed of the San Joaquin River is State-owned public land and recommended that the IS/MND require public notice of the proposed project and discussion of temporary public access and recreational impacts, including navigation impacts within the San Joaquin River. As noted in the Draft IS/MND, the Port's public participation process ensures that interested persons are informed and have the opportunity to provide input. For the proposed project, the Port provided public notice of availability of the Draft IS/MND through the following means:

- Posting a legal notice in *The Record*
- Sending letters and/or emails to adjacent property owners, agencies, tribes, and interested parties
- Providing notice through the State Clearinghouse and San Joaquin County Clerk
- Holding a virtual public meeting
- Making the Draft IS/MND available for print copy review through request from the Port or for electronic review at <https://www.portofstockton.com/ceqa-documents/>

The Port will also make this Final IS/MND available to the public and will maintain updates on the website previously noted.

USCG also provided preliminary public notice of the proposed project on March 23, 2021. The USCG notice requested that mariners comment on navigational access and safety issues and requested information from commercial and recreational vessel operators. An online copy of the notice can be found at https://www.navcen.uscg.gov/pdf/bridges/publicNotices//D11_PN11-157_PortOfStocktonRRBridge_SanJoaquinRiver.pdf. Ongoing NEPA and other regulatory approval processes will likely involve additional future public notices and opportunities for public input.

As noted in Section 3.3.16.1 of the Draft IS/MND, 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. Temporary construction areas will be appropriately marked for safety using navigational aids, and recreational users are expected to have ample alternate recreational opportunities nearby in Burns Cutoff or other portions of the San Joaquin River during construction restrictions for the proposed project.

3 Modifications to the Draft IS/MND

This section of the Final IS/MND documents changes and additions made to the Draft IS/MND to clarify or add information. This includes the additional information provided in Section 2 in response to public comments, clarification that construction mitigation measures have already been implemented, and the removal of erroneous text from a mitigation measure. Only paragraphs, tables, or figures wherein text was deleted or added are included in this section. The symbol "[...]" denotes where a paragraph(s) is skipped between others that contain edits. Deleted text is marked as ~~strikeout~~ and new text is marked as underlined. Table and section references included in the following text refer to respective items from the Draft IS/MND. Appendix references included in the following text refer to the materials that are attached to this Final IS/MND.

Section 1.2 Lead Responsible and Trustee Agencies

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>The proposed project is expected to require a Coast Guard Bridge Permit. It is anticipated that USCG will serve as the lead federal agency for the proposed project and lead the process for compliance with the National Environmental Policy Act.</u>
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.
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.

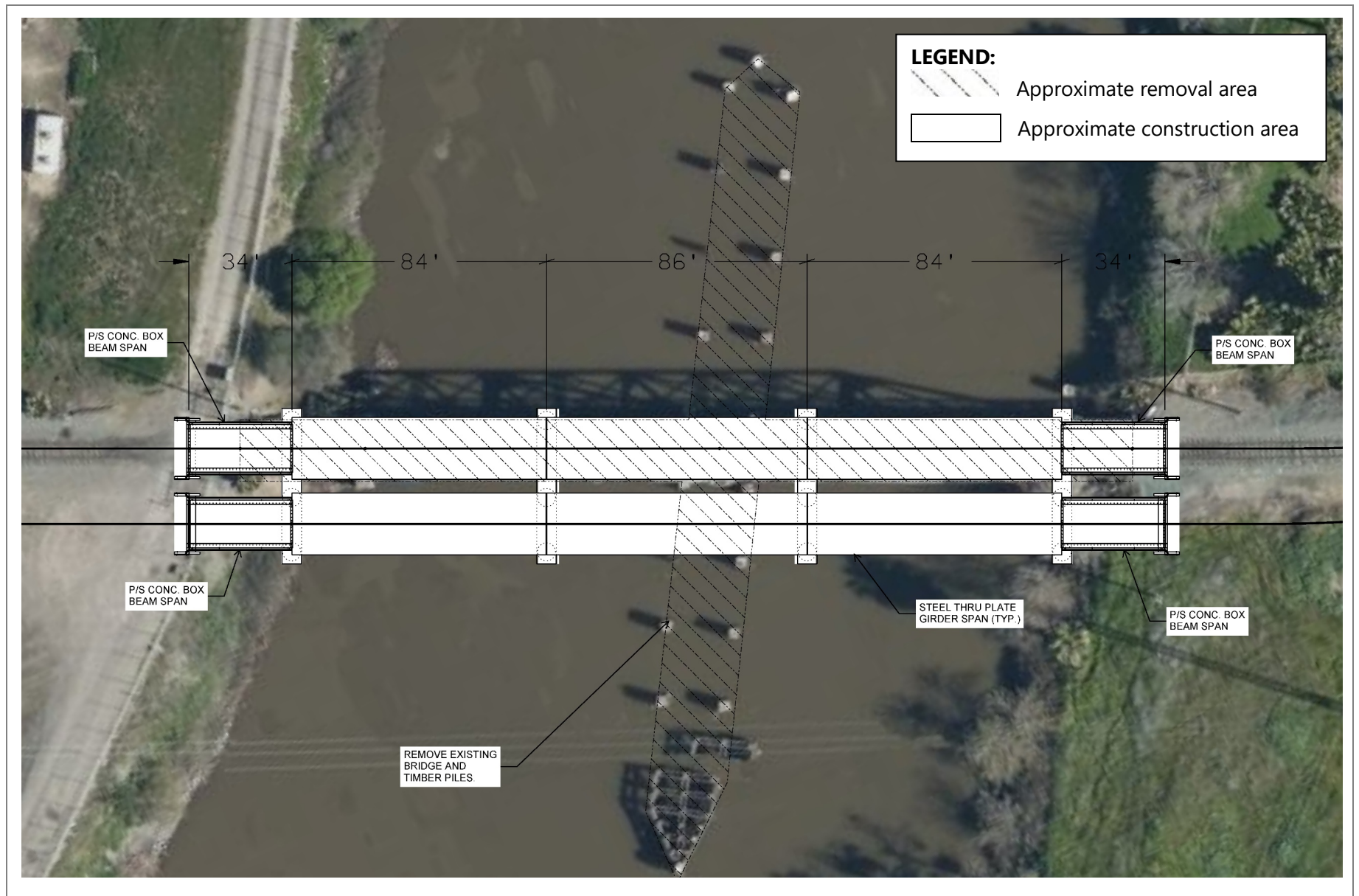
Regulatory Agency	Jurisdiction	Statutory Authority/Implementing Regulations
Central Valley Regional Water Quality Control Board	Responsible agency	Reviews projects for authorization under the Porter-Cologne Water Quality Control Act and Clean Water Act Sections 401 and 402. The proposed project is expected 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 <u>in Stockton</u> .
San Joaquin County Planning/Development Services Department	Responsible agency	Reviews and approves grading and land alteration permits <u>in San Joaquin County</u> .
<u>San Joaquin County Environmental Health Department</u>	<u>Responsible agency</u>	<u>Reviews and approves geotechnical drilling activities in San Joaquin County.</u>

Section 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 http://www.stocktongov.com/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).

Section 2.4 Project Overview

The bridge replacement and rail improvements, and associated modifications, are shown in Figures 4 through 6 (updated Figure 5b) and Appendix B.



Filepath: N:\PROJECTS\Port_of_Stockton\Planning-Permitting\Rail Improvements\CEQA Document\ISMND\Final ISMND\Figure 5b_Bridge Replacement.docx



Illustrative drawing; not to scale

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

Section 2.5.2 Rail Bridge Replacement

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. The structural integrity of the existing piles is not known. Removal of piles and the existing concrete swing pier and abutments would first be attempted with a crane and vibratory hammer, but if full pile removal is not possible with this method, removal may require use of a cofferdam in select areas (cofferdams would not be placed across the entire channel) and then piles would be cut a minimum of 3 feet below the mudline. If piles associated with the central swing pier cannot be removed with a crane, removal may require use of a cofferdam and the foundation would be removed to at least a depth of -19 feet NGVD 29 to meet USCG requirements for navigation in the channel. 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. Based on sea level rise estimates for San Francisco, the elevation of the new bridge would be resilient to predicted medium- to high-risk sea level rise projections from 2025 through 2125 throughout the bridge's intended 100-year design life (California Coastal Commission 2018). The existing single-track rail 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 superstructure would be capable of being raised to a higher elevation at the end floor beams with hydraulic jacks, enabling installation of riser blocks on top of the pier caps. The bridge foundations are estimated to be supported by ~~six 72-inch or twelve 48-inch~~ 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 in-water, as well as six 72-inch or twelve 48-inch steel pipe piles driven in uplands for the on-bank piers and 20 upland driven steel H-piles for the abutments.~~

The specific number of piles may change based on the geotechnical recommendations, and as final design proceeds, with consideration for means and methods identified by the contractor.

Approximately 96 temporary, 24-inch-diameter, steel pipe piles are anticipated to be temporarily installed up to 80 feet deep for construction and removed immediately following.

[...]

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, Central Valley Flood Protection Board, and California State Lands Commission. The proposed project would result in a net reduction of in-water fill by removing approximately 1,100 square feet of existing creosote-treated pile structures, existing bridge foundations, and existing swing bridge supports from the water, and replacing them with approximately 170 square feet of in-water steel pipe piles associated with the new bridge.

[...]

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 upland driven steel piles for the abutments and 12 to 24 ~~to 20 CISS-driven steel~~ piles, 48 to 72 inches diameter, approximately 100 feet deep (half in-water, half in uplands)

Section 3.3.3 Air Quality

Section 3.3.3.2 Impact Evaluation

Operations: [...]

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. While updating the analysis in response to SJVAPCD's comments, an error was identified in one of the formulas for calculating fuel usage for the Class I locomotive engines, wherein the fuel usage was not doubled to account for two engines per train. Table 8 presents the corrected values, which show increased emissions and operational health risk assessment results, but these values still remain below all thresholds. In addition, the following tables in Appendix C have also been updated:

- Table 12 – Updated formula error in calculations and added total fuel usage rows for clarification
- Table 16 – Calculated values changed from updated Table 12
- Table 18 – Calculated values changed from updated Table 12
- Table 25 (previously Table 24) – Updated to include the results from updated health risk assessment and updated Table 12

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	<u>1.24</u> ~~0.70~~	<u>29</u> ~~11~~	<u>0.67</u> ~~0.38~~	<u>0.62</u> ~~0.35~~	<u>7.1</u> ~~2.9~~	<u>0.026</u> ~~0.012~~
		Idling	<u>0.084</u> ~~0.030~~	<u>2.0</u> ~~0.46~~	<u>0.045</u> ~~0.016~~	<u>0.042</u> ~~0.015~~	<u>0.048</u> ~~0.13~~	<u>1.7E-03</u> ~~5.4E-04~~
	Class III Switchers	Running	<u>0.70</u> ~~0.62~~	<u>11</u> ~~15~~	<u>0.38</u> ~~0.33~~	<u>0.35</u> ~~0.31~~	<u>2.9</u> ~~3.5~~	<u>0.012</u> ~~0.013~~
		Idling	<u>0.030</u> ~~0.042~~	<u>0.46</u> ~~1.0~~	<u>0.016</u> ~~0.023~~	<u>0.015</u> ~~0.021~~	<u>0.031</u> ~~0.24~~	<u>5.4E-04</u> ~~8.7E-04~~
	Total		<u>2.0</u> ~~1.4~~	<u>42</u> ~~27~~	<u>1.11</u> ~~0.75~~	<u>1.02</u> ~~0.69~~	<u>10.6</u> ~~6.8~~	<u>0.040</u> ~~0.027~~

Scenario	Engine Type	Engine Mode	CAP Emissions (tons per year)					
			ROG	NOx	PM ₁₀	PM _{2.5}	CO	SOx
2026 Conditions with Proposed Project	Class I Mainline Carriers	Running	<u>1.63</u> ~~0.82~~	<u>39</u> ~~19~~	<u>0.88</u> ~~0.44~~	<u>0.81</u> ~~0.41~~	<u>9.3</u> ~~4.7~~	<u>0.034</u> ~~0.017~~
		Idling	<u>0.047</u> ~~0.024~~	<u>1.12</u> ~~0.56~~	<u>0.025</u> ~~0.013~~	<u>0.023</u> ~~0.012~~	<u>0.27</u> ~~0.13~~	<u>9.8E-04</u> ~~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		<u>2.5</u> ~~1.6~~	<u>52</u> ~~32~~	<u>1.33</u> ~~0.88~~	<u>1.22</u> ~~0.81~~	<u>12.8</u> ~~8.0~~	<u>0.049</u> ~~0.031~~
Net Change	Class I Mainline Carriers	Running	<u>0.39</u> ~~0.20~~	<u>9.3</u> ~~4.7~~	<u>0.21</u> ~~0.11~~	<u>0.20</u> ~~0.10~~	<u>2.3</u> ~~1.1~~	<u>0.0082</u> ~~0.0041~~
		Idling	<u>-0.037</u> ~~-0.018~~	<u>-0.86</u> ~~-0.43~~	<u>-0.020</u> ~~-0.010~~	<u>-0.018</u> ~~-0.0091~~	<u>-0.21</u> ~~-0.10~~	<u>-7.6E-04</u> ~~-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	<u>-0.058</u> ~~-0.06~~	-2.5E-04
	Total		<u>0.42</u> ~~0.23~~	<u>9.3</u> ~~5.10~~	<u>0.22</u> ~~0.13~~	<u>0.20</u> ~~0.12~~	<u>2.3</u> ~~1.20~~	<u>0.0084</u> ~~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. [...]

Because the proposed project would not exceed thresholds, it would not conflict with or obstruct implementation of SJVAPCD's O₃ attainment plans, including its most recent 2016 plan for the 2008 8-hour O₃ standard (SJVAPCD 2016). Impacts would be considered less than significant.

Because impacts are less than significant, mitigation measures are not required. However, several mitigation measures have been included to further reduce the potential for emissions, respond to agency comments, and provide trackable measures that can be incorporated into construction contracts, where applicable. The following mitigation measures would be implemented during construction to further reduce the potential for impacts to air quality:

- **MM-AQ-1: Construction Idling Reductions.** The Port will require construction contractors to minimize heavy-duty construction idling time to 2 minutes where feasible. Exceptions include vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or vehicles in a queue waiting for work.

- **MM-AQ-2: Use of Tier 4 Engines During Construction.** All land-based construction equipment will use USEPA Tier 4 Final engines, except for specialized equipment or when Tier 4 engines are not available. In place of Tier 4 engines, off-road diesel-powered heavy equipment will incorporate retrofits such that emission reductions are achieved equal to or exceeding that of a Tier 4 engine.
- **MM-AQ-3: Evaluate Vegetative Barriers.** The Port will evaluate areas to potentially include vegetative barriers along the lead track, specifically in the area between the track and residential communities on West Scotts Avenue.

While not required, the Port has included mitigation measures MM-AQ-1 through MM-AQ-3 to further reduce the potential for impacts related to emissions. MM-AQ-1 and MM-AQ-2 would directly reduce criteria air pollutant emissions from construction equipment. MM-AQ-3 may help reduce dust and PM levels on the residential side of the barrier, thereby reducing exposure to air pollution. Accordingly, impacts would remain 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. Area workers are also considered in the health risk assessment but are 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 are 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. The closest worker receptors are located adjacent to the Lehigh facility within 100 feet of the proposed project.

[...]

TACs emitted from construction equipment and switching and mainline locomotives include diesel PM emissions. Appendix C provides additional details on the assumptions and updated modeling results used to conduct the health risk assessment. Table 9 shows the proposed project's updated 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	~~0.0056~~ 0.0022	~~3.7E-06~~ 1.8E-06
	Class III Locomotives	~~7.9E-04~~ 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 the updated 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.

Section 3.3.4 Biological Resources

Section 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). There are 13 CNDDDB-recorded occurrences of Swainson's hawks within a 3-mile radius of the proposed project and three occurrences within a 1-mile radius; the nearest Swainson's hawk occurrence (no. 701) was recorded approximately 0.6 mile west of the proposed project in 1998, documenting hawks nesting in a juniper tree (CDFW CNDDDB 2021).

In addition to these CNDDDB records, Swainson's hawks are regularly observed throughout the Port, including confirmed nesting in the inactive golf course area approximately 1,000 feet northwest of

the bridge annually from 2018 to 2021, as well as in mature trees along the river near the shooting range approximately 2,200 feet southwest in 2021. Nesting Swainson's hawks were monitored during construction of recent Port projects (including repairs to Dock 12/13, Fyffe Avenue railroad crossing, and construction of the Navy Drive Bridge), and no signs of disturbance from construction-related activities were documented. 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.

Section 3.3.4.1.3.14 Roosting Bats

Of the 25 known bat species in California, 12 are designated as state species of special concern. Bats are classified as non-game mammals and are afforded protection under California Fish and Game Code. They also receive protection under CCR and PRC. In general, bats exhibit a wide range of habitat use depending on the species, season, time of day, resource availability, level of disturbance, and other factors, but often exhibit high site fidelity and specificity for roost selection. Roost sites consist of maternity (nursery colonies), bachelor, day, and night roosts within caves, mines, cliffs, rock crevices, tree hollows and crevices, stumps, leaf litter, foliage, under exfoliating bark, and on structures such as buildings and bridges, among other sites. Temporary roosts may also be established near feeding sites. Some species require a complex network of habitat characteristics that fulfill foraging, water intake, shelter, and thermoregulatory requirements that vary seasonally. Bats are typically active mid-February through late October, hibernating in the winter months when insect prey populations decrease due to cold temperatures. The nursery season generally extends from May to September, and hibernation occurs from November to March.

There are no CNDDDB-recorded occurrences within the USGS quadrant containing the proposed project and surrounding eight quads (CDFW CNDDDB 2021). The wood substructure of the existing rail bridge may provide suitable roosting habitat for structure-roosting bats including Yuma myotis (*Myotis yumanensis*), pale big-eared bat (*Corynorhinus townsendii pallescens*), Townsend's western big-eared bat (*C. townsendii townsendii*), pallid bat (*Antrozous pallidus*), and Mexican free-tailed bat (*Tadarida brasiliensis*). Wood has thermoregulatory properties more suitable for roosting bats than

concrete or metal, retaining heat longer. The bridge substructure provides ample roosting habitat but lacks crevices that afford further protection from weather and predation. Both ends of the bridge from the abutments (approximately 20 feet long) are primarily constructed of wood including the piles, substructure, platform with railroad tiles and planks, and handrails. Thereafter, the bridge is constructed of wood piles capped with horizontal concrete bases, which support the wood platform and metal trestle structure. No sign of bat inhabitation (e.g., roosting bats, guano, staining, carcasses) was observed during a bridge bat habitat assessment performed for the proposed project. The bridge likely does not support maternity roosts but could possibly be utilized as a day and night roost. Trees within the project area also provide marginal and limited habitat for bark- and foliage-roosting bats. No hollow trees or large snags were identified that may be suitable for cavity-roosting bats.

Section 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, MBTA-protected bird species, or possibly bats, particularly in the area of the inactive golf course and the detention basin with planted cottonwoods northwest of the Crosstown Freeway overpass. Ground-nesting birds protected by the MBTA (including swallows) may also be present within or near the immediate 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, bat roosting, 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. Removal of the bridge could reduce roosting areas for bats, if present in the area. Potential indirect impacts from noise, vibration, or other temporary construction effects include disturbance of tree nests, ground nests, or western pond turtle, if present.

[...]

Underwater noise from construction, particularly from pile installation, has the potential to adversely affect fish that could be present during construction activities. 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.

[...]

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, removal of potential roosts, 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 described in the bullets below would be implemented during construction to reduce potential impacts. Based on agency comments, MM-BIO-1, MM-BIO-4, and MM-BIO-5 were modified to include more details on how the mitigation measure would be implemented. Specifically, MM-BIO-1 provides greater detail on SJMSCP coverage and alternative strategies that would be implemented by the Port if SJMSCP coverage is not obtained for the proposed project. MM-BIO-4 provides additional strategies that could reduce noise from pile driving. MM-BIO-5 provides additional detail related to the compensatory mitigation to be implemented for the proposed project.

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

assessment of all anticipated impacts to bats, including noise disturbance during construction, effective avoidance and minimization measures to protect bats, and compensatory mitigation for permanent impacts to bats or their nesting/roosting habitat. Construction will commence only after the Bat Mitigation and Monitoring Plan is implemented.

- For VELB, alternatives to SJMSCP coverage include the following for areas with elderberry bushes identified in pre-construction surveys:
 - If elderberry shrubs are present 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-4: Employ Soft-Start Techniques, Use Noise Attenuation Device, and Conduct Underwater Noise Monitoring during Impact Pile Driving.** During construction, the Port will implement soft-start techniques for impact pile driving, which is industry standard and will be required per regulatory permits. Soft-start techniques include bringing pile driving or other loud equipment online slowly, providing any fish that are potentially present the opportunity to disperse from the project area. The Port will also employ a bubble curtain or similar noise attenuation methodology during all impact hammer use. To verify conditions meet the assumptions used in the analysis, the Port will prepare an underwater noise

monitoring plan, obtain agency approval of the plan, and conduct noise monitoring during impact hammer use.

- **MM-BIO-5: Compliance with Permitting Requirements for In-Water or Riparian Habitat Work.** For work with the potential to affect jurisdictional waters and wetlands, the Port will conduct a delineation of wetlands/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, including compensation for permanent fill (1:1 ratio) and compensation for temporary impacts to fish habitat through purchasing aquatic habitat credits at the Shin Kee Mitigation Bank (anticipated to be between 0.3 and 0.6 acre-credits), which is expected to start selling habitat and wetland credits in 2022. Work occurring in stream-dependent riparian habitats will also occur in compliance with permitting requirements from CDFW. The Port will implement erosion control measures, design staging and refueling areas, and require equipment inspections and maintenance to avoid impacts on riparian areas. ~~Requirements will likely include implementing erosion controls, designating appropriate staging and fueling areas, requiring equipment inspections and maintenance, and additional standard construction BMPs.~~

As noted above, MM-BIO-1, MM-BIO-4, and MM-BIO-5 were modified to include more details on how the mitigation measures would be implemented. As described in the following paragraphs, the conclusion regarding the potential for residual impacts with implementation of mitigation measures would remain the same as the findings of the Draft IS/MND. 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 noise attenuation ~~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 the in-water pile types anticipated for the proposed project, use of an impact hammer for installation of up to six 72-inch-diameter steel piles would generate the highest potential levels of underwater noise. It is possible that smaller-sized piles could be used instead of the 72-inch-diameter steel piles; this will be confirmed as the proposed project design advances. Use of an impact hammer for pile installation, rather than vibratory installation, may be required to avoid potential structural impacts to the adjacent existing rail bridge (which must remain in operation

during construction of the new bridge) that could occur from vibratory installation of 72-inch piles. Vibratory installation of these large piles would require a specialized large hammer, which could cause concerning levels of vibration that could impact the adjacent bridge. Other piles described in the project description would be of smaller diameter and installed with a standard vibratory hammer (with potential for limited amounts of impact proofing) or installed in the dry. Up to one pile would be installed every 4 days, with pile driving only during daylight hours (a maximum of 12 hours a day), over a work duration of approximately 24 days. The most significant underwater noise impacts would therefore be limited to this brief approximately 24-day duration, with potential for limited additional periods of impact proofing for smaller piles. During the remaining periods of construction, pile driving would consist of vibratory pile driving for which there is no established injury criteria for fish (Caltrans 2020). Conservative estimates of underwater noise for the largest potential piles for the proposed project using sound attenuation (MM-BIO-4) are provided in Table A.

Table A
Conservative Estimates of Attenuated Underwater Noise from the Proposed Project

<u>Pile Diameter and Type</u>	<u>Peak</u>	<u>SEL (Single Strike)</u>	<u>RMS</u>	<u>Reference Distance</u>	<u>Installation Details</u>
<u>72-inch steel piles</u>	<u>206 dB</u>	<u>176 dB</u>	<u>189 dB</u>	<u>10 meters</u>	<u>Up to 6 piles; 0.25 pile per day; 1,250 strikes per day</u>

Notes:

Source sounds are from Caltrans 2020 Table I.2-1a steel shell 72-inch-diameter piles, Antioch, California.

A bubble curtain or similar attenuation method is assumed to be used as was used in the source sound example.

Installation details are estimated based on input from the project engineers (Higgins 2021) and past pile installation details from similar Port projects (Moran 2021).

dB: decibel

RMS: root-mean-square

SEL: sound exposure level

The distance at which underwater noise would attenuate to threshold levels for fish is provided in Table B. These calculations are based on conservative assumptions for impact pile driving using the best available data from a similar project in the Caltrans Compendium and calculated using the NMFS Pile Driving Acoustic Impacts Worksheet (Caltrans 2020).

Table B
Attenuation Distances to Interim Injury Criteria for Fish

<u>Interim Criteria</u>	<u>Sound Threshold</u>	<u>Attenuation Distance to Sound Threshold (Modeled)</u>
<u>Peak</u>	<u>206 dB Peak</u>	<u>10 meters</u>
<u>cSEL, fish greater than 2 grams</u>	<u>187 dB cSEL</u>	<u>214 meters</u>
<u>cSEL, fish less than 2 grams</u>	<u>183 dB cSEL</u>	<u>396 meters</u>

Notes:

Sound impacts are effectively eliminated when sound waves encounter a bend in the river; therefore, the attenuation distances would be less than shown in Table B in directions from the source sound where the riverbank is encountered before the attenuation distance is reached.

cSEL: cumulative sound exposure level

As shown in Table B, the peak sound threshold, representing potential instantaneous fish injury, would not be exceeded at 10 meters up or downstream from the pile driving location. The cumulative sound exposure level (cSEL) metric, which represents potential fish injury due to accumulative effects of noise, may be exceeded within 214 meters of the activity (green sturgeon in the project area would be adults and thus greater than 2 grams). The Port recognizes that CDFW considers compensatory mitigation to be required for projects that have the potential to exceed this threshold and would therefore purchase fish habitat credits to offset this temporary impact (as detailed in MM-BIO-5) in accordance with a range of recent mitigation proposals that have been coordinated with CDFW. However, it is also important to consider the effects of cumulative underwater noise exposures related to mortality, physiology, and behavior, including the effects of exposure to multiple impacts from pile driving and strike intermittency. One issue in this regard is whether exposure to a very frequent sequence of high-level underwater sound pressure has a different effect than exposure to a sequence that allows some "recovery" time for fish (Caltrans 2020). During impact driving for the proposed project, the strike duration would be greater than during typical impact driving (e.g., one strike every few seconds, compared to several per second). The estimated 1,250 strikes per day for the proposed project would not occur in rapid succession, but in small periods of activity throughout a full day of construction. This allows for fish recovery time between strikes and allows more time for fishes to respond behaviorally to underwater noise.

Another aspect of cumulative exposure that needs consideration is the potential effect on a fish that is exposed to pile driving and then exposed again to pile driving sound pressure several hours, days, or weeks later. Fish are typically not stationary; therefore, they would be expected to move in and out of the project area. Green sturgeon are extremely rare in the project area and unlikely to be present. If present in the project area and subject to increased underwater noise once, it is unlikely that they would return within a number of hours, days, or even weeks during the same construction activity. However, the current NMFS impact assessment method, which is implemented with their calculator tool, assumes that fish are stationary throughout any pile-driving activities and that they do not transit through the project area or even move to different locations within the threshold zones. This results in an overestimate of the potential impact to migratory fishes when considering the cSEL metric. Though specific research has not been conducted for green sturgeon, peer-reviewed research for pallid sturgeon (*Scaphirhynchus albus*), lake sturgeon (*Acipenser fulvescens*), shortnose sturgeon (*A. brevirostrum*), and Atlantic sturgeon (*A. oxyrinchus*), all within the same genus or family as green sturgeon and with similar physiologies, suggests that fishes in the sturgeon family do not accumulate

physiological injury that could result in mortality at a cSEL of 208 dB, and that sturgeon are likely to avoid impact pile driving and would not remain in an area long enough to experience physiological effects. This provides empirical evidence that the cSEL metric of 187 dB is not a scientifically supported criterion for assessing the potential for pile-driving noise to impact sturgeon, and in fact, sturgeon are not likely to accumulate injury from cumulative exposure until a cSEL of 207 dB is reached (Halvorsen et al. 2012; Jacobs et al. 2016; Krebs et al. 2016; Popper et al. 2016). Furthermore, green sturgeon have a physostomous (open) swim bladder that has been empirically shown to result in fewer effects from noise exposure than other fishes with a physoclistous (closed) swim bladder, suggesting that the cSEL criterion is again overly conservative when applied to sturgeon (Halvorsen et al. 2012).

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

As stated previously, because pile driving associated with the proposed project would occur within the in-water work window, impacts to salmonids are also not anticipated.

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

As part of the proposed project, creosote-treated piles would be removed from the project area, which is currently designated under the ESA as critical habitat for green sturgeon (Southern DPS), delta smelt, and steelhead (Central Valley DPS) as described in Section 3.3.4.1.3. Critical habitat is made up of physical and biological features (PBFs, also termed primary constituent elements [PCEs]) that are essential for the conservation of the species; additional relevant information on these PBFs is as follows:

- Specific to green sturgeon critical habitat, NMFS designated seven unoccupied areas (per Section 3(5)(A)(ii) of the ESA) that may be essential for the conservation of the species

(NMFS 2009a). Reaches on the San Joaquin River, including the project area around the rail bridge, are considered unoccupied by green sturgeon, but were designated anyway because they may contribute to the future viability and spatial distribution of the species. In freshwater riverine areas, the PBFs are food resources, substrate type or size, water flow, water quality, migratory corridors, water depth, and sediment quality. The water quality and sediment quality PBFs stipulate water with "acceptably low levels of contaminants... that may disrupt normal development" and sediments "free of elevated levels of contaminants (e.g., elevated levels of selenium, PAHs, and organochlorine pesticides) that can result in adverse effects on any life stages" of the species (NMFS 2009b). NMFS describes how bioaccumulation of contaminants from feeding on benthic species is a concern for the growth, reproductive development, and reproductive success of green sturgeon, and how exposure to contaminants in the water column may result in reduced egg size and abnormal gonadal development (NMFS 2009b).

- For delta smelt, PBFs include water of suitable quality and depth to support survival and reproduction (e.g., temperature, turbidity, lack of contaminants; 59 Federal Register [Fed. Reg.] 65256 "Endangered and Threatened Wildlife and Plants; Critical Habitat Determination for the Delta Smelt"). The *Recovery Plan for the Sacramento-San Joaquin Native Fishes* (USFWS 1996) notes that contaminants are a major concern for native fishes and toxic substances are the fifth most important factor in the decline of delta smelt.
- For steelhead, PBFs include migratory corridors with water quality conditions that support adult and juvenile survival, rearing sites with water quality and forage opportunities that support juvenile development, and natural cover such as shade (NMFS 2014). The *Recovery Plan* (NMFS 2014) for steelhead also describes contaminants as a concern for fish populations in the region.

Creosote-treated piles may leach chemicals into the sediments and water column throughout the time they are in the water. These piles are a source of contamination, particularly PAHs, in aquatic environments and contribute to issues such as mortality, developmental abnormalities, and bioaccumulation of contaminants in fishes. Removal of 235 in-water creosote treated piles as a part of the proposed project represents a functional lift of the sediment quality and a permanent increase in the quality of the designated critical habitats in the project area.

With implementation of mitigation measures MM-BIO-1 through MM-BIO-5, including the modifications made in the Final IS/MND, as well as the additional long-term benefits to critical habitat detailed above, impacts would be less than significant. This residual impact finding is consistent with that presented in the Draft IS/MND for the proposed project.

Section 3.3.5 Cultural Resources

Section 3.3.5.2 Impact Evaluation

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. [...]

At the bridge upland 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.

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

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

- **MM-CULT-2: Implement Provisions for Accidental Discovery During Construction.** If upland or submerged cultural resources or 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 (including CSLC). 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. The final disposition of archaeological or cultural resources recovered on state tidelands must be approved by CSLC.

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

Section 3.3.8 Greenhouse Gas Emissions

Section 3.3.8.2 Impact Evaluation

Operations: [...]

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. While updating the analysis in response to SJVAPCD's comments, an error was identified in one of the formulas for calculating fuel usage for the Class I locomotive engines, wherein the fuel usage was not doubled to account for two engines per train. Table 11 presents the corrected values, which show increased operational GHG emissions, but these values still remain below all thresholds.

Table 11
Operational Greenhouse Gas Emissions

Scenario	Engine Type	Engine Mode	CO ₂ e (metric tons/year)
2026 Conditions without Proposed Project	Class I Mainline Carriers	Running	<u>2,489</u> ~~1,188~~
		Idling	<u>168</u> ~~52~~
	Class III Switchers	Running	<u>1,188</u> ~~1,245~~
		Idling	<u>52</u> ~~84~~
	Total		<u>3,898</u> ~~2,569~~
2026 Conditions with Proposed Project	Class I Mainline Carriers	Running	<u>3,282</u> ~~1,644~~
		Idling	<u>95</u> ~~47~~
	Class III Switchers	Running	1,305
		Idling	28
	Total		<u>4,710</u> ~~3,022~~
Net Change	Class I Mainline Carriers	Running	<u>793</u> ~~397~~
		Idling	<u>-73</u> ~~-37~~
	Class III Switchers	Running	117
		Idling	-24
Total			<u>813</u> ~~453~~

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

[...]

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 the updated 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. While the proposed project is not a passenger project as focused on in Policy TR-3.2, enhancing rail allows for more cargo to move via rail which is more efficient than trucks. Regarding Policy CH-5.1 the Port includes GHG emissions modeling in all documents that could be incorporated into the City's efforts. While not required, in consideration of Policy CH-5.2, the Port has added a mitigation measure to promote construction recycling, further reducing the potential for GHG emissions. The following mitigation measure would be implemented during construction to further reduce the potential for impacts:

- **MM-GHG-1: Construction Recycling.** The Port will require construction contractors to recycle construction and demolition debris where feasible.

While not required, mitigation measure MM-GHG-1 has been included to further reduce the potential for impacts related to GHG emissions; accordingly, impacts would remain less than significant.

4 Summary of Mitigation Measures

Table 1 presents the mitigation measures that would be incorporated as part of proposed project approval through the Mitigation Monitoring and Reporting Program (MMRP).

Table 1
Final Mitigation Measures

Mitigation Measure
MM-AQ-1: Construction Idling Reductions. The Port will require construction contractors to minimize heavy-duty construction idling time to 2 minutes where feasible. Exceptions include vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or vehicles in a queue waiting for work.
MM-AQ-2: Use of Tier 4 Engines During Construction. All land-based construction equipment will use USEPA Tier 4 Final engines, except for specialized equipment or when Tier 4 engines are not available. In place of Tier 4 engines, off-road diesel-powered heavy equipment will incorporate retrofits such that emission reductions are achieved equal to or exceeding that of a Tier 4 engine.
MM-AQ-3: Evaluate Vegetative Barriers. The Port will evaluate areas to potentially include vegetative barriers along the lead track, specifically in the area between the track and residential communities on West Scotts Avenue.
MM-BIO-1: Obtain Coverage under the SJMSCP or Conduct Nesting Bird Surveys; Bat Surveys and Avoidance Measures; Elderberry Surveys, Setbacks, and Compensation; and Western Pond Turtle Buffer Establishment. To avoid impacts on potentially present special-status species, the proposed 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 (including swallows), bats, VELB, and western pond turtle: ▪ For nesting birds, alternatives to SJMSCP coverage include surveys and avoidance measures consistent with CDFW’s standard requirements. If equipment staging, site preparation, or other 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

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

Mitigation Measure
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, Use Noise Attenuation Device, and Conduct Underwater Noise Monitoring During Impact Pile Driving. During construction, the Port will implement soft-start techniques for impact pile driving, which is industry standard and will be required per regulatory permits. Soft start techniques include bringing pile driving or other loud equipment online slowly, providing any fish that are potentially present the opportunity to disperse from the project area. The Port will also employ a bubble curtain or similar noise attenuation methodology during all impact hammer use. To verify conditions meet the assumptions used in the analysis, the Port will prepare an underwater noise monitoring plan, obtain agency approval of the plan, and conduct noise monitoring during impact hammer use.
MM-BIO-5: Compliance with Permitting Requirements for In-Water or Riparian Habitat Work. For work with the potential to affect jurisdictional waters and wetlands, the Port will conduct a delineation of wetlands/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, including compensation for permanent fill (1:1 ratio minimum) and compensation for temporary impacts to fish habitat through purchasing aquatic habitat credits at the Shin Kee Mitigation Bank (anticipated to be between 0.3 and 0.6 acre-credits), which is expected to start selling habitat and wetland credits in 2022. Work occurring in stream-dependent riparian habitats will also occur in compliance with permitting requirements from CDFW. The Port will implement erosion control measures, design staging and refueling areas, and require equipment inspections and maintenance to avoid impacts on riparian areas.
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

Mitigation Measure
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.
MM-CULT-2: Implement Provisions for Accidental Discovery During Construction. If upland or submerged cultural resources or 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 (including CSLC). 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. The final disposition of archaeological or cultural resources recovered on state tidelands must be approved by CSLC.
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.
MM-GHG-1: Construction Recycling. The Port will require construction contractors to recycle construction and demolition debris where feasible.
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.
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.

Mitigation Measure
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.

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Appendix A

Comment Letters and Email on Draft IS/MND



State of California – Natural Resources Agency
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(707) 428-2002
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



July 26, 2021

Mr. Jason Cashman
Port of Stockton
2201 West Washington Street
Stockton, CA 95203
jcashman@stocktonport.com

Subject: Port of Stockton Rail Bridge Replacement and Rail Improvements Project,
Initial Study/Mitigated Negative Declaration, SCH No. 2021060578, City of
Stockton, San Joaquin County

Dear Mr. Cashman:

The California Department of Fish and Wildlife (CDFW) has reviewed the Initial Study/Mitigated Negative Declaration (IS/MND) from the Port of Stockton for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State. [Fish and Game Code, §§ 711.7, subd. (a) and 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802). Similarly for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's Lake and Streambed Alteration (LSA) regulatory authority. (Fish and Game Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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(CESA) (Fish and Game Code, § 2050 et seq.), the Project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

Proponent: Port of Stockton

Objective: The objective of the Project is to replace an obsolete rail bridge spanning the San Joaquin River and construct a new lead track to increase efficiency of train operations within the Port of Stockton. The existing swing bridge will be replaced by two (2) fixed bridges with removable center spans. Primary Project activities include replacement of the existing rail bridge between the East and West Complexes with a new expanded rail bridge, construction of a new lead track and associated modifications to road underpasses and overpasses near the terminus of the Ort J. Lofthus Freeway (Crosstown Freeway), construction of a new rail underpass at Fresno Avenue, construction of new yard track on the East Complex, and construction of a new rail classification yard in the West Complex.

Location: Stockton, San Joaquin County; within the Port of Stockton East and West Complexes – the BNSF (railroad) right-of-way adjacent to West Scotts Avenue, west of Ventura Avenue, and Fresno Avenue; 37°56'52.42"N, -121°20'13.99"W.

Timeframe: Construction will occur over approximately three (3) years; construction is proposed to start in 2023.

LAKE AND STREAMBED ALTERATION AGREEMENT

The Project has the potential to impact resources of the San Joaquin River known to occur within the identified limits of the Project. If proposed work will impact the bed, bank, channel, or riparian habitat, including the trimming or removal of trees and riparian vegetation, please be advised that the proposed Project may be subject to LSA Notification. This includes impacts to drainage systems that connect to tributaries of main stem creeks and tributaries that occur within the Project site. CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for or any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, bank or channel or deposit or dispose of material where it may pass into a river, lake, or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are generally subject to notification requirements.

CALIFORNIA ENDANGERED SPECIES ACT

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in take of species of plants or animals listed or a candidate under CESA, either during construction or over the life of the Project. Under

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CESA, take is defined as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill.” Issuance of an ITP is subject to CEQA documentation. If the Project will impact CESA-listed species, early consultation with CDFW is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit.

ENVIRONMENTAL SETTING

Threatened, endangered, and other special-status species that are known to occur, or have the potential to occur in or near the Project site, include, but are not limited to:

- Delta Smelt (*Hypomesus transpacificus*), SE, FT
- Longfin Smelt (*Spirinchus thaleichthys*), ST
- Central Valley Spring Run Chinook Salmon (*Onchorhynchus tshawytscha*) ST, FT
- Sacramento Winter Run Chinook Salmon (*Oncorhynchus tshawytscha*) ST, FT
- Green Sturgeon (*Acipenser medirostris*), SSC, FT
- Central Valley Steelhead (*Oncorhynchus mykiss irideus*), FT
- Swainson’s hawk (*Buteo swainsoni*), ST
- White-tailed Kite (*Elanus leucurus*), FP
- Giant Garter Snake (*Thamnophis gigas*), FT, ST
- Western Pond Turtle (*Emys marmorata*), SSC
- Roosting Bats
- Nesting birds

FT = Federally Threatened; ST = State Threatened; SE = State Endangered; SSC = Species of Special Concern; FP = Fully Protected

CDFW recommends that prior to Project implementation, surveys be conducted for special-status species with potential to occur at or near the Project site and should follow recommended survey protocols if available. Survey and monitoring protocols and guidelines are available at: <https://www.wildlife.ca.gov/Conservation/Survey-Protocols>. If survey results are positive for special-status species (i.e., endangered, threatened, species of special concern, candidate species, and fully protected species), then CDFW recommends that specific avoidance, minimization, and mitigation measures are incorporated into a revised and recirculated IS/MND. Currently the IS/MND defers mitigation measures to assuming coverage in the San Joaquin Multi-Species

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Conservation and Open Space Plan (SJMSCP) and determining incidental take minimization measures through the SJMSCP in the future.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist Port of Stockton in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

COMMENT 1: Hydroacoustic Impact Analysis and Monitoring for Impact Pile Driving

The IS/MND explains that a vibratory hammer will be used, with the possibility of using cast-in-steel shell piles, and a "soft start" to ramp up pile driving. However, the use of an impact hammer is also proposed. The IS/MND did not analyze hydroacoustic impacts to fish from use of impact hammers.

To minimize pile driving impacts to aquatic resources, CDFW recommends that the Project is designed such that hydroacoustic impact is avoided or reduced to avoid exceeding threshold sound limits of 206 dB for peak output, 183 dB accumulated sound exposure level (SEL) limits (peak and SEL levels measured at 10 meters). The revised and recirculated IS/MND should analyze the hydroacoustic impacts and disclose the impacts. If impacts are found to be potentially significant (i.e., exceeding sound threshold levels previously stated, which could result in death, injury, and disturbance to special-status fish species that may be present during Project construction, such as green sturgeon), CDFW recommends inclusion of avoidance, minimization, and mitigation measures listed below. Also, the IS/MND should be revised and recirculated to include the revised impacts analysis and additional mitigation measures so that CDFW can evaluate the sufficiency of the IS/MND as a Responsible Agency.

CDFW recommends the following actions and measures are incorporated as new mitigation measures in a revised and recirculated IS/MND:

- a) Completion of the National Marine Fisheries Service pile driving acoustic impact worksheet to determine hydroacoustic impacts during construction; that information should be included in the revised and recirculated MND.
- b) Include the following avoidance measure: "Underwater Sound Reduction. Underwater sound reduction measures shall be used to ensure that sound levels do not exceed threshold levels. If necessary, sound reduction measures may include the following: use of an impact hammer cushion block; use of impact hammers during daylight hours only; pile driving during slack tides, 'ramping up'

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technique where pile strikes gradually increase energy and frequency of impacts until full force and frequency are achieved; use of cofferdams; pipe caissons installed with a vibratory hammer to isolate the piles from the water; and the use of a bubble curtain surrounding the pile to be driven.”

- c) Include a statement as to if the threshold sound limits will be exceeded or not (this includes impact hammer use for proofing piles).
- d) If threshold sound limits are exceeded that cannot be avoided, propose compensatory mitigation. Examples of compensatory mitigation are purchase of fish restoration credits at a CDFW-approved mitigation or conservation bank, a conservation easement and endowment with a third-party beneficiary to protect and manage fish habitat with the same or higher resource function, creation and protection in perpetuity on-site or along the same river or within the South Delta of fish habitat such as shaded riverine aquatic habitat or shallow water habitat, or other options that would create, conserve, and protect fish habitat in perpetuity. In the mitigation proposal, propose mitigation ratios and justification for those ratios.

Additionally, avoidance and minimization measures for sound monitoring have not been sufficiently proposed to ensure sound attenuation devices adhere to thresholds below potentially injurious sound levels.

CDFW recommends the following actions and measures are incorporated as a new mitigation measure in a revised and recirculated IS/MND:

Sound Monitoring Hydroacoustic Monitoring Plan. A minimum of 14 days prior to the initiation of construction, an acoustic monitoring plan to evaluate sound levels during impact pile driving activities shall be submitted to the Lead Agency for acceptance. The monitoring plan should be prepared by a qualified hydroacoustic monitoring specialist who possess the same authority as the qualified biologist and has the ability to direct the resident engineer to stop work as necessary. At minimum, the monitoring plan should include the following:

- Acoustical monitoring experience history for the qualified hydroacoustic monitoring specialist.
- A description of the methods necessary to continuously assess underwater sound pressure in real-time, including details on the number of strikes for each pile, the specific pile location, distance and depth of the wetted channel, the placement of hydrophones and distance to the action.
- A description of the Quality Assurance/Quality Control protocols for the appropriate monitoring equipment.

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- Provide a means of recoding the time, number of pile strikes, peak sound energy per strike and interval between strikes.
- Two hydrophone underwater sound monitoring systems (hydrophone, signal amplifier and calibrator) that utilize current National Institute of Standards and Technology traceable calibration method.
- All piles monitored shall be driven in water depths that are representative of mid channel or typical water depths at the Project location where piles will be driven.
- Indicate the location of the piles to be monitored and the approximate hydrophone locations for each pile being monitored. All hydrophones will be placed at least 1 m (3.3 feet) below the surface.
- In waters less than 4 meters (13 feet) deep, a single hydrophone at midwater depth is sufficient. Hydrophones will be located 10 meters from each pile with a clear acoustic line-of-sight between the pile and the hydrophone. Additional distances measured concurrently are desirable, if possible, to estimate the site-specific range to the threshold boundary. Include any additional distances or depths where hydrophones will be located.
- Require standard monitoring distance of 10 meters from each pile being monitored. Position a hydrophone at the estimated isopleths for peak and cumulative estimated action areas to ensure monitoring threshold data is available.
- Provide specific inputs and calculations for cumulative sound exposure limits in the monitoring reports. The results of hydroacoustic monitoring shall be made available to CDFW upon request and submitted in weekly, monthly or annual compliance reports.

COMMENT 2: Impacts to Native Bat Species

Bridges often provide roosting habitat for native bat species. To fully mitigate impacts to bats not covered by the SJMSCP, CDFW recommends incorporating the following measure as a condition of approval in the updated IS/MND:

Bat Surveys and Mitigation. A qualified bat biologist shall conduct daytime and evening acoustic surveys for bats within 14 days prior to beginning project construction or work at or within 50 feet of the bridges. If bats are identified on-site, the qualified biologist shall identify the species, estimated quantity present,

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roost type, and roost status, but shall avoid disturbing bats during surveys. If foraging bats, active roosts, or other signs of bat activity (i.e., guano, urine staining) are identified on-site, the qualified bat biologist shall flag or mark all roosts and actively used features for avoidance. If complete avoidance is not possible (i.e., roosts within the bridge structures), then the qualified bat biologist shall develop a Bat Mitigation and Monitoring Plan in consultation with CDFW. The Bat Mitigation and Monitoring Plan shall include: i) an assessment of all Project impacts to bats, including noise disturbance during construction; ii) effective avoidance and minimization measures to protect bats; iii) and compensatory mitigation for permanent impacts to bats or their nesting/roosting habitat. Once the Bat Mitigation and Monitoring Plan is implemented, Project activities may commence.

COMMENT 3: Impacts to Swallows

Bridges often provide nesting habitat for native swallow species. To minimize impacts to swallows, CDFW recommends incorporating the following measure as a condition of approval in the updated IS/MND:

Swallow Exclusion. Before nesting swallow season (February 1 to September 30), the Port of Stockton, in consultation with CDFW, will install exclusionary devices on existing bridge structures to prevent the establishment of swallow nests within the footprint of the Project area. Exclusionary devices shall be limited to *solid* materials and shall not contain monofilament netting or similar material due to documented evidence of birds becoming entangled or trapped in such material. Exclusionary devices shall be inspected weekly while in place to ensure they are in good condition and functioning properly. During inspection, if exclusionary devices need repair, the Port of Stockton will make repairs immediately upon discovery.

Swallow Nest Avoidance. Project activities will not be initiated or conducted if an active swallow nest is detected on-site. The qualified biologist shall conduct a survey of the bridges no more than 5 days prior to construction activity to ensure that no active nests are present. If any active nests are found, the qualified biologist will establish an appropriate buffer to comply with the Migratory Treaty Act of 1918 and Fish and Game Code 3503. The qualified biologist shall increase the buffer if nesting birds show signs of unusual or stressed work by project activities. The qualified biologist will have the authority to stop work of project activities near the nesting birds if the nesting birds exhibit abnormal behavior which may cause nest abandonment or the loss of eggs and/or young until an appropriate buffer is established. To avoid encroachment, the buffers shall be clearly marked for avoidance. The buffers shall remain in effect until the young

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have fledged or until the nest has been abandoned as confirmed by the qualified biologist.

COMMENT 4: Enforceable Measures to Avoid, Minimize, and Mitigate Project Impacts

The IS/MND fails to provide evidence that potentially significant impacts to sensitive habitats have been mitigated to a level of less-than-significant due to lack of mitigation measures enforceable by the Lead Agency in the IS/MND. On page 75 of the IS/MND, mitigation measure 5 (MM-BIO-5) indicates that impacts to waters of State (San Joaquin River, detention basin with planted cottonwoods, and topographic depression between rail lines) and riparian habitats will be minimized through measures prescribed in future permits obtained from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and CDFW. The IS/MND should include fully enforceable measures to avoid, minimize, and mitigate potentially significant impacts and should not defer these measures to a future time Responsible Agencies (CEQA Guidelines §15126.4). Nor does the Lead Agency have the authority to compel a Responsible Agency to mitigate for potentially significant impacts that the Lead Agency has identified. To address this issue, the IS/MND should be revised and recirculated to incorporate quantifiable and enforceable mitigation measures to minimize impacts to the San Joaquin River and associated waters of State and riparian habitats. Otherwise, an Environmental Impact Report should be prepared to address any impacts that are identified as potentially significant where the Lead Agency has not incorporated or disclosed enforceable mitigation measures to demonstrate that these impacts will be mitigated to a level of less-than-significant with mitigation.

ENVIRONMENTAL DATA

CEQA requires that information developed in draft environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations. [Pub. Resources Code, § 21003, subd. (e)]. Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form, online field survey form, and contact information for CNDDDB staff can be found at the following link: <https://wildlife.ca.gov/data/CNDDDB/submitting-data>. The types of information reported to CNDDDB can be found at the following link: <https://wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination

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by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish and Game Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

CDFW appreciates the opportunity to comment on the IS/MND to assist Port of Stockton in identifying and mitigating Project impacts on biological resources. The IS/MND should be revised and recirculated to address CDFW's concerns and comments identified above in this letter and we look forward to assisting the Lead Agency if assistance is needed.

Questions regarding this letter or further coordination should be directed to Ms. Andrea Boertien, Environmental Scientist, at (707) 317-0388 or Andrea.Boertien@wildlife.ca.gov; or Ms. Melissa Farinha, Environmental Program Manager, at Melissa.Farinha@wildlife.ca.gov.

Sincerely,

DocuSigned by:

Stacy Sherman

692D021D81CA4F7...

Stacy Sherman
Acting Regional Manager
Bay Delta Region

cc: Office of Planning and Research, State Clearinghouse, Sacramento

CALIFORNIA STATE LANDS COMMISSION

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July 26, 2021

File Ref: SCH # 2021060578

Port of Stockton
Jason Cashman, Environmental Manager
2201 West Washington Street
Stockton, California 95203

VIA ELECTRONIC MAIL ONLY (ceqa@stocktonport.com)

Subject: Initial Study/Mitigated Negative Declaration (MND) for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project, San Joaquin County

Dear Jason Cashman:

The California State Lands Commission (Commission) staff has reviewed the MND for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project (Project), which is being prepared by the Port of Stockton (Port). The Port, as the public agency proposing to carry out the Project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on State sovereign land, the Commission will act as a responsible agency.

Commission Jurisdiction and Public Trust Lands

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its

admission to the United States in 1850. The state holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high-tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court.

Based on the MND, staff understands that the Project's rail bridge crossing the San Joaquin River (River) falls within the Commission's jurisdiction because the crossing is within the boundaries of the River's mean high-tide line (also stated on MND page 32). In addition, Project construction requires significant in-water work. Therefore, a lease from the Commission will be required for the Project. An application may be submitted to the Commission through the online application portal ([OSCAR.slc.ca.gov](https://oscar.slc.ca.gov)). If you have questions specific to jurisdiction, lease provisions, or the application process, please contact Public Land Management Specialist Marlene Schroeder (contact information below).

Project Description

The Port proposes to replace an existing outdated single-track rail bridge with a new double-track rail bridge over the River and make improvements to upland rail and transportation components. The new rail bridge will connect the Port's East and West Complexes and increase overall efficiency of train operations within the Port to support projected increases in future train volumes and to meet the Port's objectives and needs for the Project as follows (MND page 14):

- 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

From the Project Description, staff understands that the Project's construction of a new double-track rail bridge and removal of the existing rail bridge (MND page 24) will affect State sovereign land. The Project will occur in phases from 2023 through 2025.

Environmental Review

Commission staff requests that the Port consider the following comments on the Project's MND, to ensure that impacts to State sovereign land are adequately analyzed for the Commission's use of the MND when considering a future lease application for the Project.

General Comments

1. Lease Application: Staff was grateful for the opportunity to better understand the Project and ask questions during the agency staff webinar (Webinar) on July 14, 2021. As discussed during the Webinar, the Port plans to submit a lease application. Therefore, staff recommends the following materials be provided with the lease application for Commission consideration of a lease:
 - a. Mitigation Monitoring Program: Even though this is not part of the current MND, Port staff explained that it would be part of the final MND. Additionally, adoption of a Mitigation Monitoring Program is required as part of the project approval (State CEQA Guidelines, §§ 15074, subd. (d), and 15097).
 - b. List of Mitigation Measures: Although this was not discussed during the Webinar, staff recommend that the MND identify the mitigation measures that apply to land under the Commission's jurisdiction.
 - c. Summary of environmental justice outreach and outcomes for this Project.
 - d. Summary of Tribal Cultural Resources or Consultations.
2. Increase Readability: As brought up during the Webinar, staff would appreciate it if the following information was addressed in the MND:
 - a. Figure 5b (MND page 18): Please add a compass, legend, and mean high-tide line on the right and left banks of the River to help staff confirm that the analysis in the MND is adequate for possible environmental impacts on land under the Commission's jurisdiction.
 - b. MND Page 33: Please mark the resource areas that would be impacted or potentially impacted by the Project. This page appears to be accidentally repeated on the following page, also numbered page 33.

Biological Resources

3. Existing Pile Removal: Staff recommends the following information be included in the Project Description and resource analyses with the MND:
 - a. Describe structural integrity, if known, of the 235 existing in-water piles (15-inch-diameter creosote-treated timber piles) on land under Commission jurisdiction.
 - b. Describe how the piles will be removed from the River.
 - c. Staff prefers the piles be completely removed. If piles cannot be removed and would need to be cut, please identify depth of cut below mudline, so as to avoid a public navigational hazard during low-water conditions. Staff requests that the piles be cut at a minimum of 5 feet below the mud line.
 - d. Identify if measures will be taken to reduce underwater sediment plumes and turbidity from installing and removing piles.
 - e. Identify if a cofferdam is anticipated to be required.
4. Underwater Noise: Describe what methods will be used (in addition to soft start in MM BIO-4) to monitor underwater noise levels to ensure noise stays below the mortality, injury, or behavioral impacts to fish and other marine wildlife, since vibratory and impact hammers would be used for work in the River.

5. Swainson's Hawk: Identify if there are any known close by California Natural Diversity Database occurrences for the Swainson's Hawk, as there are for the White-Tailed Kite.
6. Bats Under the Bridges: Describe any surveys for bats, and identify if any species have potential to be impacted from proposed work on bridges. If bats are present, please prepare a brief discussion of impacts and appropriate mitigation measures.

Cultural Resources

7. Submerged Cultural Resources: The MND should evaluate potential impacts to submerged cultural resources in the Project area. The Commission maintains a shipwrecks database that can assist with this analysis. Staff requests that the Port contact Staff Attorney Jamie Garrett (contact information below) to obtain shipwrecks data from the database and Commission records for the Project site. The database includes known and potential vessels located on the State's tide and submerged lands; however, the locations of many shipwrecks remain unknown.

Please note that any submerged archaeological site or submerged historic resource that has remained in state waters for more than 50 years is presumed to be significant. Because of this possibility, please clarify Mitigation Measure CULT-2 that in the event cultural resources are discovered during construction activities, Project personnel shall halt all activities in the immediate area and notify a qualified archaeologist to determine the appropriate course of action.

8. Title to Cultural Resources Within Commission Jurisdiction: The MND should state that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the state and under the jurisdiction of the Commission (Pub. Resources Code, § 6313). Commission staff requests that the Port consult with Staff Attorney Jamie Garrett, should any cultural resources on State land be discovered during construction of the proposed Project.

Staff also requests that the following statement be included in Mitigation Measure CULT-2 (on MND page 86), "The final disposition of archaeological, historical, and paleontological resources recovered on State land under the jurisdiction of the California State Lands Commission must be approved by the Commission."

Recreation

9. Public Recreation Open in the River: The bed of the River is State-owned public land and open to public navigation. Staff recommends that the MND requires public notice of the Project and discuss the temporary public access and recreation impacts of work for 3 years in the Project area, including navigation impacts within the River.

Climate Change

10. Sea-Level Rise: The MND on page 101 acknowledges that sea-level rise is one of the long-term negative environmental impacts in California but does not analyze how the Project is designed to address sea-level rise on state lands. Please note that when considering a lease for the Project, staff would be relying on the MND for considering the climate change effects on the leased structures.
11. City of Stockton Climate Action Plan: The link provided for this plan on MND page 5 does not work, please provide a working link. Also, please specifically discuss what aspects of this plan will shape the proposed Project within the Commission's jurisdiction.

Thank you for the opportunity to comment on the MND for the Project. As a responsible and trustee agency, the Commission will rely on the adopted MND when issuing a new lease as specified above (see Section "Commission Jurisdiction and Public Trust Lands"). We request that you consider our comments before adopting the MND.

Please send electronic copies of the adopted MND, Mitigation and Monitoring Program, and Notice of Determination, when they become available. Refer questions concerning environmental review to Afifa Awan, Senior Environmental Scientist, at Afifa.Awan@slc.ca.gov or (916) 574-1891. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Jamie Garrett, Staff Attorney, at Jamie.Garrett@slc.ca.gov or (916) 574-0398. For questions concerning Commission leasing jurisdiction, please contact Marlene Schroeder, Public Land Management Specialist, at Marlene.Schroeder@slc.ca.gov or (916) 574-2320.

Sincerely,



Nicole Dobroski, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
Afifa Awan, Commission
Marlene Schroeder, Commission
Andrew Kershen, Commission

Central Valley Regional Water Quality Control Board

23 July 2021

Jason Cashman
Port of Stockton
2201 West Washington Street
Stockton, CA 95203

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, PORT OF STOCKTON RAIL BRIDGE REPLACEMENT AND RAIL IMPROVEMENTS PROJECT, SCH#2021060578, SAN JOAQUIN COUNTY

Pursuant to the State Clearinghouse's 25 June 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project, located in San Joaquin County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental

KARL E. LONGLEY SCD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_2018_05.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality/certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

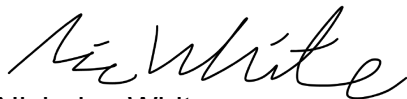
Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Port of Stockton Rail Bridge Replacement - 4 -
and Rail Improvements Project
San Joaquin County

23 July 2021

If you have questions regarding these comments, please contact me at (916) 464-4856 or Nicholas.White@waterboards.ca.gov.

A handwritten signature in black ink, appearing to read "N. White", written in a cursive style.

Nicholas White
Water Resource Control Engineer

cc: State Clearinghouse unit, Governor's Office of Planning and Research,
Sacramento

From: John Stagnaro <John.Stagnaro@valleyair.org>
Date: Thursday, July 1, 2021 at 8:22 AM
To: CEQA <ceqa@stocktonport.com>
Cc: Mark Montelongo <Mark.Montelongo@valleyair.org>, Patia Siong <Patia.Siong@valleyair.org>
Subject: RE: Notice of Availability of a Draft Initial Study/Mitigated Negative Declaration for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project

Good morning Jason,

Would you be able to add our CEQA inbox, ceqa@valleyair.org<<mailto:ceqa@valleyair.org>>, to the mailing list for these notifications?

Thanks!

John Stagnaro
Program Manager
Desk: 559-230-5972
Cell: 559-408-8062
San Joaquin Valley Air Pollution Control District

Service•Teamwork•Attitude•Respect
[Description: image003] <https://linkprotect.cudasvc.com/url?_a=http%3a%2f%2fwww.healthyliving.com%2f&c=E,1JiX_bCRfObpLEgANtvcJ28cRaPD_vsFalhLOM_H1S8mD1b2W7sQMMy2VbFb56dUN979qswijbc6NesmaWXMZYsgIMvnhMp36qz_YflsddQ_zH1Ia_KSbslg_&typo=1>

From: CEQA <ceqa@stocktonport.com>
Sent: Friday, June 25, 2021 12:37 PM
To: CEQA <ceqa@stocktonport.com>
Subject: Notice of Availability of a Draft Initial Study/Mitigated Negative Declaration for the Port of Stockton Rail Bridge Replacement and Rail Improvements Project

As lead agency under the California Environmental Quality Act (CEQA), the Port of Stockton (Port) is providing notice that it has released a Draft Initial Study/Mitigated Negative Declaration (IS/MND) to assess the potential environmental effects associated with the following project located at the Port:
Port of Stockton Rail Bridge Replacement and Rail Improvements Project The proposed project is located in the East and West Complexes of the Port, and involves replacement of a functionally obsolete rail bridge and construction of a new lead track to increase the overall efficiency of train operations within the Port.
An electronic copy of the Draft IS/MND is available on the Port's CEQA documents website: https://secure-web.cisco.com/10HULhriCZj6W31RUmlfBV7vRdxDsK4HmlQ-8x87EwBPPBzwP7CHwuoX_HGv3rMcGTuv9bzIR6te-aMOH38kj2sS5lda5wTx8CStv2KkHRIgprJnlCPMZ1NcuKneO-tpenXoYkBajHYLqgeneofhCP5dVpmiAnZBersYg0WlbEDha8sviapWTzAZ315aKmr-0HYbK98CSO-6YnDKm6KgL6vKsH1slagkBGQpr5jUQs5RYONg4ywCeZ3syQ2R_-6nV3lQscm4gGhA6TG2myibWjftPA5bByiGq3fL5RvgncY18eCT3ualzk21uJli31hSXzfQ4b9sAFYeUbMaCUQ/https%3a%2f%2fwww.portofstockton.com%2fceqa-documents%2f<https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.portofstockton.com%2fceqa-documents%2f&c=E,1,UIUjQTIA_C6a4TdG9KgJ-QKyLHND2ApK_-Eis0BXIHCBu9xyUkFEXAte7t99uCuPNqSzD83lyrkH8Q0QJachJUdeQ0DOWKx2pTH5eSVWEU9b0V_8NptA_&typo=1>.
The Port is holding a virtual agency meeting for the project on Wednesday, July 14, 2021, from 11:00 a.m. to 12:00 p.m. If you will be able to attend this meeting, please register through this link: <https://aq.webex.com/aq/j.php?RGID=r3bc3c733afe6804454d9c2531d35db1>
The Port is also holding a virtual public meeting for the project on Wednesday, July 14, 2021, with presentations at 4:00 p.m. and 5:00 p.m.; the meeting will conclude at 6:00 p.m. Information on how to register for the public meeting is available on the Port's CEQA documents website linked above.

Please submit your comments on the Draft IS/MND to me, Jason Cashman, Port Environmental Manager, either by email to ceqa@stocktonport.com<<mailto:ceqa@stocktonport.com>> or by mail to:
Jason Cashman, Environmental Manager
Port of Stockton
2201 West Washington Street
Stockton, California 95203
Comment letters must be postmarked and emails must be received by July 26, 2020. If you have any questions, please contact me by email or phone at 209-946-0246.

Jason Cashman, Esq. | Environmental & Regulatory Affairs Manager | Port of Stockton P.O. Box 2089, Stockton, CA 95201
Office: 209.946.0246 ext. 8290
[log]



SAN JOAQUIN
—COUNTY—
Greatness grows here.

Environmental Health Department

Jasjit Kang, REHS, Director

Muniappa Naidu, REHS, Assistant Director

PROGRAM COORDINATORS

Robert McClellon, REHS

Jeff Carruesco, REHS, RDI

Willy Ng, REHS

Melissa Nissim, REHS

Steven Shih, REHS

July 20, 2021

To: Port of Stockton
Attention: Jason Cashman, Environmental Manager

From: Michael Suszycki; (209) 598-7001
Registered Environmental Health Specialist

RE: **Port of Stockton Rail Bridge Replacement and Rail Improvements Project, SU0014256**

The San Joaquin County Environmental Health Department (EHD) recommends the following conditions as a part of developing this project:

1. No excavations are permitted into the ground water table without specific approval from the Regional Water Quality Control Board, Central Valley Region (California Water Code, Chapter 4, Article 3, Section 13240).
2. The materials from an excavation shall not be deposited into any watercourse or in any way contribute to the pollution thereof (California Water Code, Section 13376).
3. Any geotechnical drilling shall be conducted under permit and inspection by The Environmental Health Department (San Joaquin County Development Title, Section 9-1115.3 and 9-1115.6).

July 23, 2021

Jason Cashman
Port of Stockton
2021 West Washington Street
Stockton, CA, 95203

Project: Draft Initial Study and Mitigated Negative Declaration for the Rail Bridge Replacement & Rail Improvement Project

District CEQA Reference No: 20210704

Dear Mr. Cashman:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Draft Initial Study and Mitigated Negative Declaration (Draft IS/MND) for the project referenced above from the Port of Stockton (Port). Per the Draft IS/MND, the proposed project would replace a functionally obsolete rail bridge, construction of a new lead track and associated modifications to road underpasses and overpasses near the terminus of the Ort. J. Lofthus Freeway, constructing a new rail underpass at Fresno Avenue, and constructing a new rail classification yard on the West Complex (Project). Project construction is expected to begin in Summer 2023 and would occur over a 3 year period. The Project is located Port of Stockton in Stockton, CA and lies within one of the communities in the State selected by the California Air Resources Board (CARB) for investment of additional air quality resources and attention under Assembly Bill (AB) 617 (2017, Garcia) in an effort to reduce air pollution exposure in impacted disadvantaged communities. The District offers the following comments:

1) Assembly Bill 617

Assembly Bill 617 requires CARB and air districts to develop and implement Community Emission Reduction Programs (CERPs) in an effort to reduce air pollution exposure in impacted disadvantaged communities, like those in which the Project is located. The Stockton AB 617 community is one of the statewide communities selected by CARB for development and implementation of a Community Emission Reduction Program.

Samir Sheikh
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

Following a year of extensive community engagement and collaboration with Stockton's Community Steering Committee, the Community Emission Reduction Program for the Stockton Community was adopted by the District's Governing Board in March 2021 and has been forwarded to CARB for consideration and adoption. The CERP identifies a wide range of measures designed to reduce air pollution and exposure, including a number of strategies to be implemented in partnership between agencies and local organizations. The Community Steering Committee has developed a series of emission and exposure reduction strategies with the goal to improve community health by reducing exposure to air pollutants. Such emission reduction strategies include, but are not limited to, enhanced community participation in land use processes, HHD truck rerouting analyses, reducing HHD truck idling, newer and clean technology for locomotives, and incorporating vegetative barriers and urban greening.

During the development of the CERP, the Community Steering Committee expressed concerns regarding the proximity of emission sources to nearby sensitive receptors like schools, homes, day care centers, and hospitals, and the potential future industrial development within the community that may exacerbate the cumulative exposure burden for community residents. The Community Steering Committee also expressed the desire for more meaningful avenues of engagement surrounding the land-use decisions in the area. As these issues can most effectively be addressed through strong partnerships between community members and local land-use agencies, the District appreciates the Port's participation and partnership in developing the Community Emission Reduction Program. The District is committed to strengthening our working relationship with the Port to implement the land-use focused air pollution and exposure reduction strategies included in the Community Emission Reduction Program. Furthermore, the District recommends the Port assess the emission reductions measures and strategies included in the CERP and address them in the IS/MND, as appropriate, to align the Port's work with the air pollution and exposure reduction strategies and measures outlined in the Community Emission Reduction Program.

For more information regarding the CERP approved for Stockton, please visit the District's website at:

<http://community.valleyair.org/selected-communities/stockton>

2) Project Related Emissions

Based on the information in the Draft IS/MND, Project specific annual emissions of criteria pollutants are not expected to exceed any of the following District significance thresholds: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5).

2a) Construction Emissions

Construction air emissions are short-term emissions generated from construction activities such as mobile heavy-duty diesel off-road equipment, and are expected to result in a less than significant impact. However, the District recommends, to further lessen air quality impacts from construction-related diesel exhaust emissions, the Port consider the feasibility of incorporating the below measure into the Project.

Recommended Measure: the project should utilize the cleanest available off-road construction fleets, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations.

2b) Truck Routing

Truck routing involves the assessment of which roads heavy-duty trucks take to and from their destination, and the emissions impact that the trucks may have on residential communities and sensitive receptors. This Project may result in increased truck trips during construction activities.

Therefore, the District recommends the Port evaluate heavy-duty truck routing patterns within the scope of the Project, with the aim of limiting emission exposure to residential communities and sensitive receptors. This evaluation would consider the current truck routes, the quantity and type of each truck (MHD, HHD, etc.), the destination and origin of each trip, traffic volume correlation with the time of day or the day of the week, overall VMT, and associated exhaust emissions.

2c) Reduce Idling of Heavy-Duty Trucks

The goal of this strategy is to limit the potential for localized PM_{2.5} and toxic air contaminant impacts associated with failure to comply with the state's Heavy-Duty anti-idling regulation (e.g. limiting vehicle idling to specific time limits). This Project may result in increased truck trips during construction activities and has the potential for idling to occur. The diesel exhaust from excessive idling has the potential to impose significant adverse health and environmental impacts. The Draft IS/MND should consider strategies to ensure compliance of the anti-idling regulation, especially near sensitive receptors, and discuss the importance of limiting the amount of idling within the Project. Therefore, the District recommends, to further lessen air quality impacts from idling, the Port consider the feasibility of incorporating the below measure into the Project.

Recommended Measure: fleets based within the Project area limit vehicle idling as set forth in §2485 and §2480 of Title 13 of the California Code of Regulations.

3) Health Risk Assessment

The District has reviewed the Health Risk Assessment (HRA) in the Draft IS/MND and offers the following comments:

- The HRA performed used guidance and/or methodologies from other agencies (e.g. Bay Area AQMD guidance for construction) without prior District approval. While the District recognizes the existence of these guidance and methodologies, the District does not automatically accept their use in performing HRAs. It is strongly recommended that prior to performing an HRA, land use agencies/development project proponents contact the District to review the proposed health risk modeling protocol.
- It appears that a Linux version of American Meteorological Society and U.S. Environmental Protection Agency Regulatory Model (AERMOD) was used for the air dispersion modeling. The District is uncertain if this Linux version of AERMOD has been validated against the official Environmental Protection Agency release of AERMOD.
- Certain nearby business receptors (e.g. facilities/entities within the Port) were not included in the modeling run. Unless the project proponent owns and/or operates the various facilities within the Port, they must be included as receptors under the HRA analysis.
- All presented values (e.g. emissions) should be accompanied by sufficient information (i.e. assumptions, sample calculations, supporting information, etc.) in order to reproduce those values. For example, emission factors were not provided for all Project construction equipment. The District recommends that all inputs (e.g. spreadsheets, emission factors) used to develop the Project emissions and modeling runs be provided to the District in order for the District to perform its review.
- The Draft IS/MND referenced a Roseville Rail Yard Study document as the model for the HRA. Under this study, the locomotive idling activity was modeled as a point source. However, in the HRA performed for the Project, the locomotive idling activity was modeled as an area source instead. The District recommends further justification be included in the Draft IS/MND to support modeling locomotives idling activities as area sources.
- The modeled emission rates of construction sources TRACK01-06 do not appear to be consistent with normalized emission rates. Additionally, each of the emission rates appear to be identical despite each of the area sources having different sizes from one another. The emission rates should be re-evaluated to ensure that they were properly characterized.

- The District has the following comments regarding the exposure parameters used in the HRA analysis.
 - The District requires the daily breathing rate for all receptors, when a single pollutant is being evaluated, to be set to the 95th percentile 24-hour daily breathing rate for all age bins.
 - The District requires the daily breathing rate for workers be set to the Long-Term 24hr breathing rate.
 - Per District policy APR-1906 (Framework for Performing Health Risk Assessments), the use of time away from home is not allowed for HRAs without prior justification and District approval.
 - Recreational receptors are solely for patrons of the recreational areas. It's important to note, workers within recreational areas will be treated as worker receptors.

Based on the above, the District is unable to validate the conclusions determined in the Draft IS/MND. As such, the District recommends the HRA be revised based on the above comments to ensure adequate assessment of the Project health impacts.

4) Locomotives, and Railcar Movers/Switchers

The Project will result in increased freight trains to pass through the Port. To reduce air quality emission impacts from the Project, the District recommends that the Port advise freight and passenger train operators to utilize newer, and cleaner technology. Replacing older locomotives is important to reduce the public's exposure to diesel emissions, including PM2.5 in the form of diesel particulate and NOx. These pollutants negatively impact human health, especially for sensitive populations such as children and the elderly. New, clean-technology locomotives generate significantly lower emissions than older, uncontrolled diesel locomotives.

The District offers two incentive programs for locomotive fleets interested in transitioning to newer, clean technology, including:

- Heavy-Duty Program – <http://valleyair.org/grants/locomotive.htm>
Locomotive replacements, including switcher locomotives and railcar movers can be funded as an eligible project category under the District's utilizing funding provided to support AB 617. These projects are administered according to the Carl Moyer Program guidelines.
- Proposition 1B - <http://valleyair.org/grants/locomotives-prop1b.htm>
This program incentivizes the reduction of emissions and health risks associated with freight movement along California's trade corridors via

upgrading to cleaner technologies or installation of emissions capture and control systems.

5) Vegetative Barriers and Urban Greening

The Project is located in an urban area south of downtown Stockton and is surrounded by mix land use development. More specifically, there are single-family residences and businesses located immediately adjacent to the Project. The District suggests the Port consider the feasibility of incorporating vegetative barriers and urban greening as a measure to potentially reduce air pollution exposure on sensitive receptors (i.e. businesses and residents).

While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, vegetative barriers have been shown to be an additional measure to potentially reduce a population's exposure to air pollution through the interception of airborne particles and the uptake of gaseous pollutants. Examples of vegetative barriers include, but not limited to the following: trees, bushes, shrubs, or a mix of these. Generally, a higher and thicker vegetative barrier with full coverage will result in greater reductions in downwind pollutant concentrations. In the same manner, urban greening is also a way to help improve air quality and public health in addition to enhancing the overall beautification of a community with drought resistant low maintenance greenery.

6) District Rules and Regulation

The District issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A project subject to District rules and regulations would reduce its impacts on air quality through compliance with the District's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to District permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other District rules or regulations that apply to this Project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (209) 557-6446.

6a) District Rule 9510 (Indirect Source Review)

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM emissions associated with development and transportation projects from mobile and area sources; specifically, the emissions associated with the construction and subsequent operation of development projects. The Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their projects. Should the proposed development project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive projects to achieve off-site emissions reductions.

The District has reviewed the information provided and determined that the Project would not create a passenger transportation service that is either local, metropolitan or regional in scope, that is available to any person who pays a prescribed fare. The Project does not meet the definition of a "Transit Development Project", as defined in District Rule 9510 section 3.34. Therefore, District Rule 9510 requirements and related fees do not apply to the Project.

6b) Other District Rules and Regulations

The Project may also be subject to the following District rules: Regulation VIII, (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

7) District Comment Letter

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Eric McLaughlin by e-mail at Eric.McLaughlin@valleyair.org or by phone at (559) 230-5808.

Sincerely,

Brian Clements
Director of Permit Services



Mark Montelongo
Program Manager

U.S. Department of
Homeland Security

**United States
Coast Guard**



Commander
Eleventh Coast Guard District

Coast Guard Island, Bldg. 50-2
Alameda, CA 94501-5100
Staff Symbol: dpw
Phone: (510) 437-3516
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16591
San Joaquin River (39.7)
July 15, 2021

Port of Stockton

Attn: Juan Villanueva, Director of Development and Planning

P.O. Box 2089

Stockton, CA 95201

Dear Mr. Villanueva:

This letter supersedes my June 1, 2021 letter concerning Coast Guard preliminary support of the proposed replacement of the Port of Stockton Rail Bridge, mile 39.7, over the San Joaquin River, at the Port of Stockton, San Joaquin County, California.

The Port of Stockton is proposing to replace the single rail swing bridge with a dual removable span rail bridge. According to updated measurements HDR documented on June 15, 2021, the existing swing bridge, with a low chord elevation of 15.1 feet, provides 11.5 feet of vertical clearance at Mean High Water (MHW) in the closed to navigation position, unlimited vertical clearance in the open-to-navigation position and 100 feet of horizontal clearance. The proposed dual removable span rail bridge, with a proposed low chord elevation of 15.82 feet, will provide 12.17 feet of vertical clearance at MHW in the closed to navigation position, unlimited vertical clearance in the open-to-navigation position and 80 feet of horizontal clearance. (MHW elevation = 3.6 feet, NGVD 29).

The Coast Guard preliminary supports replacing the existing swing bridge with a removable span bridge. The proposed removable span bridge should provide, at a minimum, a vertical clearance of 12.17 feet from Mean High Water to low steel in the closed-to-navigation position, unlimited vertical clearance in the open-to-navigation position and a horizontal clearance of 80 feet, pier face to pier face or fender to fender, measured normal to the axis (centerline) of the channel. The bridge piers shall be located as depicted in plan drawings the Port of Stockton provided on June 22, 2021 (enclosed).

The General Bridge Act of 1946 requires approval of the location and plans for bridges over navigable waters of the United States, prior to commencing construction. The San Joaquin River, at the proposed bridge replacement project site, is considered to be a navigable waterway of the United States for bridge administration purposes.

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Please note that this preliminary determination does not constitute an approval or final agency action determination which we can only make in accordance with regulation and after the Port of Stockton submits a complete bridge permit application.

Applications for bridge permits are to be addressed to Commander, Eleventh Coast Guard District, Building 50-2, Coast Guard Island, Alameda, CA 94501-5100, attention Bridge Section. A Coast Guard Bridge Permit Application Guide is available on-line at: <https://go.usa.gov/xRFk2>.

For satisfying the requirements of the National Environmental Policy Act (NEPA), we need sufficient information to allow a thorough assessment of the impacts of the proposed bridge on the environment. This will include the impacts of the entire project, from termini to termini, and the impacts of procedures for constructing the proposed replacement bridge. A list of other permitting agencies and adjacent property owners will assist us in our collection of information for this project. The Coast Guard will assume the role as Lead Federal Agency for NEPA.

The Coast Guard will coordinate with other involved federal/state agencies prior to determining the appropriate level of NEPA documentation for the project.

I can be contacted by telephone at (510) 437-3516 or by email at Carl.T.Hausner@uscg.mil if you have questions regarding this determination.

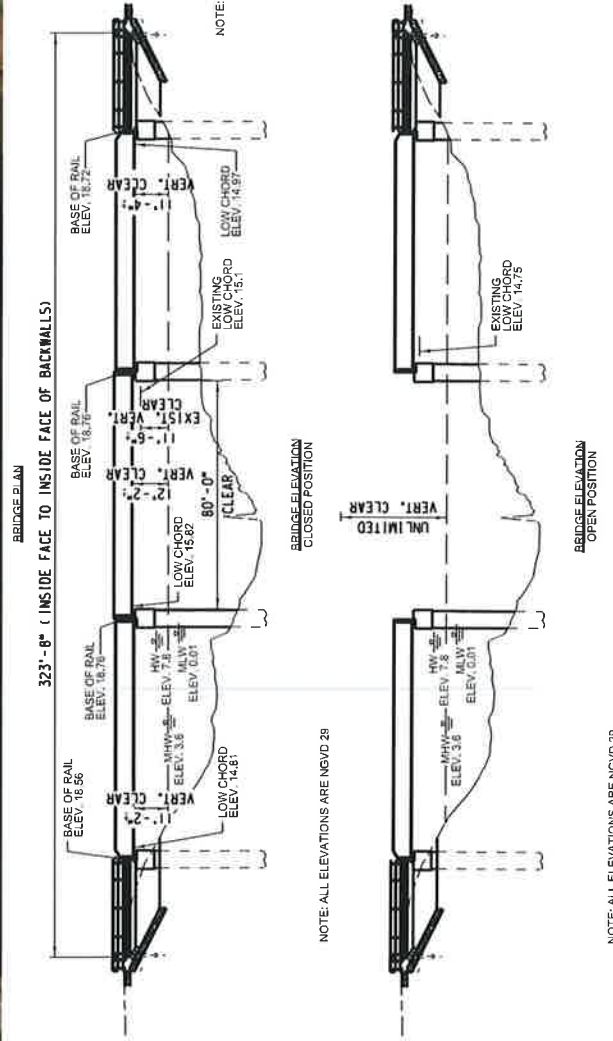
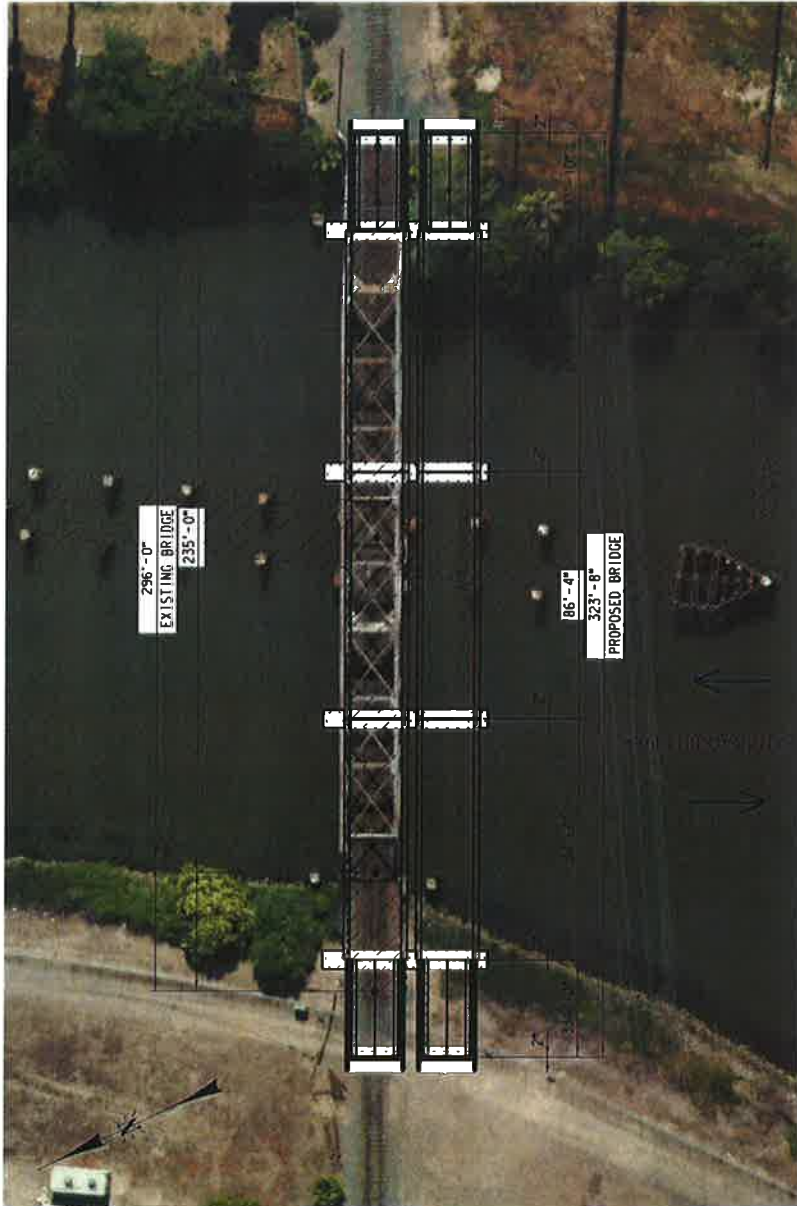
Sincerely,



CARL T. HAUSNER
Chief, Bridge Section
Eleventh Coast Guard District
By direction of the District Commander

Enclosure

Copy: Mike Higgins, HDR, Inc.
Katie Chamberlin, Anchor QEA



ENCLOSURE ()

PRELIMINARY

NOT FOR CONSTRUCTION DATE: 06/15/2021

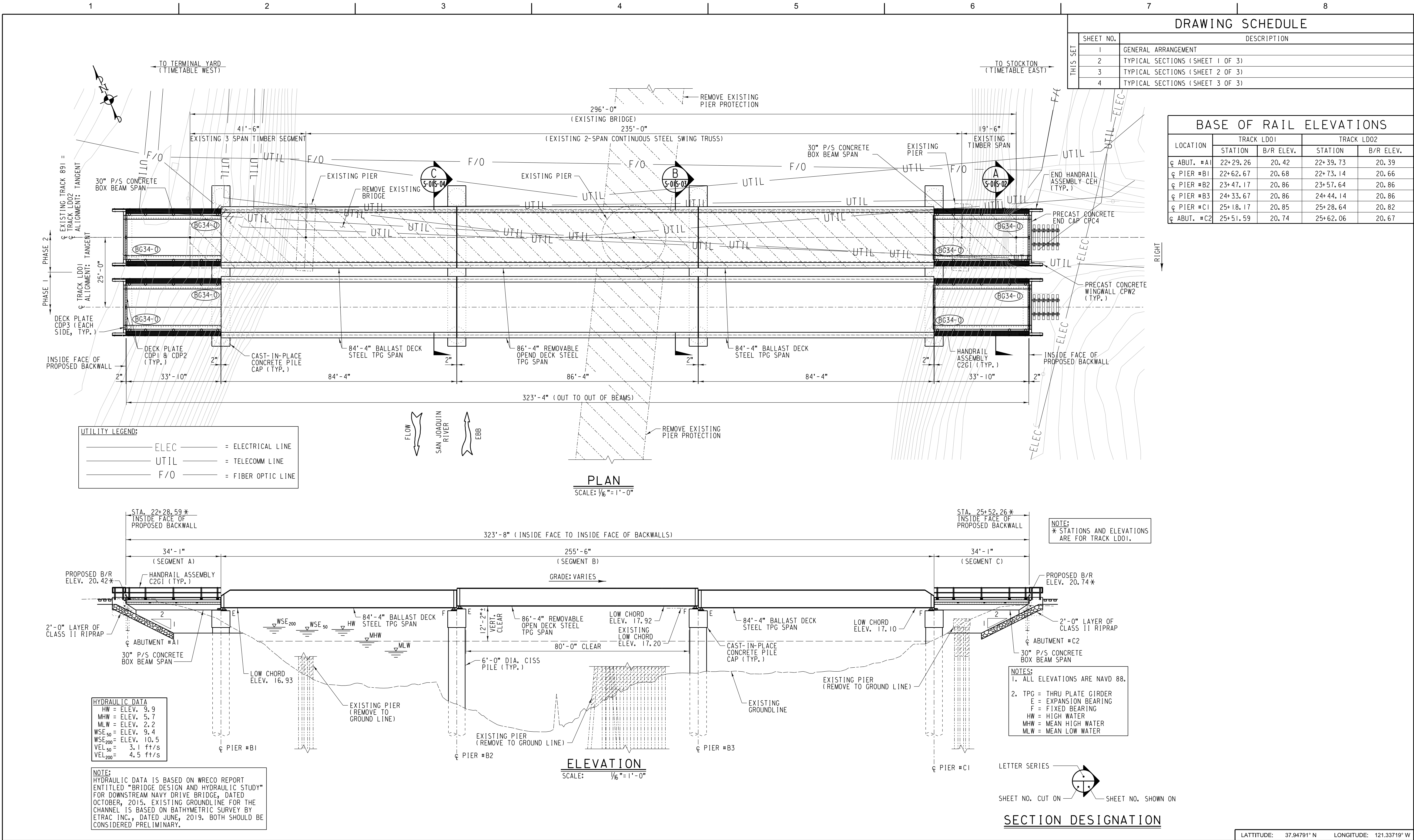
PORT OF STOCKTON
SAN JOAQUIN RAIL BRIDGE

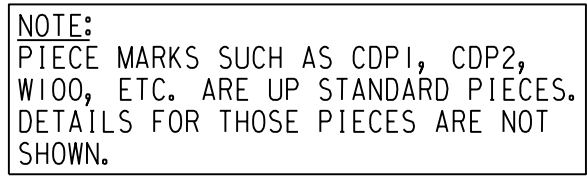
San Joaquin River, Mile 39.8,
at Stockton, San Joaquin County, CA

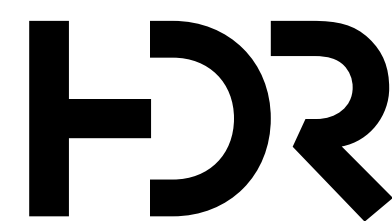
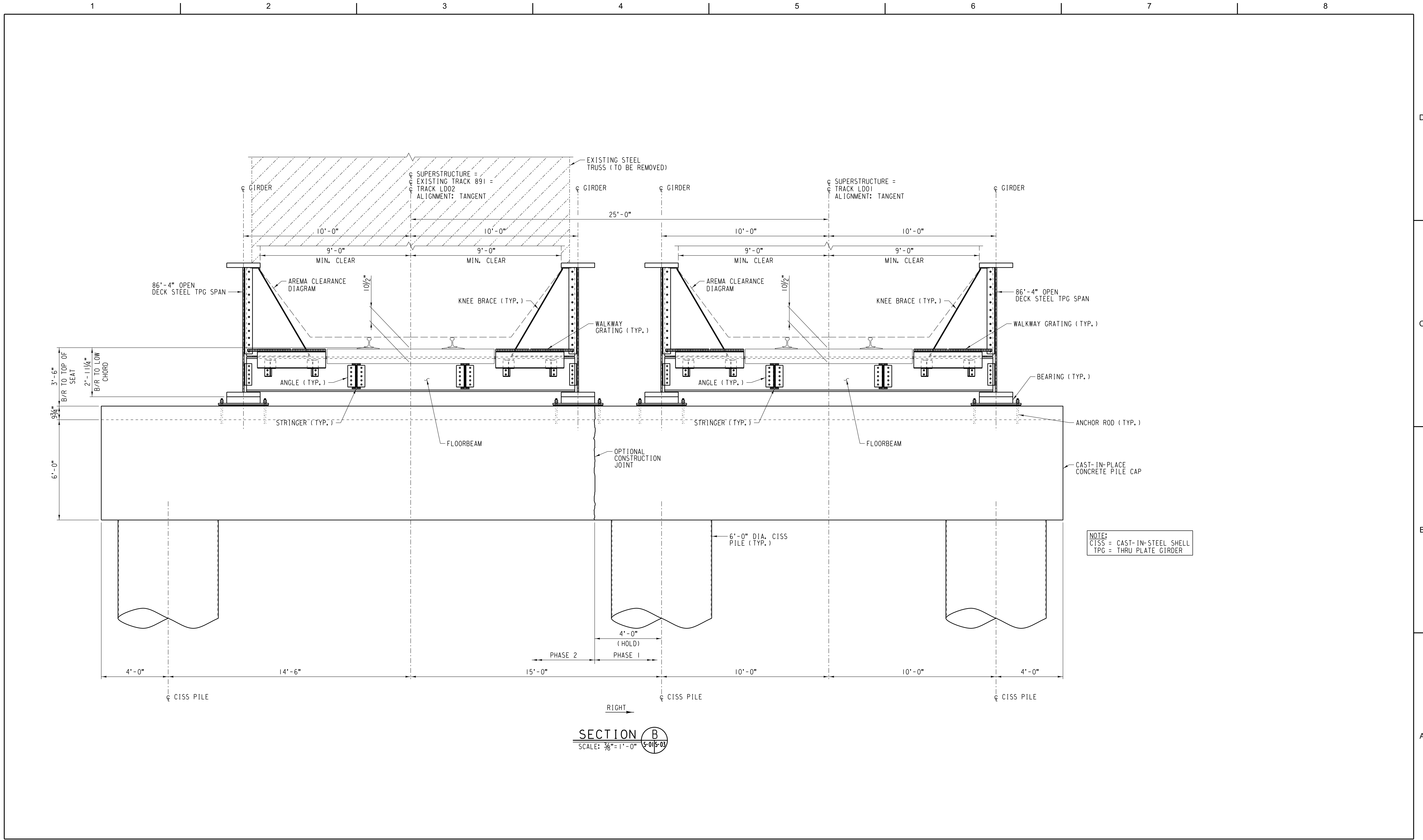
Consultant: HDR
Bridge Plan and Elevation

Appendix B

Preliminary Plan Sheets Depicting Project Design General Arrangement







ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	MICHAEL HIGGINS
DESIGNED BY	RJB
DRAWN BY	SSS
CHECKED BY	
SUBMITTED BY	
PROJECT NUMBER	

- PRELIMINARY -
NOT FOR CONSTRUCTION

PORT OF STOCKTON
SAN JOAQUIN RIVER RAIL BRIDGE REPLACEMENT
TYPICAL SECTIONS (SHEET 2 OF 3)

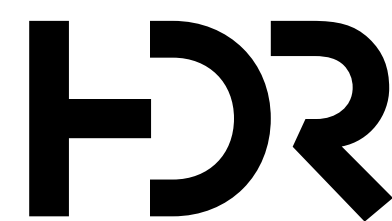
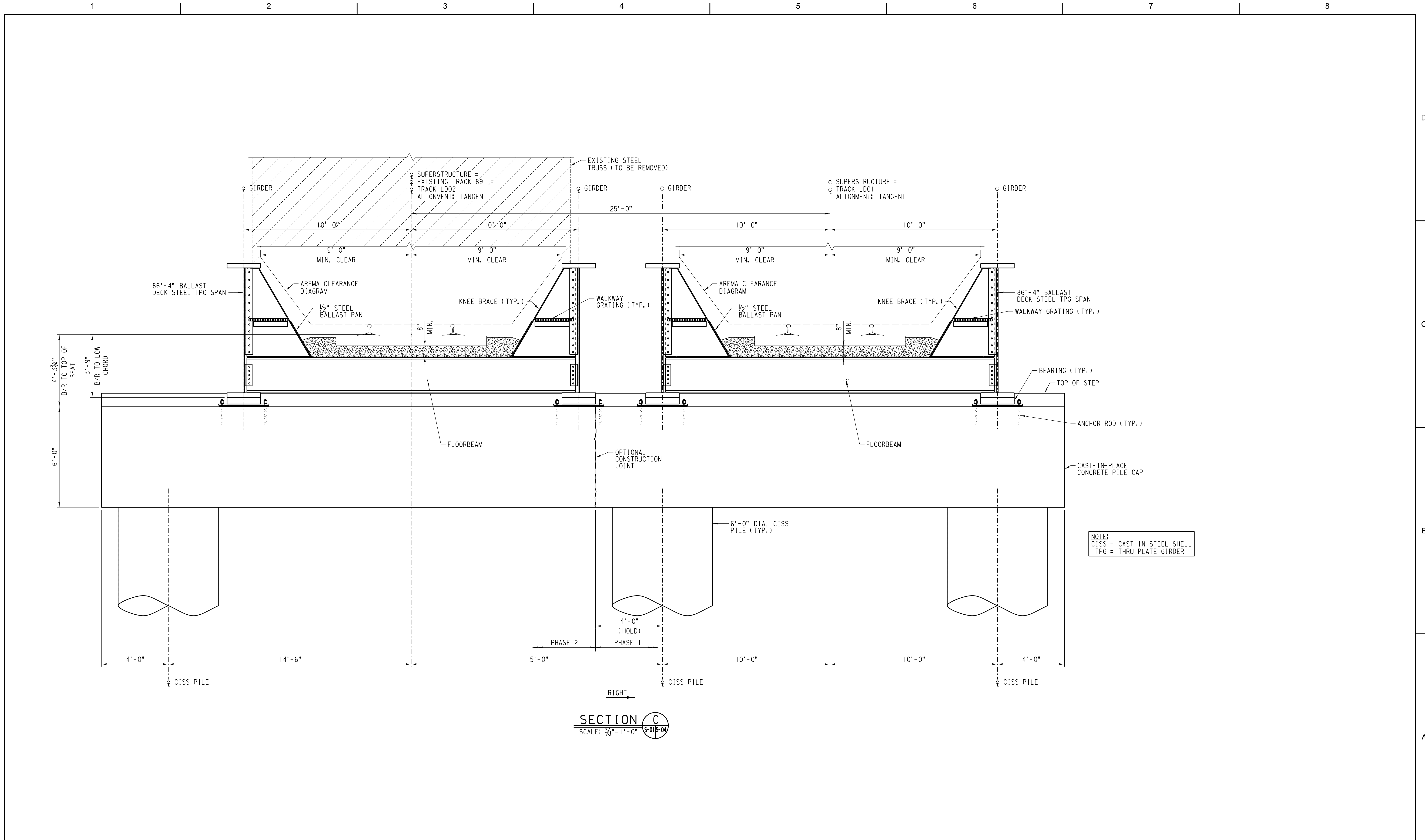


Port of Stockton
CALIFORNIA

0 1" 2"
RELATIVE BORDER SCALE
IS IN INCHES

FILENAME 22X34HBRDR_Ph1.dwg
SCALE AS NOTED

SHEET
S-03



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	MICHAEL HIGGINS
DESIGNED BY	RJB
DRAWN BY	SSS
CHECKED BY	BJW
SUBMITTED BY	
PROJECT NUMBER	

- PRELIMINARY -
NOT FOR CONSTRUCTION

PORT OF STOCKTON
SAN JOAQUIN RIVER RAIL BRIDGE REPLACEMENT
TYPICAL SECTIONS (SHEET 3 OF 3)



Port of Stockton
CALIFORNIA

0 1" 2"

RELATIVE BORDER SCALE
IS IN INCHES

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SCALE | AS NOTED

SHEET
S-04

Appendix C

Updated Air Quality Modeling Tables

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

Type	Source		Methodology and Formula	Reference
Construction Equipment	Off-Road Equipment ¹		$E_c = \Sigma(EF_c * HP * LF * Hr * C)$	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	$E_T = \Sigma(EF_T * Trip \text{ Number} * C)$	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 Methodology 7.9
Construction Onsite Truck Activity ³	Onsite Trucking		Shown in Table 4	--
Rail Sources ⁴	On-Site Exhaust - Running		$E_{R-on} = EF * \text{On-Site Running Hours} * \text{Number of Locomotives} * HP * LF / C$	CARB
	On-Site Exhaust - Idling		$E_{I-on} = EF * \text{On-Site Idling Hours} * \text{Number of Locomotives} * HP * LF / C$	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-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_{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:

CARB. 2017. Line Haul / Class I Documentation. Available at: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road>

CARB. 2021. Line Haul / Class I Documentation. Available at: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road>

CARB/USEPA. 2017. Table 1: ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards. Available at: https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017.pdf and https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx.

CARB. 2021. Emission FACtors Model, 2021 (EMFAC2021). Available at: <https://arb.ca.gov/emfac/emissions-inventory>

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

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

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	--
		Erection of Superstructure on MT2	Vibration Equipment	Other General Industrial Equipment	1	0.50	88
			180-ton Service Crane	Cranes	1	4.3	231
			Welder	Welders	1	0.19	46
			300-ton Crane	Cranes	1	3.7	231
		Removal of South Temporary Work Platform	Manlift	Aerial Lifts	2	6.9	63
			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
		MT1 Bridge Foundations	Excavator	Excavators	1	0.65	158
			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
		Bridge Piers	Concrete Pump Truck	N/A ⁷	1	2.0	--
			Concrete Truck	N/A ⁷	1	5.6	--
			180-ton Service Crane	Cranes	1	6.0	231
			Manlift	Aerial Lifts	2	5.6	63
		Erection of Superstructure on MT1	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
			180-ton Service Crane	Cranes	1	4.3	231
		Removal of North Temporary Work Platform	Welder	Welders	1	0.19	46
			300-ton Crane	Cranes	1	3.7	231
			Manlift	Aerial Lifts	2	6.9	63
			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:

- Equipment lists were provided by the Project Sponsor. Where horsepower was not provided, CalEEMod® defaults were assumed.
- CalEEMod equipment types are assigned using CalEEMod User's Guide Appendix D.
- All equipment is conservatively assumed to be diesel-fueled.
- The engine tier is assumed to be consistent with the fleet average tier from CalEEMod®.
- 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).
- 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.
- 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

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 ₂ O	CO ₂ e
						(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 CO₂e are 1, 25, and 298 for CO₂, CH₄, and N₂O, respectively.

Abbreviations:

CH₄ - Methane

CO₂ - Carbon Dioxide

CO₂e - Carbon Dioxide Equivalents

EMFAC2021 - Emission Inventory Model for Onroad Motor Vehicles in California

lb - pound

MT - metric ton

N₂O - nitrous oxide

NO_x - nitrous oxide

PM_{2.5} - particulate matter less than 2.5 microns in diameter

PM₁₀ - 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:

- Worker trips are estimated using CalEEMod® methodology, which assumes 1.25 workers per piece of equipment.
- 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.
- Worker and hauling trip lengths are based on CalEEMod Appendix D defaults for San Joaquin County.
- 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								CO ₂ e
				ROG	NOx	CO	SOx	PM ₁₀ ³		PM _{2.5} ³		
								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
	2024	Tire Wear	g/mile	--	--	--	--	--	0.0080	--	0.0020	--
		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	--	--	--	--	--	--	--	--
	2025	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	--
		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								CO ₂ e
				ROG	NOx	CO	SOx	PM ₁₀ ³		PM _{2.5} ³		
								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
	2024	Tire Wear	g/mile	--	--	--	--	--	0.035	--	0.0089	--
		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	--	--	--	--	--	--	--	--
	2025	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	--
		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								CO ₂ e
				ROG	NOx	CO	SOx	PM ₁₀ ³		PM _{2.5} ³		
								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:

- Emission factors for construction trips were estimated using EMFAC2021 for San Joaquin county.
- 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).
- 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).
- Onsite trucks are assumed to be diesel-fueled and 100% Medium Heavy-Duty Trucks (MHDT).

Abbreviations:

CAP - criteria air pollutant	MT- metric tons
CalEEMod® - California Emissions Estimate Model	N ₂ O - nitrous oxide
CH ₄ - methane	NO _x - nitrous oxide
CO - carbon monoxide	PM _{2.5} - particulate matter less than 2.5 microns in diameter
CO ₂ - carbon dioxide	PM ₁₀ - particulate matter less than 10 microns in diameter
CO ₂ e - carbon dioxide equivalent	ROG - reactive organic gases
EMFAC2021 - Emission Inventory Model for Onroad Motor Vehicles in California	SO _x - sulfur oxide
GHG - greenhouse gas	
lb - pound	

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

Silt Loading Factor Derivation¹

Entrained Roadway Dust Constants for San Joaquin County		
Roadway Category	Silt Loading (g/m²)	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 Equation²

$$E \text{ [lb/VMT]} = k \cdot (sL)^{0.91} \cdot (W)^{1.02} \cdot (1-P/4N)$$

Parameter³	Value
<i>E</i> = annual average emission factor in the same units as <i>k</i>	[calculated]
<i>k</i> = particle size multiplier for particle size range and units of interest	
<i>PM</i> ₁₀ (lb/VMT)	0.0022
<i>PM</i> _{2.5} (lb/VMT)	3.3E-04
<i>sL</i> = road surface silt loading (grams per square meter) (g/m ²)	0.047
<i>W</i> = average weight (tons) of all the vehicles traveling the road	2.4
<i>P</i> = number of "wet" days with at least 0.01 in of precipitation during averaging period ⁴	51
<i>N</i> number of days in the averaging period	365

Scenario	Fugitive PM₁₀	Fugitive PM_{2.5}	Units
Emission Factor	3.20E-04	4.79E-05	lb/VMT

Notes:

- 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.
- 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.
- 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).
- The number of "wet" days for San Joaquin County is from CalEEMod[®] Appendix D Table 1.1 (51 days).

Abbreviations:

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

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									GHGs ²
				CAPs								CO ₂ e	
				ROG	NOx	CO	SOx	PM ₁₀		PM _{2.5}			
								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	
	Main Track 1 Construction	Removal of South Temporary Work Platform	2024	16	176	137	0.51	6.6	5.4	6.1	1.1	24	
		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	
Second Lead Tracks	Earthwork	Removal of North Temporary Work Platform	2025	15	162	134	0.51	5.9	5.4	5.5	1.1	24	
		Earthwork, Trackwork, and Underpass Construction	2023	253	2,439	2,123	9.0	90	114	84	19	280	
	Track Removal & Reconnection	Earthwork and Track Construction - Port	2023	37	409	361	1.9	14	28	13	5.3	71	
		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 ₂ e
							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
Threshold³	10	10	100	27	15	15	--

Notes:

- 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.
- Carbon dioxide equivalent emissions were determined using IPCC 5th Assessment Report Global Warming Potentials for CH₄ and N₂O.
- Annual emissions are compared to the SJVAPCD Thresholds of Significance.

Abbreviations:

CAP - criteria air pollutant
 CalEEMod® - California Emissions Estimate Model
 CH₄ - methane
 CO - carbon monoxide
 CO₂ - carbon dioxide
 CO₂e - carbon dioxide equivalent
 GHG - greenhouse gas
 IPCC - Intergovernmental Panel on Climate Change
 lb - pound

MT- metric tons
 N₂O - nitrous oxide
 NO_x - oxides of nitrogen
 PM_{2.5} - particulate matter less than 2.5 microns in diameter
 PM₁₀ - 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		
	Trains/week	%		trips/train	trips/week	feet/trip	feet/week		General	700-Yard Block	Lead Block
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:

- 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.
- 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.
- 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).
- The total running time was provided by JMA. Total running time was split between locations and locomotive type by percent of total distance travelled.
- 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 Factors¹

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 Distribution²

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 Factors³

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 Factor⁴

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 Locomotives⁷

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 PM₁₀ for locomotive operations, and the emission factor for PM and PM₁₀ 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 SO₂ 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 position. 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	lb - pound
CARB - California Air Resources Board	MW - molecular weight
CO - carbon monoxide	NOx - nitrogen oxides
g - gram	PM - particulate matter
gal - gallon	ppm - parts per million
GHG - greenhouse gas	ROG - reactive organic gases
HC - hydrocarbons	SOx - sulfur oxides
HP - horsepower	TAC - toxic air contaminant
hr - hour	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-Climateregistry-2020-Default-Emission-Factor-Docment.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/engine
Future Without Project Operating Schedule	119	139	Hours/Week
	52		Weeks/Year
Future With Project Operating Schedule	157	79	Hours/Week
	52		Weeks/Year
Total Fuel Usage	39	2.2	gal/hr
Fuel Usage Without Project	241,548	16,315	gal/year
Fuel Usage With Project	318,499	9,194	gal/year

Line Haul Emission Factors⁵

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 Rates⁶

Scenario	Engine Mode	ROG	NOx	PM ₁₀	PM _{2.5}	CO	SOx	CO _{2e}
		ton/year						MT/year
Future Without Project	Running	1.2	29	0.67	0.62	7.1	0.026	2,489
	Idling	0.084	2.0	0.045	0.042	0.48	0.0017	168
	Total	1.3	31	0.71	0.66	7.6	0.027	2,658
Future With Project	Running	1.6	39	0.88	0.81	9.3	0.034	3,282
	Idling	0.047	1.1	0.025	0.023	0.27	0.0010	95
	Total	1.7	40	0.91	0.83	10	0.035	3,377
Net Change	Running	0.39	9.3	0.21	0.20	2.3	0.0082	793
	Idling	-0.037	-0.86	-0.020	-0.018	-0.21	-7.6E-04	-73
	Total	0.36	8.5	0.19	0.18	2.0	0.0074	720

Notes:

- The number of locomotives per train was provided by the Project sponsor.
- 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 UPRR and BNSF locomotives.
- Load factor is derived from US EPA's Locomotive Emission Standards Regulatory Support Document as shown in Table 11.
- 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.
- Emission factor derivations are shown in Table 11.
- Line-haul locomotive emission rates calculated using operating schedule, fuel consumption rate, and emission factors.

Abbreviations:

CO - carbon monoxide	NOx - nitrogen oxides
CO _{2e} - carbon dioxide equivalent	PM - particulate matter
bhp - brake horse power	ROG - reactive organic gases
gal - gallon	SOx - sulfur oxides
hr - hour	UPRR - Union Pacific Railroad
lb - pound	BNSF- Burlington Northern Santa Fe Railway
MT - metric ton	

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 SO₂ Emission Factor Derivation¹

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 Factors²

Pollutant	Value	Units
CO ₂	23	lb/gal
CH ₄	0.0018	lb/gal
N ₂ O	5.6E-04	lb/gal

Switching Emission Factors³

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 Locomotives⁴

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 SO₂ 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 PM₁₀ for locomotive operations, and the emission factors for PM and PM₁₀ 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	lb - pound
CARB - California Air Resources Board	lbmol - pound-mole
CH ₄ - methane	MT - metric ton
CO - carbon monoxide	N ₂ O - nitrous oxide
CO ₂ - carbon dioxide	NO _x - nitrogen oxides
g - gram	PM - particulate matter
gal - gallon	ROG - reactive organic gases
HC - hydrocarbons	SO ₂ - sulfur dioxide
hr - hour	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	lb - pound
CO _{2e} - carbon dioxide equivalent	NOx - nitrogen oxides
DEIR - Draft Environmental Impact Report	PM - particulate matter
gal - gallon	ROG - reactive organic gases
HP - horsepower	SO ₂ - sulfur dioxide
hr - hour	

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 Emissions²

Scenario	Engine Mode	ROG	NOx	PM ₁₀	PM _{2.5}	CO	SOx	CO ₂ e
		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 factors from Table 14.

Abbreviations:

CO - carbon monoxide	NOx - nitrogen oxides
CO ₂ e - carbon dioxide equivalent	PM - particulate matter
gal - gallon	ROG - reactive organic gases
hr - hour	SO ₂ - sulfur dioxide
MT - metric ton	

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

Scenario	Engine Type	Engine Mode	CAP Emissions						GHG Emissions
			ton/year						MT/yr
			ROG	NO _x	PM ₁₀	PM _{2.5}	CO	SO _x	CO ₂ e
Future Without Project	Class I Engine	Running	1.24	29	0.67	0.62	7.1	0.026	2,489
		Idling	0.084	2.0	0.045	0.042	0.48	1.7E-03	168
	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		2.0	42	1.11	1.02	10.6	0.040	3,898
Future With Project	Class I Engine	Running	1.63	39	0.88	0.81	9.3	0.034	3,282
		Idling	0.047	1.12	0.025	0.023	0.27	9.8E-04	95
	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		2.5	52	1.33	1.22	12.8	0.049	4,710
Net Change	Class I Engine	Running	0.39	9.3	0.21	0.20	2.3	0.0082	793
		Idling	-0.037	-0.86	-0.020	-0.0181	-0.21	-7.6E-04	-73
	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		0.41	9.3	0.22	0.20	2.3	0.0084	813

SJVAPCD Air Quality Thresholds of Significance¹

Source Designation	ROG	NO _x	PM ₁₀	PM _{2.5}	CO	SO _x
	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
CO₂e - carbon dioxide equivalent
GHG - greenhouse gas
lb - pounds
NO_x - nitrogen oxides
PM - particulate matter
ROG - reactive organic gases
SJVAPCD - San Joaquin Valley Air Pollution Control District
SO_x - 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	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	2.1E-04
		Port Side Tracks	8.4E-04
		Bridge Approaches	8.4E-04
		Truck Hauling	4.2E-06
2025	Rail Bridge Replacement	Off-Road Equipment Exhaust	0.0016
		Truck Hauling	4.1E-06
	Port Yard Improvements	Off-Road Equipment Exhaust	6.9E-04
		Truck Hauling	7.4E-06

Notes:

- ¹ All PM₁₀ 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

PM₁₀ - 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	0.39	0.29	0.097	--	8.4E-06	8.4E-06
			General Idling	0.0079	--	--	1.7E-07	--	--
			700 Yard Block Idling	0.0092	--	--	2.0E-07	--	--
			Lead Block Idling	0.020	--	--	4.3E-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	0.28	0.21	0.070	--	6.1E-06	6.1E-06
			General Idling	1.7E-03	--	--	3.7E-08	--	--
			700 Yard Block Idling	0.0020	--	--	4.3E-08	--	--
			Lead Block Idling	0.0044	--	--	9.4E-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	0.40	0.30	0.100	--	8.6E-06	8.6E-06
			General Idling	0.0088	--	--	1.9E-07	--	--
			700 Yard Block Idling	--	--	--	--	--	--
			Lead Block Idling	0.0099	--	--	2.1E-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	0.48	0.36	0.120	--	1.0E-05	1.0E-05
			General Idling	0.0032	--	--	6.8E-08	--	--
			700 Yard Block Idling	--	--	--	--	--	--
			Lead Block Idling	0.0036	--	--	7.7E-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	0.0130	0.0097	0.0032	--	2.8E-07	2.8E-07
			General Idling	8.9E-04	--	--	1.9E-08	--	--
			700 Yard Block Idling	-0.0092	--	--	-2.0E-07	--	--
			Lead Block Idling	-0.0101	--	--	-2.2E-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	0.20	0.150	0.050	--	4.3E-06	4.3E-06
			General Idling	1.4E-03	--	--	3.1E-08	--	--
			700 Yard Block Idling	-0.0020	--	--	-4.3E-08	--	--
			Lead Block Idling	-7.8E-04	--	--	-1.7E-08	--	--
		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 McCloy 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:
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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. Rail Idling locations were modeled as area sources (in contrast to point sources used in the Roseville Rail Yard Study) as this was determined to more accurately account for uncertainty in the locomotives' location. Area sources still represent a conservative approach despite the increased spatial distribution of emissions as the additional dispersion found in point sources from the buoyancy and vertical momentum are not included in area sources.
- ^{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
Allocation of Emissions to AERMOD Source Groups
Rail Bridge & Rail Improvements Project
Stockton, California

Category	AERMOD Source Group	Description of Source Group	Emissions Allocation Methodology ^{1,2}
Construction	BRIDGE	Bridge Replacement Construction Area	Off-Road equipment exhaust emissions from Rail Bridge Replacement construction project.
	WESTYARD	McCloy Yard Construction Area	Off-Road equipment exhaust emissions from Port Yard Improvements construction project.
	TRACKS_E	Rail Track Improvement Areas (6 locations)	Off-Road equipment exhaust emissions from Second Lead Tracks - Port Side Tracks construction project.
	TRACKS_W	Rail Track Improvement Area (1 location)	Off-Road equipment exhaust emissions from Second Lead Tracks - Bridge Approaches construction project.
	HAUL_PY	Haul Route from Port of Stockton Expressway to McCloy Avenue (near McCloy Yard Construction Area)	On-road truck exhaust emissions from McCloy Yard construction phases along 1.37 mile route segment within modeling domain.
	HAUL_RB	Haul Route from Navy Drive to W. Charter Way (crossing Bridge)	On-road truck exhaust emissions from Main Tracks 1 and 2 Construction phases along 2.72 mile route segment within modeling domain.
	HAUL_LT	Haul Route from W. Washington Street to S. Fresno Avenue	On-road truck exhaust emissions from Earthwork and Track Removal & Reconnection construction phases along 1.46 mile route segment within modeling domain.
Operations	RLED	Rail Lines from Port entrance to East Complex, Daytime Running Emissions	Class I and Class III locomotive emissions (running mode) allocated to East vs. West Complex per Table 10. A 50%/50% distribution is assumed for Daytime vs. Night-time.
	RLEN	Rail Lines from Port entrance to East Complex, Night-time Running Emissions	Class I and Class III locomotive emissions (running mode) allocated to East vs. West Complex per Table 10. A 50%/50% distribution is assumed for Daytime vs. Night-time.
	RLWD	Rail Lines from Port entrance to West Complex, Daytime Running Emissions	Class I and Class III locomotive emissions (running mode) allocated to East vs. West Complex per Table 10. A 50%/50% distribution is assumed for Daytime vs. Night-time.
	RLWN	Rail Lines from Port entrance to West Complex, Night-time Running Emissions	Class I and Class III locomotive emissions (running mode) allocated to East vs. West Complex per Table 10. A 50%/50% distribution is assumed for Daytime vs. Night-time.
	IDLE_E1	Rail Idling at Port Lead Block	Class I and Class III locomotive emissions (idling mode) allocated to each location per Table 10.
	IDLE_E2	Rail Idling at 700 Yard Block	Class I and Class III locomotive emissions (idling mode) allocated to each location per Table 10.
	IDLE_E3	Rail Idling in East Complex	Class I and Class III locomotive emissions (idling mode) allocated to each location per Table 10.
	IDLE_W1	Rail Idling in West Complex	Class I and Class III locomotive emissions (idling mode) allocated to each location per Table 10.

Notes:

¹. A summary of construction emissions included in the health risk assessment is provided in Table 17.

². A summary of operational emissions included in the health risk assessment is provided in Table 18.

Table 22
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 23
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]	[m³/kg-day]	[m³/kg-day]
Residential	2023	3rd Trimester	361	0.50	1	350	10	25,550	0.025	0.10
	2024	0-<2	1,090	0.50					0.074	
	2025			2-<16					745	1
	2026	0.75	0.11							
	2027	0.25	0.0077							
	2028	1	0.031				0.031			
	2029	1	0.031				0.031			
	2030	1	0.031				0.031			
	2031	1	0.031				0.031			
	2032	1	0.031				0.031			
	2033	1	0.031				0.031			
	2034	1	0.031				0.031			
	2035	1	0.031				0.031			
	2036	1	0.031				0.031			
	2037	1	0.031				0.031			
	2038	1	0.031	0.031						
	2039	16-30	335	0.75			0.023		0.024	
	2040			0.25			1.1E-03			
	2041			1			0.0046		0.0046	
	2042			1			0.0046		0.0046	
	2043			1			0.0046		0.0046	
	2044			1			0.0046		0.0046	
	2045			1			0.0046		0.0046	
	2046			1			0.0046		0.0046	
	2047			1			0.0046		0.0046	
	2048			1			0.0046		0.0046	
	2049			1			0.0046		0.0046	
	2050+			3.8			0.017		0.017	

Table 23
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	290	1	--	250	1	25,550	0.0028	0.0028
	2024			1					0.0028	0.0028
	2025			1					0.0028	0.0028
	2026			1					0.0028	0.0028
	2027			1					0.0028	0.0028
	2028			1					0.0028	0.0028
	2029			1					0.0028	0.0028
	2030			1					0.0028	0.0028
	2031			1					0.0028	0.0028
	2032			1					0.0028	0.0028
	2033			1					0.0028	0.0028
	2034			1					0.0028	0.0028
	2035			1					0.0028	0.0028
	2036			1					0.0028	0.0028
	2037			1					0.0028	0.0028
	2038			1					0.0028	0.0028
	2039			1					0.0028	0.0028
	2040			1					0.0028	0.0028
	2041			1					0.0028	0.0028
	2042			1					0.0028	0.0028
	2043			1					0.0028	0.0028
	2044			1					0.0028	0.0028
	2045			1					0.0028	0.0028
	2046			1					0.0028	0.0028
	2047			1					0.0028	0.0028

Table 23
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]	[m³/kg-day]	[m³/kg-day]
Recreational	2023	0-<2	900	1	--	52	10	25,550	0.018	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 23
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	0.80
	0-<2	1,090	2	1	350	10	25,550	0.30	
	2-<16	745	14	1	350	3	25,550	0.43	
	16-30	335	14	1	350	1	25,550	0.064	
Worker	16-70	290	25	--	250	1	25,550	0.071	0.071
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 SJVAPCD's policy APR-1906 (Framework for Performing Health Risk Assessments) as follows:
95th percentile 24-hour daily breathing rate for age 3rd trimester, 0-<2 years, 2-<16, and 16-30 years
- ². Daily breathing rates for workers are based on SJVAPCD's policy APR-1906 as follows:
95th percentile long-term 24-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.
- 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	FAH - fraction of time at home
Cal/EPA - California Environmental Protection Agency	kg - kilogram
DBR - daily breathing rate	L - liter
EF - exposure frequency	SJVAPCD - San Joaquin Valley Air Pollution Control District

Reference:

Cal/EPA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.
SJVAPCD. 2018. Framework for Performing Health Risk Assessments. July.

Table 24
Toxicity
Rail Bridge & Rail Improvements Project
Stockton, California

Source	Chemical ¹	CAS Number	Cancer Potency Factor	Chronic Noncancer Reference Exposure Level
			(mg/kg-day) ⁻¹	(µg/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
 µg/m³ - 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 25
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	0.0056	3.7E-06
	Class III Locomotives	7.9E-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:

- 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.
- Excess lifetime cancer risks were estimated using the following equation:

$$\text{Risk}_{\text{inh}} = \Sigma C_i \times CF \times \text{IF}_{\text{inh}} \times \text{CPF}_i \times \text{ASF}$$
Where:
 Risk_{inh} = Cancer Risk for the Inhalation Pathway (unitless)
 C_i = Annual Average Air Concentration for Chemical "i" ug/m³
 CF = Conversion Factor (mg/ug)
 IF_{inh} = Intake Factor for Inhalation (m³/kg-day)
 CPF_i = Cancer Potency Factor (mg/kg-day)⁻¹
 ASF = Age Sensitivity Factor (unitless)
- 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.
- Chronic HI for each receptor was estimated using the following equation:

$$\text{HI}_{\text{inh}} = \Sigma C_i / \text{cREL}$$
Where:
 HI_{inh} = Chronic HI for the Inhalation Pathway (unitless)
 C_i = Annual Average Air Concentration for Chemical "i" (ug/m³)
 cREL = Chronic Reference Exposure Level (ug/m³)
- Thresholds of significance are based on information from San Joaquin Valley Air Pollution Control District, Air Quality Thresholds of Significance - Toxic Air Contaminants.
- This table shows the maximum exposed individual receptor, but three different receptor types were analyzed for this analysis: residential, worker, and recreational.
- Only the subset of off-site receptors located on residential buildings or homes were considered residential receptors. Recreational receptors were analyzed at the golf course north of the Project. The remaining receptors were analyzed as workers, both on-site and off-site.

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>.

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