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ANCHOR QEA

NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project Draft Environmental Impact Report

Prepared for the Port of Stockton

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Prepared for
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Project Number: 160377-01.07

Executive Summary

This Draft Environmental Impact Report (DEIR) was prepared in compliance with the California Environmental Quality Act (CEQA) to assist the Port of Stockton (Port) in considering the approval of the proposed NuStar Terminals Operations Partnership L.P. (NuStar) Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project (proposed Project) in accordance with 22 California Code of Regulations (CCR) Section 66265 et seq. Under the proposed Project, NuStar would connect its existing liquid bulk terminal, located at 2941 Navy Drive in Stockton, California, to Dock 10/11 at the Port to receive renewable diesel by vessel and update and renew the commercial terms in NuStar's lease with the Port consistent with the proposed Project. The Port has principal responsibility for making a determination on the proposed Project through issuance of the lease, and is the lead agency under CEQA (California Public Resources Code [PRC] 21151 et seq.) and the CEQA Guidelines for Implementation (14 CCR 15081 et seq.) for preparation and approval of the DEIR.

The Port aims to accomplish the following as part of this DEIR:

- Describe the proposed Project and its regulatory background
- Identify any significant environmental effects associated with the proposed Project
- Provide a discussion of alternatives and feasible mitigation measures for environmental resources where significant impacts are identified

As detailed in the accompanying Initial Study (IS) included in Appendix D, the proposed Project is not expected to result in environmental impacts in several resource areas. Therefore, this document relies on the analyses presented in the IS and is focused on the areas that may result in environmental impacts: air quality, biological resources, cultural resources, geology and soils, greenhouse gases (GHG), hazards and hazardous materials, noise, transportation and tribal cultural resources.[1]

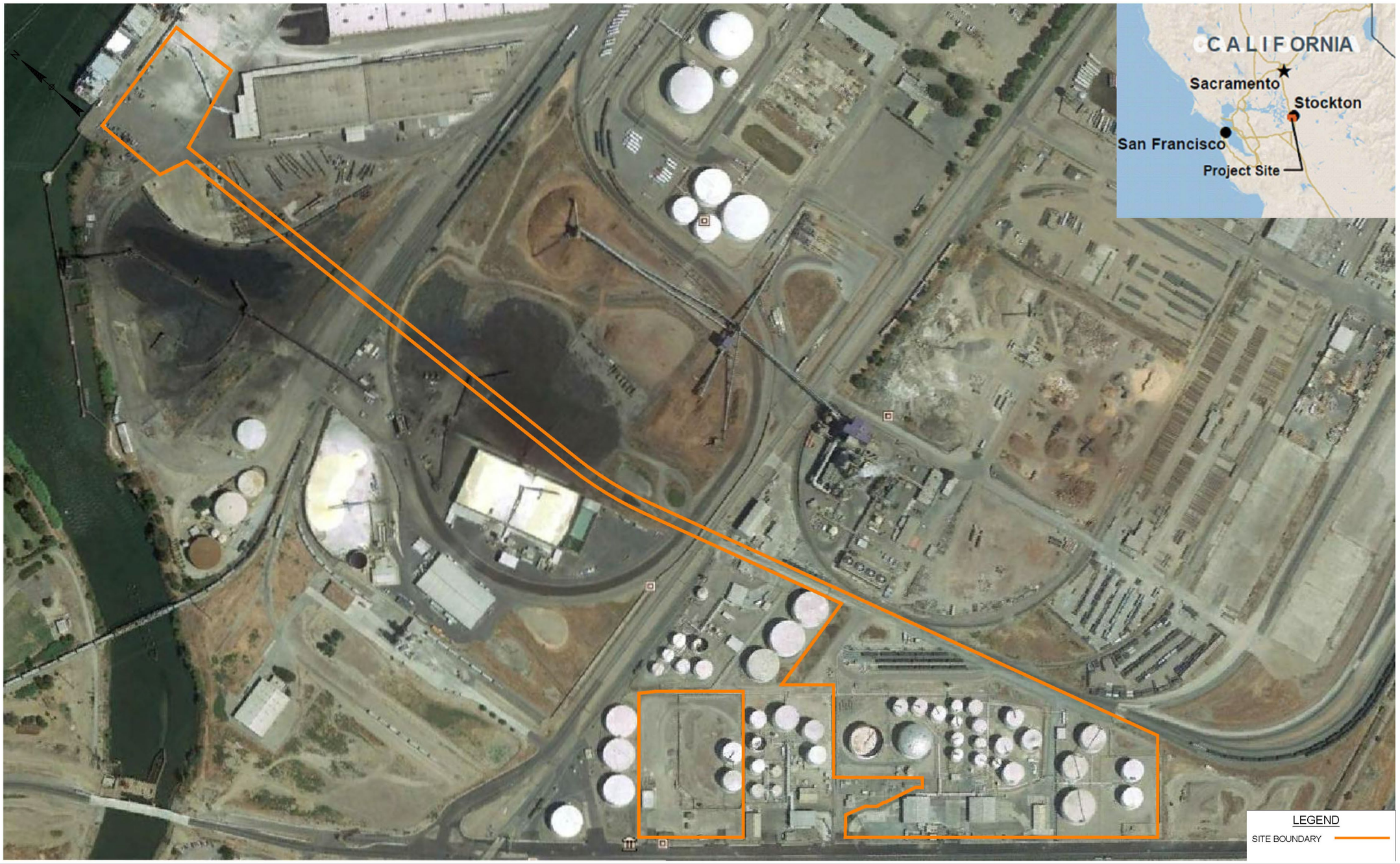
Proposed Project

The proposed Project consists of: 1) connecting the existing NuStar liquid bulk terminal at 2941 Navy Drive to Dock 10/11 at the Port in order to receive renewable diesel by vessel (Figure ES-1); and 2) updating and renewing the commercial terms in the NuStar lease with the Port consistent with the proposed Project. NuStar or a predecessor has been operating this terminal since 1984. The types of bulk petroleum and other products handled at the NuStar terminal include ethanol, gasoline, naphtha, diesel, renewable diesel, biofuels, and lubricants. NuStar currently receives products at its facility via pipeline, rail, and truck. Under the proposed Project, NuStar would add receipt by vessel to increase renewable diesel transported to its terminal facility at the Port. To accommodate the vessel

[1] The Notice of Preparation referred to the Port preparing a focused EIR for the proposed project. While this DEIR is focused on the resources for which impacts could be significant, it is not a Focused DEIR per 14 CCR 15178 or 15179.5.

service, NuStar is proposing to upgrade Dock 10/11 to meet state MOTEMS, and to install approximately 3,400 feet of underground 12-inch piping from the dock to its existing terminal. Improvements at the terminal would include installation of approximately 3,050 feet of new terminal piping, new pumps, truck rack improvements, and piping to provide the ability to tie into the existing rail unloading system in the future, if needed. No construction would occur in the San Joaquin River/Stockton Deep Water Ship Channel as part of the proposed Project.

The Port prepared this DEIR using available technical information and incorporating potential alternatives to the proposed Project. As required by CEQA, the Port must evaluate the information in this DEIR, including the proposed mitigation measures and potentially feasible alternatives, before deciding whether to approve the proposed Project or an alternative.



Source: NuStar 2019

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Figure ES-1
Site and Vicinity Map
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

Project Objectives

Pursuant to the CEQA Guidelines and 14 CCR 15124, a "statement of the objectives sought by the proposed project" must be provided as part of the project description in an EIR. The proposed Project's goal is to connect NuStar's existing facility to and upgrade an existing dock at the Port in order to receive renewable diesel by vessels, which will support broader California Low Carbon Fuel Standard goals for lower-emitting fuels.

To accomplish this goal, the following key project objectives must be accomplished:

- Upgrade the existing Dock 10/11 to meet MOTEMS consistent with state seismic and safety regulations in order to receive vessels
- Connect NuStar's existing facilities at the Port to the Dock 10/11 improvements to enable receipt of renewable diesel arriving by vessel, increasing the amount of renewable diesel transported to NuStar's existing terminal facility at the Port
- Update and renew the commercial terms in the NuStar lease with the Port consistent with the proposed Project
- Increase availability of renewable diesel to assist California in meeting GHG abatement targets, decreasing reliance on imported fossil fuels.

Summary of Project Alternatives

The CEQA Guidelines (14 CCR 15126) require that a DEIR consider a range of reasonable alternatives to the project or to the location of the project that would feasibly attain most of its basic objectives but would avoid or substantially lessen any of the significant effects of the project. The alternatives considered in this DEIR are the following:

- Alternative 1: No Project Alternative
- Alternative 2: Reduced Project Alternative

A complete evaluation of these alternatives—including their ability to meet the objectives of the proposed Project and their ability to avoid or substantially reduce significant environmental impacts—is provided in Section 6 of this DEIR.

Alternative 1: No Project Alternative

The No Project Alternative, which is required by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed Project were not approved. Under this alternative, no new developments would be constructed at Dock 10/11; therefore, there would be no change to operations.

Alternative 2: Reduced Project Alternative

The Reduced Project Alternative includes full buildout of the project site, but with a reduced number of vessel calls. Under this alternative, a maximum of eight vessels would call at the terminal annually. Under the Reduced Project Alternative, throughput levels would not change as compared to the proposed Project because the total diesel output storage would remain nearly the same and the renewable diesel would be replaced with ultra-low-sulfur diesel fuel.

Notice of Preparation

The Port distributed the Notice of Preparation (NOP; Appendix B) for the proposed Project on June 25, 2019, for a 30-day public review period ending on July 24, 2019. Public comments received during the scoping process were considered in this DEIR. The following two comment letters were received during the public comment period for the NOP:

- Central Valley Regional Water Quality Control Board
- California Native American Heritage Commission

Summary of Impacts and Mitigation

Summary of Project-Level Impacts

Anticipated environmental effects associated with the proposed Project are evaluated in Sections 3 and 4 of this DEIR. Feasible mitigation measures that could minimize significant adverse impacts are also identified in these sections. Table ES-1 presents a summary of the environmental effects of, proposed mitigation measures for, and residual impacts of the proposed Project.

With incorporation of mitigation measures, the proposed Project would result in no project-level impacts or less-than-significant project-level impacts to the following resource areas: aesthetics; agriculture and forestry resources; air quality; biological resources; cultural resources; energy; geology and soils; GHG emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; transportation; tribal cultural resources; utilities and service systems; and wildfire.

Summary of Cumulative Impacts

For this DEIR, the potential for other regional projects to contribute to cumulative impacts was analyzed using a list of related projects that would be constructed in the cumulative geographic scope (Section 4, Table 23). In consideration of these projects, cumulative impact analyses for each environmental resource area potentially affected by the proposed Project are presented in Section 4. Implementation of the proposed Project, cumulatively combined with other related past, present, or probable future projects, may result in significant and unavoidable cumulative adverse impacts related to air quality and GHG emissions.

Table ES-1
Summary of Proposed Project Impacts and Proposed Mitigation Measures

	Impact Determination	Mitigation Measures	Impact Determination after Mitigation
Air Quality			
AQ-1: Would the project's emissions conflict with or obstruct implementation of the applicable air quality plan?	Less-than-significant impact	None	Less-than-significant impact
AQ-2: Would the project's emissions result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Less-than-significant impact	None	Less-than-significant impact
AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?	Less-than-significant impact	None	Less-than-significant impact
AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less-than-significant impact	None	Less-than-significant impact
Biological Resources			
BIO-1: Would the 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?	Potentially significant impact	MM-BIO-1	Less-than-significant impact
BIO-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	No impact	None	No impact
BIO-3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	No impact	None	No impact
BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	No impact	None	No impact
BIO-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No impact	None	No impact

	Impact Determination	Mitigation Measures	Impact Determination after Mitigation
BIO-6: Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	Potentially significant impact	MM-BIO-1	Less-than-significant impact
Cultural Resources			
CHR-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	No impact	None	No impact
CHR-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	Potentially significant impact	MM-CHR-1	Less-than-significant impact
CHR-3: Would the project disturb any human remains, including those interred outside of formal cemeteries?	Potentially significant impact	MM-CHR-1	Less-than-significant impact
Geology/Soils			
GEO-1: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: • Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? • Strong seismic ground shaking? • Seismic-related ground failure, including liquefaction? • Landslides?	Less-than-significant impact	None	Less-than-significant impact
GEO-2: Would the project result in substantial soil erosion or the loss of topsoil?	No impact	None	No impact
GEO-3: Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	Less-than-significant impact	None	Less-than-significant impact
GEO-4: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less-than-significant impact	None	Less-than-significant impact
GEO-5: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	No impact	None	No impact
GEO-6: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	No impact	None	No impact

	Impact Determination	Mitigation Measures	Impact Determination after Mitigation
Greenhouse Gas Emissions			
GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less-than-significant impact	None	Less-than-significant impact
GHG-2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Significant impact	MM-GHG-1, 2, 3, 4, and 5	Less-than-significant impact
Hazards and Hazardous Materials			
HAZ-1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less-than-significant impact	None	Less-than-significant impact
HAZ-2: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Less-than-significant impact	None	Less-than-significant impact
HAZ-3: Would the project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	No impact	None	No impact
HAZ-4: Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Less-than-significant impact	None	Less-than-significant impact
HAZ-5: Would the project be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?	No impact	None	No impact
HAZ-6: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less-than-significant impact	None	Less-than-significant impact
HAZ-7: Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	No impact	None	No impact
Noise			
NV-1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less-than-significant impact	None	Less-than-significant impact
NV-2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Less-than-significant impact	None	Less-than-significant impact

	Impact Determination	Mitigation Measures	Impact Determination after Mitigation
NV-3: Would the project result in, for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No impact	None	No impact
Transportation			
TT-1: Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Less-than-significant impact	None	Less-than-significant impact
TT-2: Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	No impact	None	No impact
TT-3: Would the project substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Less-than-significant impact	None	Less-than-significant impact
TT-4: Would the project result in inadequate emergency access?	Less-than-significant impact	None	Less-than-significant impact
Tribal Cultural Resources			
TCR-1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074?	Potentially significant impact	MM-CHR-1	Less-than-significant impact

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FIGURES

APPENDICES

ABBREVIATIONS

--	not applicable
µg/m^3	micrograms per cubic meter
2040 General Plan	*Envision Stockton 2040 General Plan Public Review Draft*
AB	Assembly Bill
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
AST	aboveground storage tank
BAAQMD	Bay Area Air Quality Management District
BAU	business-as-usual
BMP	best management practice
BNSF	BNSF Railway
BPS	Best Performance Standard
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standard
Cal/OSHA	California Occupational Safety and Health Administration
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CCAA	California Clean Air Act
CCAP	Climate Change Action Plan
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEPC	California Environmental Policy Council
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CH_4	methane
CHRIS	California Historical Resources Information System
CHSC	California Health and Safety Code
CI	carbon intensity
City	City of Stockton
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide

CO_2	carbon dioxide
CO_2e	carbon dioxide equivalence
CRHR	California Register of Historical Resources
CSLC	California State Lands Commission
CUPA	Certified Unified Program Agency
CVRWQCB	Central Valley Regional Water Quality Control Board
dBA	A-weighted decibel
DEIR	Draft Environmental Impact Report
Delta	Sacramento-San Joaquin Delta
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DPS	distinct population segment
DTSC	Department of Toxic Substances Control
DWSC	Deep Water Ship Channel
EFH	essential fish habitat
EIR	Environmental Impact Report
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	geographical information system
GWP	global warming potential
H_2S	hydrogen sulfide
HCFC	hydrochlorofluorocarbon
HDD	horizontal directional drilling
HFC	hydrofluorocarbon
HMMP	Hazardous Materials Management Plan
HMTA	Hazardous Materials Transportation Act
HMTUSA	Hazardous Materials Transportation Uniform Safety Act
hp	horsepower
HRA	health risk assessment
I-5	Interstate 5
IS	Initial Study

L_{25}	sound level that is equaled or exceeded for 25% of a time period
L_{50}	sound level that is equaled or exceeded for 50% of a time period
LCFS	Low Carbon Fuel Standard
L_{dn}	day/night average sound level
L_{eq}	equivalent continuous noise level
L_{max}	maximum sound level
L_n	noise level that is met or exceeded by a fluctuating sound level n-percent of a stated time period
LOS	level of service
LUC	Land Use Covenant
MBTA	Migratory Bird Treaty Act
MCE	Maximum Considered Earthquake
mm Hg	millimeters of mercury
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MOTEMS	Marine Oil Terminal Engineering and Maintenance Standards
MPO	metropolitan planning organization
MRZ	Mineral Resource Zone
MSDS	Material Safety Data Sheet
N_2O	nitrous oxide
NAAQS	national ambient air quality standard
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_X	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NuStar	NuStar Terminals Operations Partnership L.P.
O_3	ozone
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PL	Public Law
PM	particulate matter
$PM_{2.5}$	PM less than 2.5 microns in diameter

PM_{10}	PM less than 10 microns in diameter
Port	Port of Stockton
ppb	part per billion
ppm	part per million
PPV	peak particle velocity
PRC	Public Resources Code
RCMP	Regional Congestion Management Program
RMCC	Response Management Communication Center
RMP	risk management plan
ROG	reactive organic gas
RTP	Regional Transportation Plan
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SJCEHD	San Joaquin County Public Health Services, Environmental Health Division
SJCOG	San Joaquin Council of Governments
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure Plan
SR	State Route
SR-4	State Route 4
SR-99	State Route 99
TAC	toxic air contaminant
TCR	tribal cultural resource
ULSD	ultra-low-sulfur diesel
UP	Union Pacific Railroad
UP HMM	Union Pacific Railroad Hazardous Materials Management Group
USC	United States Code
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles traveled
VOC	volatile organic compound

1 Introduction

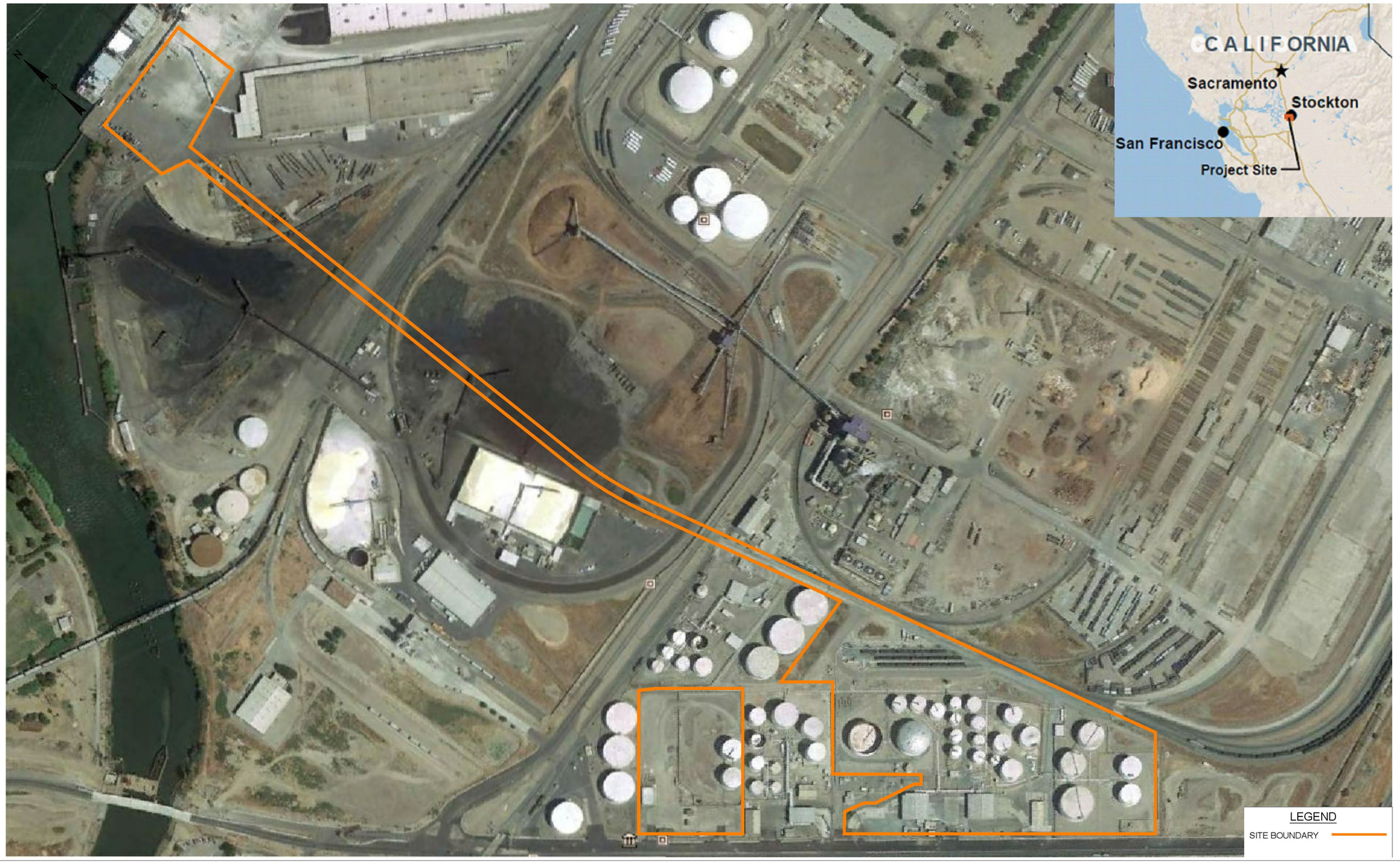
1.1 Intended Use of this Environmental Impact Report

This Draft Environmental Impact Report (DEIR) was prepared by the Port of Stockton (Port) to identify the potential environmental impacts of the proposed NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project (proposed Project) under the California Environmental Quality Act (CEQA; 13 Public Resources Code [PRC] 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). The proposed Project consists of: 1) connecting the existing NuStar Terminals Operations Partnership L.P. (NuStar) liquid bulk terminal located at 2941 Navy Drive, Stockton, California, to Dock 10/11 at the Port in order to receive renewable diesel by vessel (Figure 1); and 2) updating and renewing the commercial terms in the NuStar lease with the Port consistent with the proposed Project. NuStar currently receives ethanol, gasoline, naphtha, diesel, renewable diesel, biofuels, and lubricants at its facility via pipeline, rail, and truck. Under the proposed Project, NuStar would add receipt by vessel to increase the amount of renewable diesel transported to its terminal facility at the Port. To accommodate the vessel service, NuStar is proposing to upgrade Dock 10/11 to meet state MOTEMS and to install approximately 3,400 feet of underground 12-inch piping from the dock to its existing terminal.

CEQA, enacted by the California legislature in 1970, requires public agency decision makers to consider the environmental effects of their actions. The primary purposes of this DEIR are to inform the public, decision makers, and other responsible and interested agencies of the following information:

- Identification and evaluation of potential significant environmental effects of the proposed Project
- The manner in which environmental effects can be avoided or significantly reduced
- Any effects that, even with implementation of mitigation measures, would be unavoidable and adverse
- Identification and analysis of alternatives that may avoid or substantially lessen any significant environmental effects of the proposed Project

This DEIR is being circulated to potentially affected agencies and the public for review and comment for a 45-day review period from December 16, 2019, to January 29, 2020.



Source: NuStar 2019

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Figure 1
Site and Vicinity Map
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

1.2 Agency Roles and Responsibilities

The CEQA Guidelines identify the lead agency as the public agency with the principal responsibility for carrying out or approving a project (CEQA Guidelines Section 15367). The Port is the CEQA lead agency for the proposed Project and has the primary responsibility for updating and renewing the commercial terms in the NuStar lease with the Port consistent with the proposed Project. The Port aims to accomplish the following as part of this DEIR:

- Describe the proposed Project and regulatory background
- Identify any significant environmental effects associated with construction and operation of the proposed Project
- Provide a discussion of alternatives and feasible mitigation measures for environmental resources where significant effects are identified

Projects approved by the lead agency (in this case, the Port), may require subsequent oversight, approvals, or permits from other public agencies. These agencies are referred to as responsible agencies and trustee agencies. Pursuant to CEQA Guidelines Sections 15381 and 15386, as amended, responsible agencies and trustee agencies are defined as follows:

- A **responsible agency** is a public agency that proposes to carry out or approve a project for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency that have discretionary approval authority over a project (CEQA Guidelines Section 15381; Table 1). Because responsible agencies will take discretionary actions regarding a project, they are also required to comply with CEQA. For efficiency, CEQA allows responsible agencies to rely on a CEQA document prepared by the lead agency to meet their CEQA compliance requirements.
- A **trustee agency** is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the state of California (CEQA Guidelines Section 15386). Trustee agencies have jurisdiction over natural resources held in trust for the people of California but do not have legal authority over approving or carrying out a project. However, a trustee agency may also be a responsible agency if it has discretionary authority over a project. CEQA Guidelines Section 15386 designates only the following four agencies as potential trustee agencies for projects subject to CEQA:
  - California Department of Fish and Wildlife (CDFW), regarding fish and wildlife, native plants designated as rare or endangered, game refuges, and ecological reserves
  - California State Lands Commission (CSLC), regarding state-owned "sovereign" lands, such as the beds of navigable waters and state school lands
  - California Department of Parks and Recreation, regarding units of the state park system

- University of California, regarding sites within the Natural Land and Water Reserves System

In addition to the Port approval, the following permits and approvals would be required for the proposed Project. This DEIR may be used to support decisions related to permits/approvals required for the proposed Project which are anticipated to include, but are not limited to, the following:

- CSLC MOTEMS approval
- Coverage under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)
- San Joaquin Valley Air Pollution Control District (SJVAPCD) Authority to Construct Permit
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit
- Stockton Building Department: approval of mechanical, electrical, demolition, and building permits
- Stockton Fire Department: approval of fire protection system

Table 1 summarizes relevant regulatory agencies and their statutory authority.

Table 1
Regulatory Agencies and Authority

Regulatory Agency	Jurisdiction	Statutory Authority/Implementing Regulations
California State Lands Commission	Responsible and trustee agency	Enforcing agency for the MOTEMS, which are required for all new marine oil terminals and berthing systems. The proposed Project will meet state MOTEMS. Because CSLC must consider approving the MOTEMS for the proposed Project, CSLC is a responsible agency as well as a trustee agency.
Central Valley Regional Water Quality Control Board	Responsible agency	Permitting authority for water quality, including point and non-point source discharges. The proposed Project is expected to require a NPDES Construction General Permit.
San Joaquin Valley Air Pollution Control District	Responsible agency	Review authority under the California Clean Air Act and responsibility for implementing federal and state regulations at the local level, permitting stationary sources of air pollution, and developing the local elements of the SIP. The proposed Project will require an authority to construct permit from SJVAPCD. In addition to this permit, as discussed in Section 2.1.3, NuStar is applying for several other SJVAPCD permits for independent projects at the NuStar terminal.
San Joaquin Council of Governments	Responsible agency	Approval of projects obtaining coverage under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.

Regulatory Agency	Jurisdiction	Statutory Authority/Implementing Regulations
City of Stockton Building Department	Responsible agency	Approval of mechanical, electrical, demolition, and building permits.
Stockton Fire Department	Responsible agency	Approval of fire protection system.

1.3 Public Participation, Consultation, and Coordination

Public participation is an integral part of the CEQA process. Public participation facilitates two-way communication between the public and the lead agency (the Port) decision makers, ensuring that public concerns and input are considered in the final decision. The Port's public participation process ensures that interested persons are informed about discretionary decisions and have the opportunity to provide input. The Port also consults with public agencies in a variety of ways when developing CEQA documents, including direct agency outreach and distribution of documents.

1.3.1 Notice of Preparation

After deciding that an EIR is needed, the state lead agency (in this case, the Port) is required to prepare and distribute a notice informing interested parties that an EIR will be prepared. CEQA requires that the lead agency prepare a Notice of Preparation (NOP) to inform interested parties of a proposed Project and to solicit their participation in the EIR scoping process. The CEQA Guidelines require that an NOP be sent "immediately after deciding that an environmental impact report is required for the project" (CEQA Guidelines Section 15082[a]) and include "sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response" (CEQA Guidelines Section 15082[a][1]). The Port distributed the NOP (Appendix B) for the proposed Project on June 25, 2019, for a 30-day public review period ending on July 24, 2019. Public comments received during the scoping process were considered in this DEIR.

1.3.2 Public Scoping and Agency Coordination

The CEQA Guidelines recommend that public scoping be combined to the extent possible with consultation with responsible agencies, as required under 14 CCR 15086. Consultation is conducted with agencies that will be locally involved in the environmental review process, as well as state and federal agencies and tribal governments, as appropriate.

CEQA Guidelines Sections 15086(a)(1–2) require that the lead agency formally consult with responsible and trustee agencies. On June 25, 2019, the Port filed a NOP with the Governor's Office of Planning and Research (OPR) and the San Joaquin County Clerk, and the NOP was subsequently sent to the following agencies:

- California Air Resources Board (ARB)
- California Department of Boating and Waterways

- California Department of Forestry and Fire Protection
- California Department of Transportation (Caltrans), District 10
- California Public Utilities Commission
- CDFW
- Central Valley Flood Protection Board
- Central Valley Regional Water Quality Control Board (CVRWQCB)
- CSLC
- Native American Heritage Commission (NAHC)
- State Water Resources Control Board

Direct consultations also occurred with SJVAPCD. Two comment letters were received from the following agencies during the scoping period:

- CVRWQCB
- NAHC

The letters and a summary of the public and agency comments received on the NOP are included as Appendix C.

1.3.3 Assembly Bill 52

Assembly Bill (AB) 52 became effective on July 1, 2015, requiring lead agencies to consider the effects of projects on tribal cultural resources (TCRs) and to conduct notification and consultation with federally and non-federally recognized Native American tribes and NAHC early in the environmental review process. Two Native American tribes, the Buena Vista Tribe of Miwok (Me-Wuk) Indians and the Wilton Rancheria Tribe, have requested consultation on CEQA documentation for projects at the Port. The Port initiated consultation with the two tribes and conducted a search of NAHC's Sacred Lands Information File in July 2019. A response from the Wilton Rancheria Tribe was received on August 22, 2019, requesting that the proposed Project include inadvertent discovery provisions, which are proposed as mitigation measures in this DEIR. Based on their request, the Port will continue to consult with the Wilton Rancheria Tribe.

1.4 Scope of this Environmental Impact Report

CEQA Guidelines Section 15120 (as amended December 2018) requires that an EIR include numerous components but allows for documents to be prepared in a wide variety of formats so long as the essential elements of information are included. As detailed in CEQA Guidelines Section 15126.2, an EIR shall identify and focus on the significant effects of the proposed project on the environment. In assessing the potential environmental effects of the proposed project, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the NOP is published, or where no NOP is published, at the time environmental

analysis is commenced. As discussed further in Sections 2.1 and 2.2, the project site is an active liquid bulk terminal. While Dock 10/11 currently receives vessels to support other Port projects, the NuStar terminal is not currently connected to Dock 10/11 and does not contain the infrastructure required to support vessel service. Therefore, this DEIR considers these environmental conditions (the existing NuStar facility with no vessel service to accommodate renewable diesel imports) as the baseline condition by which to assess potential environmental impacts.

An Initial Study (IS) was prepared for this project (Appendix D) to determine which environmental effects could potentially result in significant impacts and therefore focus the EIR on those resource areas. As detailed in the IS, the following resource areas were found to not result in any potential environmental impacts and are not addressed in this DEIR. A summary of IS findings is as follows:

- **Aesthetics:** The existing visual character in the project area is not considered scenic and the visual character of the project area would not be changed by the proposed Project. The most prominent permanent visual change resulting from the proposed Project would be the upgrade to Dock 10/11 and installation of new improvements at the terminal. Although these features could be partially visible from adjacent parcels and roadways, they would be consistent with the existing visual character of the site and its surroundings. No new sources of glare would be constructed.
- **Agriculture and Forestry Resources:** The City's 2040 General Plan designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General (City 2018). Neither the project site nor the immediate surrounding areas currently support agricultural use or forestry resources. There are no timberland zoned properties within San Joaquin County as of 2001 (Stockton Port District 2012); the nearest forest area is the Stanislaus Forest, which is more than 50 miles away. All property surrounding the project site has been developed or planned for industrial or urban land uses. The project area is zoned for non-agricultural uses, which precludes the lease area from qualifying for Williamson Act contracts.
- **Energy:** The proposed Project would not require any unusual or excessively inefficient construction equipment or practices compared to projects of similar type and size. It would comply with standard best management practices (BMPs) such as equipment idling restrictions and maintaining equipment according to manufacturers' specifications. The proposed Project includes a minor expansion of existing operations but would not increase NuStar's storage capacity at the terminal or result in the storage of any products not currently allowed under its existing lease. In addition, the proposed Project provides a source of energy (renewable diesel) which is identified by the ARB as a low carbon fuel that can serve as a bridge fuel to help meeting state renewable energy goals (Section 2.2.1).
- **Hydrology and Water Quality:** Very limited excavation or surface improvement would be required to construct improvements at the NuStar terminal and at Dock 10/11, and these

activities would occur in existing developed or disturbed areas. NuStar maintains and implements a Spill Prevention, Control, and Countermeasure (SPCC) plan for the facility that details design measures, inspections, maintenance, and spill containment and response measures (Technical Response Planning 2018). These spill control measures would remain in place under proposed Project operating conditions. Proposed improvements at Dock 10/11 would reduce the potential for water quality impacts; MOTEMS improvements are designed protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills.

- **Land Use and Planning:** The City's 2040 General Plan designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General (City 2018). There is no housing within or adjacent to the project site. The proposed Project involves an industrial use, which is consistent with the current zoning and would not conflict with any land use or other plans for the project site.
- **Mineral Resources:** The project area is classified as a Mineral Resource Zone-1 (MRZ-1; City 2007). As such, no significant mineral deposits are present, or it is judged that little likelihood exists for their presence. The project site does not contain any known mineral resources, including any rock, sand, or gravel resources. Therefore, the proposed Project would result in no impacts related to mineral resources.
- **Population and Housing:** No new homes would be constructed as a result of the proposed Project, nor are there housing units in the project area. The closest residential areas are located 1,200 feet to the north of the Dock 10/11 portion of the project site or 4,000 feet east of the terminal. The proposed Project would have no effect on existing residential areas, and the site's zoning precludes the potential for future housing developments.
- **Public Services:** The project area is adequately served by the City Fire Department, City Police Department, Port Police, U.S. Coast Guard, and other marine agencies. The proposed Project would not result in the need for additional public facilities or services, including fire protection, police, schools, or parks, beyond those currently available in the project area.
- **Recreation:** There are limited park resources within the immediate project area, likely due to the industrial zoning. Neither the construction nor the operation of the proposed facility would increase the use of existing neighborhood and regional parks or other recreational facilities. The proposed Project does not include construction or expansion of any recreational facilities and would not result in increased demand or other effects to recreational facilities.
- **Utilities and Service Systems:** The proposed Project would require new connections and minor improvements to existing utility systems but would not require the construction or expansion of existing utility facilities. The proposed Project would not result in new demands on water supply, wastewater treatment, or solid waste management systems.
- **Wildfire:** The project area is located within an area considered to have lower wildfire risk (Cal Fire 2019). The project site is located in an area that is industrialized, generally flat, and

contains very limited vegetation, which is not considered at a significant risk of wildfire. While diesel is flammable, all diesel handling would occur according to regulations and according to facility specific operational plans.

1.5 Draft Environmental Impact Report Organization

The content and format of this DEIR are organized into the following sections to meet the requirements of CEQA and the CEQA Guidelines:

- **Executive Summary.** Summarizes the proposed Project and alternatives, potential impacts, and mitigation measures
- **Section 1 – Introduction.** Describes the purpose and use of the DEIR and outlines the organization of the DEIR
- **Section 2 – Project Description.** Describes the proposed Project's history, provides details on the construction and operation of the proposed Project, and discloses objectives of the proposed Project
- **Section 3 – Environmental Impact Analysis.** Describes the current environmental conditions existing near the proposed Project and discusses the environmental setting, significance criteria, environmental impacts, and mitigation measures for each environmental resource area examined
- **Section 4 – Cumulative Impacts.** Discusses other categories of environmental impacts that must be evaluated in an EIR in addition to those addressed in Section 3
- **Section 5 – Other Required Analysis.** Identifies unavoidable significant impacts, significant irreversible environmental changes, and direct and indirect growth-inducing impacts of the proposed Project
- **Section 6 – Alternatives.** Discusses a range of reasonable alternatives to the proposed Project that would feasibly attain all or most of the basic objectives and would avoid or substantially lessen any of the potentially significant environmental effects of the proposed Project
- **Section 7 – References.** Provides a list of references used to provide information in preparation of the DEIR
- **Appendices.** The following appendices are attached to this DEIR:
  - Appendix A: List of Preparers
  - Appendix B: Notice of Preparation
  - Appendix C: Comments Received on the Notice of Preparation
  - Appendix D: Initial Study
  - Appendix E: Air Quality and Greenhouse Gas Emissions
  - Appendix F: Special-Status Species Potentially Present in the Project Area

2 Project Description

The proposed Project consists of connecting NuStar's existing liquid bulk terminal to Dock 10/11 in order to receive renewable diesel by vessel, and updating and renewing the commercial terms in NuStar's lease with the Port consistent with the proposed Project. NuStar currently operates a liquid bulk terminal at 2941 Navy Drive, Stockton, California, within the Port. NuStar or a predecessor has been operating this terminal since 1984. The types of bulk petroleum products handled at the NuStar terminal include ethanol, gasoline, naphtha, diesel, renewable diesel, biofuels, and lubricants. NuStar currently receives products at its facility via pipeline, rail, and truck. Under the proposed Project, NuStar would add delivery by vessel to increase renewable diesel transported to its terminal facility at the Port. To accommodate the vessel service, NuStar is proposing to upgrade Dock 10/11 to meet state MOTEMS, and to install approximately 3,400 feet of underground 12-inch piping from the dock to its existing terminal. Improvements at the terminal would include installation of approximately 3,050 feet of new terminal piping, new pumps, truck rack improvements, and piping to provide the ability to tie into the existing rail unloading system in the future, if needed. No construction would occur in the San Joaquin River/Stockton Deep Water Ship Channel as part of the proposed Project.

2.1 Environmental Setting

2.1.1 Regional Setting

The proposed Project is located within the City's urban core, which is characterized by a mix of heavy industrial uses with limited landscape features, older residential neighborhoods, neighborhood commercial shopping centers, and a variety of other commercial and industrial parcels. In the area surrounding the project site, the Port leases property for a variety of industrial uses, characterized by the presence of storage tanks, maritime terminals, cement and grain silos, railroad facilities, large storage buildings, and stockpiles of various commodities. The City's *2040 General Plan* (City 2018b) designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General.

2.1.2 Project Setting

The existing 3.56-acre NuStar terminal is located between Navy Drive and Stork Road, south of Washington Street. Existing rail facilities are located between the storage tanks at the terminal and Stork Road. The land use between Dock 10/11 (which is located along the San Joaquin River/Stockton Deep Water Ship Channel [DWSC]) and the NuStar terminal is industrial (approximately 3,000 feet separates the facility from the dock). The existing Dock 10/11 at the Port is a ballasted, concrete marginal wharf, approximately 800 feet long by 100 feet wide, supported on square reinforced concrete piles, and includes a crane rail. The deck has approximately 8 inches of asphalt topping and 2 to 4 feet of base material. A 13-foot-deep buttressed concrete berthing face

runs along the entire length of the channel side of the wharf. Existing mooring hardware consists of bollards and cleats.

2.1.3 Relationships to Other Projects

As previously described, NuStar currently operates a liquid bulk terminal at 2941 Navy Drive, that consists of 33 tanks and has a capacity of 878,000 barrels. The facility is currently served by pipeline, rail, and truck. There are eight truck loading bays at the north and south truck racks, and the rail operation area has three tracks with a combined 16 unloading locations. The terminal handles several commodities, including gasolines, diesel, ethanol, and aviation fuel. Apart from the proposed Project, NuStar has two additional on-terminal projects planned. NuStar is upgrading on-terminal pipelines and truck racks to accommodate new deliveries of ethanol (the ethanol deliveries were analyzed in the *Eco-Energy Liquid Bulk Receiving Terminal Project Final Environmental Impact Report*, completed by the Port in November 2017 and certified in April 2019 [Port 2019a]). NuStar is also upgrading truck loading platforms and rail offloading to accommodate a domestically sourced renewable diesel service. Neither of these on-terminal infrastructure upgrade projects require modification to NuStar's existing lease or approval from the Port, but both projects require permits from SJVAPCD. Both serve different customers with separately stored products, have been separately designed and engineered, and are not dependent on the proposed Project, giving each of the projects independent utility. In its role as a responsible agency, SJVAPCD requested that the DEIR include a quantitative evaluation of the combined air quality effects of these projects as part of the cumulative impact analysis because of the proximity of the projects to the proposed Project (construction would occur at the NuStar terminal) and overlap timing (some elements of construction may overlap with the proposed Project). In light of the SJVAPCD's expertise and role as a responsible agency, the Port agreed to their request to perform the quantitative evaluation. Therefore, Section 4 includes a quantitative evaluation of these projects as part of the comprehensive cumulative analysis of all related projects.

2.2 Proposed Project Overview

2.2.1 Overview of Renewable Diesel

In 2006, California adopted the Global Warming Solutions Act (also known as AB 32), which aims to reduce greenhouse gas (GHG) emissions in California to 1990 levels by 2020. The ARB has developed several transportation-related measures to achieve state GHG reduction goals, including a clean fuels standard known as the Low Carbon Fuel Standard (LCFS). California's LCFS, adopted in 2009 and amended in 2018, is a performance-based standard requiring petroleum refiners and other fuel providers to reduce the carbon-intensity of transportation fuels used in California by at least 20% by 2030. Renewable diesel, ethanol, and biodiesel all serve as alternative fuels that reduce the levels of

GHG emissions, depending on their source and production. The proposed Project would further facilitate California's goal of increasing supplies of low-carbon fuels.

Much like biodiesel, renewable diesel is made from non-petroleum resources such as natural fats, vegetable oils, and greases. However, unlike biodiesel, renewable diesel is processed similar to petroleum diesel, which makes it chemically the same as petroleum diesel. It burns more completely and therefore cleaner than biodiesel, and because it has the same chemical structure as petroleum diesel, renewable diesel can be used in engines that are designed to run on conventional diesel fuel without any blending (for example, biodiesel must be blended to a maximum of 20% biodiesel concentration with conventional diesel for use in conventional diesel-powered vehicles)

Renewable diesel burns more completely than biodiesel and petroleum diesel during the combustion process resulting in reduced tailpipe emissions. The California Environmental Protection Agency (CalEPA) found that renewable diesel has about 30% less particulate matter (PM) and 10% less nitrogen oxides (NO_X) emissions than ultra-low-sulfur diesel (ULSD; ARB 2015). In addition, renewable diesel does not contain benzene, which becomes an airborne carcinogen when burned in petroleum diesel. Carbon emission reductions, however, are more nuanced and depend on the feedstock used to produce the fuel. The California Energy Commission, which has measured the emissions of a wide variety of alternative fuels, says renewable diesel has 58 to 80% lower GHG emissions than petroleum diesel (EIA 2018). Carbon intensity (CI) is a measure of carbon by weight emitted per unit of energy consumed and is used to compare the net GHG impact of materials or activities. Lower CI values relate to lower GHG emissions, while higher CI values are related to higher emissions. CI can be used to compare how the sources of materials influence carbon emissions and also how different renewable fuels compare to each other. For example, renewable diesel made from animal tallow has a CI of 19.65, while renewable diesel made from domestic soybeans has a CI of 82.16. For comparison, ULSD has a CI of 94.71 and biodiesel made from domestic soybeans has a CI of 82.35 (ARB 2009).

2.2.2 Project Objectives

Pursuant to the CEQA Guidelines and 14 CCR 15124, a "statement of the objectives sought by the proposed project" must be provided as part of the project description in an EIR. The proposed Project's goal is to connect NuStar's existing facility to and upgrade an existing dock at the Port in order to receive renewable diesel by vessels, which will support broader California LCFS goals for lower-emitting fuels.

To accomplish this goal, the following key project objectives must be accomplished:

- Upgrade the existing Dock 10/11 to meet MOTEMS consistent with state seismic and safety regulations in order to receive vessels

- Connect NuStar's existing facilities at the Port to enable receipt of renewable diesel arriving by vessel, increasing the amount of renewable diesel transported to its existing terminal facility at the Port
- Update and renew the commercial terms in the NuStar lease with the Port consistent with the proposed Project
- Increase availability of renewable diesel to assist California in meeting GHG abatement targets, decreasing reliance on imported fossil fuels.

2.2.3 California Environmental Quality Act Baseline

Section 15125 of the CEQA Guidelines requires that an EIR include a description of the physical environmental conditions in the vicinity of the proposed Project as they exist at the time the NOP is published, or if no NOP is published, at the time the environmental analysis is commenced, from both a local and regional perspective. These environmental conditions are referred to as the environmental setting. Further, Section 15125(a) of the CEQA Guidelines states that "the environmental setting normally constitutes the baseline physical conditions by which a Lead Agency determines whether an impact is significant." The CEQA baseline is the set of conditions that prevailed at the time the NOP was circulated, which was June 2019 for the proposed Project.

As previously described, NuStar currently operates a liquid bulk terminal which handles a number of commodities. The proposed Project only involves changes to the diesel product mix and operations at the NuStar facility; therefore, the level of ULSD and renewable diesel in 2018 was considered as the baseline. Because activity at a terminal can vary month by month over the course of a year due to normal market forces, throughput activity is generally calculated over the preceding 12 months or a calendar year, whichever is more indicative of normal operations. For the proposed Project, throughput activity for 2018 was used to characterize baseline activity. In 2018, the facility received and transferred 3.147 million barrels of ULSD and had 17,001 truck calls.

2.3 Proposed Project Construction

Proposed project construction would consist of dock improvements, installation of a pipeline between the dock and the terminal, and terminal improvements (Figures 2 through 5). Construction is anticipated to occur over a period of 8 months, with work occurring concurrently at the three locations: at Dock 10/11, the proposed pipeline route, and the existing NuStar terminal. Staging of materials and construction equipment would be coordinated with the Port to minimize disruptions to existing operations at the Port and would generally be limited to areas within NuStar's terminal and at Dock 10/11.

2.3.1 Dock Improvements

The proposed Project involves improvements for Dock 10/11 to meet MOTEMS standards. MOTEMS are building standards (California Building Code, Chapter 31F: Marine Oil Terminals) that apply to all marine oil terminals in California. MOTEMS establish minimum engineering, inspection, and maintenance criteria for marine oil terminals to protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills. Improvements at Dock 10/11 would include installation of mooring hooks, foam-filled fenders, new offloading hoses, emergency shutdown and shore isolation valve, fire detection and suppression equipment, instrumentation, a stripping pump, emergency power system for shore isolation valve and fire pump, oil-water separator, and an underground transfer manifold. The Port and/or NuStar would upgrade the Port's existing firewater system to provide the required coverage by state MOTEMS for the dock and vessel manifolds. This would include the replacement of the fire pump and installation of a new diesel generator for emergency backup power. No construction would occur in the San Joaquin River/Stockton Deep Water Ship Channel as part of the proposed Project.

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

REFERENCE DRAWINGS:

NO.	REVISION	BY	DATE	APR
A	ISSUE FOR REVIEW	KLV	1/23/19	JV JR

NuStar Energy L.P.
19003 IH-10 WEST
San Antonio, Texas 78257
Tel: (210) 918-2000
1-800-866-9060

PROJECT LOCATION:	STOCKTON, CA	
DRAWN BY: KLV	DATE: 6/22/18	
CHECKED:	DATE:	
APPROVED:	DATE:	
SCALE: NTS		

STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10

ORIGINAL PROJECT NO. WC_
DRAWING NO. STOT-21-104 REV. A

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Source: NuStar 2019

ANCHOR QEA

Figure 2
NuStar Terminal Plan Overview
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

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STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10

ORIGINAL PROJECT NO. WC_
DRAWING NO. STOT-21-104 REV. A

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Source: NuStar 2019

ANCHOR QEA

Figure 3
NuStar Terminal Plan (Pipeline Alignment)
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

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APPROVED:	DATE:
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STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10
ORIGINAL PROJECT NO. WC_
DRAWING NO. STOT-21-104 REV. A

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Source: NuStar 2019

ANCHOR QEA

Figure 4
NuStar Terminal Plan (Dock Improvements)
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

REFERENCE DRAWINGS:

NO.	REVISION	BY	DATE	APR
A	ISSUE FOR REVIEW	KLV	01/23/19	JV JR

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SCALE: NTS	

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Source: NuStar 2019

ANCHOR QEA

Figure 5
NuStar Terminal Plan (Terminal Improvements)
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

2.3.2 Pipeline Installation

NuStar would install approximately 3,400 feet of 12-inch piping between the transfer manifold at Dock 10/11 and NuStar's terminal, of which approximately 2,700 feet would be installed via horizontal directional drilling (HDD) and the remaining 700 feet trenched. Trenching would include excavation to an approximate depth of 4 feet, and the maximum depth of HDD would be approximately 50 feet. The HDD alignment and anticipated trenching areas are depicted on Figures 2 through 5.

The HDD entry point would be in the vicinity of the intersection of Port Road D and Port Road 8 and the entry point work area would be approximately 150 feet by 150 feet (0.52 acre), within which HDD equipment would be staged, including the drill rig, pump vacuum, mud tank and shaker, crane, pipe trailer, and trucks. Soil excavated from the entry pit would be stored on site and used to backfill the pit following installation of the pipe. Any concrete or asphalt removed during excavation of the entry pit would be disposed of off site and replaced following construction. Cuttings from HDD would be placed in roll-off bins for sampling prior to disposal at a licensed facility. If cuttings or other wastes are determined to be hazardous, they would be handled in accordance with state and federal hazardous waste standards. Progress of the drill would be monitored at all times and spill containment equipment maintained on site for immediate response in the unlikely event of a frac-out (surfacing of drilling fluid along the path of the drill). The exit point of the drill would be west of Stork Road at the northern end of NuStar's terminal. A temporary work area would also be needed at this location for the exit point of HDD and staging of the pipe string. The work area would be approximately 30 feet wide and 1,600 feet long, extending south along Stork Road. Three additional staging areas would be located as follows: 1) immediately northeast of the warehouse; 2) between the rail spurs and containment wall for Yard A; and 3) immediately southwest of Tank 3304. These areas would measure approximately 90 feet by 82 feet, 31 feet by 80 feet, and 10 feet by 50 feet, respectively. All temporary lane and road closures would be scheduled in coordination with the Port.

Trenching of the 12-inch pipeline would be required between the manifold vault at the dock and the HDD entry point (approximately 330 feet), and between the HDD exit point and the tanks. The trench would be approximately 3 feet wide and 4 feet deep, and excavated soil would be used as backfill. If asphalt or concrete is present, it would be disposed of at a licensed facility and replaced following pipeline installation.

The 12-inch pipeline would be tested hydrostatically before pulling through the HDD bore hole and also in its entire length after installation. Approximately 13,000 gallons of water would be required for the tests, which would be obtained from a hydrant within the Port. Following each test, the water from the hydrant would be discharged overland in a manner that would not cause erosion, at a location determined in coordination with the Port where it would infiltrate into the ground or evaporate.

2.3.3 Terminal Improvements

Improvements at the terminal tank farm would have minimal disruptions to existing operations because work would be planned and sequenced to limit downtime of truck racks. Tanks 8801, 30006, and 33007 would be pumped down, taken out of service, and isolated for cleaning. Any remaining product in the tanks would be removed using a vacuum truck or other pumping means and offloaded into another NuStar tank. Tank interiors would be washed down and rinse water would be transported and disposed of at an approved disposal facility. Solid waste generated from cleaning the tanks would be placed into 55-gallon drums and disposed of at a licensed facility, in compliance with hazardous waste handling requirements. New equipment at the terminal as part of the proposed Project would include the following:

- Installation of two 100-horsepower (hp) pumps at Tank 8801 and one 75-hp transfer pump at Tanks 30006 and 33007
- Installation of additional piping from Tank 8801 to the South Truck Loading Rack
- Installation of two new loading arms to Bays 5 and 6 dedicated to load-out of neat renewable diesel
- Truck rack improvements to Bays 7 and 8 to handle neat and blended renewable diesel
- Installation of piping to provide the ability to tie into the existing rail offloading system, if needed in the future.

These improvements are depicted on Figure 5.

2.3.4 Construction Duration and Equipment

Construction would commence following issuance of required permits, would take approximately 8 months to complete, and would typically occur between the hours of 7 am and 5 pm, Monday through Friday. It is estimated that the dock improvements would take 7 months to complete, the pipeline installation 2 months, and terminal improvements 6 months. Table 2 provides a summary of the various construction elements. All equipment would be diesel powered, ranging from 10 to 250 hp. Table 3 summarizes the off-site construction-related truck trips for the proposed Project.

Table 2
Construction Equipment and Duration Summary

Proposed Improvement	Construction Equipment			Construction Duration
	Equipment	Number	Hours per day	Days
Dock Improvements	Crane	2	4	70
	Tractor/loader/backhoe	1	8	2
	Forklift	1	4	70
	Backhoe	2	8	20

Proposed Improvement	Construction Equipment			Construction Duration
	Equipment	Number	Hours per day	Days
	Concrete saw	1	8	2
	Welders	1	8	90
Pipeline Installation (HDD and Trenching)	Cranes	2	4	40
	Forklifts	2	8	40
	HDD drill rig	1	8	40
	Loader/backhoe	1	8	5
Terminal Improvements	Cranes	1	4	50
	Forklifts	1	4	120
	Skid steer loader	1	8	10
	Backhoe	1	8	10
	Welders	3	8	80
			Total Construction Duration	**8 months**

Table 3
Construction-related Truck Trips

Proposed Improvement	Off-Site Truck Trips		
	Truck Type	Number of Round Trips	Round Trip (miles)
Dock Improvements	Roll-off bin trucks	6	60
	Supply trucks	10	15
Pipeline Installation (HDD and Trenching)	Roll-off bin trucks	15	100
	Supply trucks	15	270
Terminal Improvements	Supply trucks	15	15

2.4 Project Operations

Under proposed Project operations, the terminal would receive renewable diesel primarily by vessel. Up to 12 marine vessels could bring up to 1,728,000 barrels of renewable diesel to the dock per year. The renewable diesel would be transferred from the vessels to NuStar's terminal via the new 12-inch pipeline. Transfer operations would be carried out from an onshore transfer connection manifold. The transfer manifold would include manual manifold valves used to control cargo flow during transfer operations, as well as emergency motorized block valves that would serve both as MOTEMS emergency shutdown and shore isolation valves. The maximum amount of cargo per vessel would be

144,000 barrels, with a typical offload rate of 8,000 barrels per hour. The total pumping time per vessel would be 17.5 hours.

Product from vessels would be stored in Tanks 33007, 30006, and 8801 until it is ready for distribution to the Northern California market. Product would typically be stored in the tanks for an average of 1 month. All renewable diesel loaded at the truck loading rack would come from Tank 8801, used as a day tank, receiving renewable diesel pumped from Tanks 30006 and 33007 or directly from the vessel. When delivering to the local market, NuStar would pump renewable diesel from dedicated storage tanks through a pipeline connected to the existing on-site truck racks. Empty trucks would enter the terminal through the truck gates and be loaded with product at the truck racks. The destination of the trucks would be customers, fueling stations, and other recipients within an approximately 50-mile radius, 35 miles of which would be within the San Joaquin Valley Air Basin (SJVAB).

During product transfers, a minimum of one terminal operator would be present 24 hours a day, 7 days a week, to oversee operations. Outside of product transfer periods, the site would be staffed for security and facility maintenance by up to two employees working 12-hour shifts, Monday through Friday. Staffing needs would be met with existing employees and employee offices would continue to be in the existing support building.

The proposed Project would result in a change in diesel product mix at the NuStar terminal. As discussed above, while the proposed Project could result in 1,728,000 barrels of renewable diesel arriving annually by vessel to the dock, a portion of the renewable diesel would replace existing levels of ULSD. However, because the total renewable diesel products would increase as compared to existing levels of ULSD, this change in product mix would result in a net increase in vessel and truck calls. The proposed Project's maximum renewable diesel throughput, as compared to baseline ULSD levels, is presented in Table 4 to determine the net change in product throughput as a result of the proposed Project.

Table 4
Proposed Project Throughput (Renewable Diesel) Compared to Existing Levels

	Baseline: Existing ULSD	Mix of ULSD and Renewable Diesel After Proposed Project	Net Difference Attributed to Proposed Project
Total Volume	3,147,000 barrels per year	3,931,000 barrels per year	784,000 barrels per year
Truck Calls	17,011	21,249	4,238
Vessel Calls	0	12	12

The proposed Project would neither increase NuStar's storage capacity at the terminal nor result in the storage of any products not currently allowed under its existing lease at the Port, which is valid until April 30, 2024, and has a 10-year option to extend until April 30, 2034.

The NuStar terminal has an existing SPCC Plan, revised March 25, 2015 (Technical Response Planning 2018). The existing SPCC plan covers petroleum products, including renewable diesel, received via pipeline, railcar, and tanker truck, and shipped out via pipeline, truck, and railcar. The plan addresses spills occurring from tank overfill, truck and railcar product transfer, and pipeline leaks, and identifies site drainage, timing of inspections, tests and record keeping, and personnel training. The plan would be updated to include the modifications occurring at the dock, the pipeline between the dock and the terminal, and the modifications at the terminal. The transfer manifold at Dock 10/11 would be enclosed by concrete, providing secondary containment in the event of a spill. Additionally, water flowing from the manifold vault would pass through an oil-water separator, to be installed adjacent to the manifold.

In addition to the physical changes described above, the proposed Project also includes a lease renewal to incorporate use of Dock 10/11 and the pipeline and to renew the overall leasehold consistent with existing renewal options. There would be no additional construction or operations associated with the lease renewal.

2.5 Project Alternatives

The CEQA Guidelines (14 CCR 15126) require that a DEIR consider a range of reasonable alternatives to the proposed project, or to the location of the proposed project, that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. The following sections present brief descriptions of the alternatives to the proposed Project that were carried forward for analysis in this DEIR. A complete evaluation of the alternatives analyzed in this DEIR—including their ability to meet the objectives of the proposed Project, their ability to avoid or substantially reduce significant environmental impacts, and the rationale for the decision to eliminate the alternatives from consideration—is provided in Section 6 of this DEIR.

2.5.1 Alternative 1: No Project Alternative

The No Project Alternative, which is required by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed Project were not approved. Under this alternative, no new developments would be constructed at Dock 10/11; therefore, there would be no change to operations.

2.5.2 Alternative 2: Reduced Project

The Reduced Project Alternative includes full buildout of the project site, but with a reduced number of vessel calls. Under this alternative, a maximum of eight vessels would call at the terminal annually. Under the Reduced Project Alternative, throughput levels would not change as compared to the proposed Project, because the total diesel output storage would remain nearly the same and the renewable diesel would be replaced with ULSD, as shown in Table 5.

Table 5
Alternative 2: Reduced Project Throughput

	Reduced Project Alternative: ULSD and Renewable Diesel
Total Volume	784,000 barrels per year
Truck Calls	4,238
Vessel Calls	8

3 Environmental Impact Analysis

This section discusses the CEQA requirements and terminology used in the environmental impact analysis. The environmental resource analysis sections discuss the possible effects of the proposed Project on the specific environmental resource areas. To assist the reader in comparing information about the various environmental issues, Sections 3.1 through 3.8 each contain the following information for the specific resource area:

- **Environmental setting.** The physical conditions at the time of baseline, specific to the resource area
- **Regulatory setting.** The rules, regulations, and plans specific to the proposed Project and resource area
- **Methodology for determining impacts.** A description of the quantitative or qualitative methods used to analyze potential impacts, including specific thresholds of significance (the criteria against which the analysis results are compared)
- **Impacts of the proposed Project.** Potential impacts are compared to the thresholds of significance to determine their level of significance
- **Mitigation measures.** Mitigation measures, as well as a plan to implement measures and findings of significance after the measures are implemented, are provided where potentially significant impacts are identified

In accordance with Section 15064 of the CEQA Guidelines, the environmental impact analysis for each resource section includes an evaluation of the direct physical changes in the environment that may be caused by the proposed Project, as well as reasonably foreseeable indirect physical changes in the environment that may be caused by the proposed Project. Factors that may be affected by the proposed Project are evaluated using the criteria set forth in Appendix G of the CEQA Guidelines (Environmental Checklist) as amended (December 2018). Per 14 CCR 15382, an impact is considered significant if it would result in a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."

Short- and long-term impacts are also considered. Short-term impacts are of a limited duration, such as those that occur during a construction phase. Long-term impacts are those of a greater duration, such as those that would encompass the proposed Project duration and beyond.

As reflected in 14 CCR 15126, impacts resulting from the proposed Project on environmental resources can be included in one of the following categories:

- **No impact.** No impact to the identified environmental resource would occur as a result of the proposed Project.
- **Less than significant.** Some impacts to the environmental resource may result from the proposed Project; however, the impacts do not reach the threshold of significance.
- **Potentially significant but mitigation measures are available to reduce impacts to a less-than-significant level.** Significant adverse impacts may occur; however, with appropriate mitigation, they can be reduced to a less-than-significant level.
- **Significant and unavoidable adverse impacts.** The environmental effect reaches or exceeds the threshold of significance even after mitigation measures have been applied to minimize their severity or no mitigation is available to reduce the impacts to a less-than-significant level.

Potential cumulative impacts for the proposed Project for each environmental resource area are summarized in Section 4. Irreversible environmental changes that would be caused by the proposed Project and growth-inducing impacts of the proposed Project are identified in Section 5. In Section 6, the alternatives are compared to the proposed Project and CEQA baseline and ranked relative to each other based on anticipated impacts for each resource area to determine the environmentally preferred alternative.

3.1 Air Quality

This section describes existing air quality conditions in the project area and analyzes how the proposed Project may affect air quality. It also describes applicable rules and regulations pertaining to air quality that could affect the proposed Project. For the purposes of the air quality analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11) and the surrounding area, including roadways and the San Joaquin River/Stockton DWSC. The closest sensitive receptor to Dock 10/11 is a residential area located approximately 1,200 feet to the north. The closest residential receptor to the NuStar terminal is located approximately 4,000 feet to the east.

3.1.1 Environmental Setting

The proposed Project would occur in the northern portion of the SJVAB, which is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAB is bounded by the Sierra Nevada Mountains to the east, the Coast Ranges to the west, and the Tehachapi mountains to the south; and is made up of eight counties in California's Central Valley: San Joaquin; Stanislaus; Merced; Madera; Fresno; Kings; Tulare; and the SJVAB portion of Kern. The climate within the SJVAB is typical of inland valleys in California with hot, dry summers and cool, mild winters. Daytime temperatures in the summer often exceed 100°F, with lows in the 60s. In winter, daytime temperatures are usually in the 50s, with lows around 35°F. Fog is common in the winter and may persist for days. Winds are predominantly up-valley (from the north) in all seasons, but more so in the summer and spring months. Winds in the fall and winter are generally lighter and more variable in direction, but generally blow toward the south and southeast.

Air quality in the SJVAB is impacted by several sources, including motor vehicle emissions, oil production and refining, and agriculture. Because of the Valley's unique physical characteristics, the potential for pollution is very high. Surrounding elevated terrain, in conjunction with temperature inversions, frequently restrict lateral and vertical dilution of pollutants. Ozone (O_3), the major component of the Valley's summertime smog, is formed via chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_X) in the presence of ultraviolet radiation or sunlight. Abundant sunshine and warm temperatures in summer are ideal conditions for the formation of photochemical oxidants, and the photochemical pollution (O_3) becomes common. Tiny particles of solids or liquids (excluding pure water) that are suspended in the atmosphere are known as particulate matter (PM) and are classified according to their diameter in microns as either $PM_{2.5}$ (PM less than 2.5 microns in diameter) or PM_{10} (PM less than 10 microns in diameter). PM can be emitted directly (primary PM, such as dust or soot), and can form in the atmosphere through photochemical reactions or gaseous precursors (secondary PM). Much of the Valley's ambient PM_{10} and $PM_{2.5}$ is secondary PM, formed in atmospheric reactions of NO_X. Due to the combined air pollution sources

within the SJVAB and meteorological and geographical effects that limit dispersion of air pollution, the SJVAB can experience high air pollutant concentrations.

Air pollutants are defined as two general types: 1) criteria pollutants, representing pollutants for which the U.S. Environmental Protection Agency (USEPA) and ARB have set health- and welfare-protective ambient air quality standards (national ambient air quality standards [NAAQS] and California ambient air quality standards [CAAQS]); and 2) toxic air contaminants (TACs), which may lead to serious illness or increased mortality even when present at relatively low concentrations. TACs generally do not have ambient air quality standards.

3.1.1.1 Criteria Pollutants

USEPA and ARB classify an area as attainment, unclassified, or nonattainment depending on whether the monitored ambient air quality data show compliance, lack of data, or noncompliance with the ambient air quality standards, respectively. The NAAQS and CAAQS relevant to the proposed Project are provided in Table 6. Areas without monitoring data are considered unclassified and are generally treated as attainment areas.

Table 6
National and California Ambient Air Quality Standards

Pollutant	Averaging Period	California Standards	National Standards	Health Effects
O_3	1-hour	0.09 ppm	--	Breathing difficulties, lung tissue damage
	8-hour[b]	0.070 ppm	0.075 ppm	
PM_{10}	24-hour	50 µg/m^3	150 µg/m^3	Increased respiratory disease, lung damage, cancer, premature death
	Annual	20 µg/m^3	--	
$PM_{2.5}$	24-hour[c]	--	35 µg/m^3	Increased respiratory disease, lung damage, cancer, premature death
	Annual	12 µg/m^3	12 µg/m^3	
CO	1-hour	20 ppm	35 ppm	Chest pain in heart patients, headaches, reduced mental alertness
	8-hour	9.0 ppm	9 ppm	
NO_2	1-hour	0.18 ppm	0.100 ppm[a]	Lung irritation and damage
	Annual	0.030 ppm	0.053 ppm	
SO_2	1-hour	0.25 ppm	0.075 ppm[a]	Increases lung disease and breathing problems for asthmatics
	3-hour	--	0.5 ppm	
	24-hour	0.04 ppm	--	

Pollutant	Averaging Period	California Standards	National Standards	Health Effects
Lead	30-day	1.5 µg/m^3	--	Increased body burden and impairment of blood formation and nerve conduction
	Quarter	--	1.5 µg/m^3	
	3-month	--	0.15 µg/m^3	
Sulfates	24-hour	25 µg/m^3	--	Decrease in ventilator function, aggravation of asthmatic symptoms, aggravation of cardiopulmonary disease
Visibility-reducing particles	8-hour	In sufficient amount to give an extinction coefficient of >0.23 inverse kilometers (visual range to less than 10 miles with relative humidity less than 70%)	--	
Hydrogen sulfide	1-hour	0.03 ppm	--	Odor
Vinyl chloride	24-hour	0.01 ppm	--	Short-term exposure: central nervous system effects – dizziness, drowsiness, and headaches Long-term exposure: liver damage, cancer

Notes:

Source: ARB 2018

a. The federal 1-hour NO_2 and SO_2 standards are based on the 3-year average of the 98th and 99th percentile of daily maximum values, respectively.
b. The federal 8-hour O_3 standard is based on the annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
c. The federal 24-hour $PM_{2.5}$ standard is based on the 3-year average of the 98th percentile of the daily values.

The criteria pollutants of primary concern assessed in this DEIR are O_3, PM_{10}, $PM_{2.5}$, carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Lead, hydrogen sulfide, and vinyl chloride would not be generated by the proposed Project; therefore, these pollutants are not evaluated.

O_3 is a unique criteria pollutant because it is not directly emitted from proposed Project-related sources. Rather, O_3 is a secondary pollutant, formed from the precursor pollutants ROG and NO_X, which react to form O_3 in the presence of sunlight through a complex series of photochemical reactions. Thus, unlike inert pollutants, O_3 levels usually peak several hours after the precursors are emitted and many miles downwind of the source. Because of the complexity and uncertainty in predicting photochemical pollutant concentrations, O_3 impacts are indirectly addressed by comparing proposed Project-generated emissions of ROG and NO_X to daily emission thresholds set by SJVAPCD.

In addition, ARB has established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride. Hydrogen sulfide and vinyl chloride are currently not monitored in the SJVAB because they are not a

regional air quality problem; instead, they are generally associated with localized emission sources. For example, vinyl chloride emissions have been associated primarily with sources such as landfills. Sulfate, visibility, hydrogen sulfide, and vinyl chloride are not pollutants of concern for the proposed Project and are not considered in the analysis. Table 7 summarizes the federal and state attainment status of criteria pollutants for the SJVAB based on the NAAQS and CAAQS, respectively.

Table 7
San Joaquin Valley Air Pollution Control District Attainment Status

Pollutant	Attainment Status	
	Federal	State
O_3	Nonattainment (8-hour) – Extreme	Nonattainment (1-hour) – Severe Nonattainment (8-hour)
PM_{10}	Attainment – Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment – Moderate (Annual) Nonattainment – Serious (24-hour)	Nonattainment
CO	Attainment – Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment
Hydrogen Sulfide (H_2S)	No Federal Standard	Unclassified
Visibility-reducing Particles	No Federal Standard	Unclassified

Note:
Sources: USEPA 2019b; ARB 2016

The standards listed in Table 7 are health-based; therefore, exceedances of the air quality standards could have significant health impacts as indicated in Table 6. For example, if the state annual average $PM_{2.5}$ standard was met, approximately 1,000 premature deaths would be avoided annually (ARB 2015).

3.1.1.2 Local Air Monitoring Levels

Table 8 shows the most recent 3 years of monitored values for those criteria pollutants currently monitored at the Hazelton Street station in the City. During this time, there were exceedances of the state and national 8-hour O_3 standard, the state PM_{10} standard, and the state and national $PM_{2.5}$ 24-hour standard. No violations were recorded of the NO_2 or CO standards.

Table 8
Maximum Pollutant Concentrations Measured at the Stockton-Hazelton Street Monitoring Station

Pollutant/Parameter	2013	2014	2015
O_3			
Maximum 1-hour/8-hour average concentration (ppm)	0.080/0.067	0.090/0.077	0.094/0.078
Number of days state/national 1-hour standard exceeded (ppm)	0	0	0
Number of days state/national 8-hour standard exceeded	0	4	2
PM_{10}			
Maximum state/national 24-hour concentration (µg/m^3)	95.5/90.1	94.0/90.0	55.3/54.1
Number of days state/national 24-hour standard exceeded	58.2/0.0	18.0/0.0	24.5/0.0
$PM_{2.5}$			
Maximum state/national 24-hour concentration (µg/m^3)	66.5/66.5	56.8/56.8	58.8/58.8
Annual state/national average	NA/17.6	12.3/12.1	12/12.8
Number of days national 24-hour standard exceeded	27.6	16.0	12.2
NO_2			
Maximum 1-hour average concentration (ppb)	62.4	66.9	58.0
Annual average (ppb)	16	13	12
Number of days state/national standard exceeded	0/0	0/0	0/0
CO			
Maximum 1-hour/8-hour average concentration (ppm)	2.7/1.8	2.8/2.1	2.3/1.5
Number of days state/national 1-hour standard exceeded	0	0	0
Number of days state/national 8-hour standard exceeded	0	0	0

Notes:
Sources: ARB 2017a; USEPA 2019b.
CO is no longer monitored in the Stockton area.
O_3 8-hour exceedances are based on 0.070 ppm.

3.1.1.3 Toxic Air Contaminants

TACs are airborne compounds that are known or suspected to cause adverse human health effects after long-term or short-term exposure. Cancer risk can result from long-term exposure, and non-cancer health effects can result from either chronic or acute exposure. Examples of TAC sources are diesel- and gasoline-powered internal combustion engines in mobile sources; industrial processes and stationary sources such as dry cleaners, gasoline stations, and paint and solvent operations; and stationary fossil fuel-burning combustion sources, such as power plants. Table 9 describes health effects of the possible TACs of concern for the proposed Project.

Table 9
Toxic Air Contaminant Health Effects

Pollutant	Health Effects
Benzene	Central nervous system depression, nausea, tremors, drowsiness, dizziness, headache, irritation of the eyes and respiratory tract. Chronic exposure may reduce the production of both red and white blood cells resulting in aplastic anemia. Exposure to benzene may result in an increased risk of contracting cancer
Chlorobenzene	Headaches, numbness, sleepiness, nausea, and vomiting
Diesel particulate matter	Respiratory damage and premature death, and may result in increased risk of contracting cancer
Ethyl benzene	Eye and throat irritation; exposure to high levels can result in vertigo and dizziness
Ethylene glycol monobutyl ether	Eye, respiratory tract and skin irritation and burns; inhalation may cause headaches and hemolysis (red blood cell breakage)
Hexane	Short-term exposure affects the nervous system and can cause dizziness, nausea, headaches, and even unconsciousness. Chronic exposure can cause more severe damage to the nervous system
Isopropyl alcohol	Skin rash, itching, dryness and redness, irritation of the nose and throat. Repeated high exposure can cause headache, dizziness, confusion, loss of coordination, unconsciousness and even death
Methanol	Chronic exposure can cause visual problems and blindness, convulsions, coma, loss of consciousness, kidney failure, liver damage, low blood pressure, respiratory arrest, and damage to the central nervous system
Naphthalene	May cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin
Propylene glycol monomethyl ether	Can irritate the noise, throat, and lungs causing coughing, wheezing, and/or shortness of breath, headaches, dizziness, lightheadedness, and passing out.
Toluene	Irritation of the eyes and nose; weakness, exhaustion, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; numbness or tingling of the skin; dermatitis; liver and kidney damage
Xylenes (mixed)	Depression of the central nervous system, with symptoms such as headache, dizziness, nausea, and vomiting

Source: USEPA Integrated Risk Information System (USEPA 2019a)

Of the pollutants listed in Table 9, diesel particulate matter (DPM) from ships and trucks would be the primary TAC of concern because combustion of diesel results in DPM. Renewable diesel does not contain TACs; therefore, there would be no fugitive TAC emissions from the vapor released while disconnecting the product offloading hose from railcars near the rail offload yard pump station.

3.1.2 Applicable Regulations

3.1.2.1 Federal

3.1.2.1.1 Clean Air Act

USEPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead under the Clean Air Act (CAA). USEPA also establishes emission standards for on-road vehicles and off-road engines. The CAA forms the basis for national pollution control and delegates the enforcement of the federal standards to the states. In California, ARB and local air agencies have the shared responsibility for enforcing air pollution regulations, with the local agencies having primary responsibility for regulating stationary emission sources. In the SJVAB, SJVAPCD has this responsibility.

In federal nonattainment areas, the CAA requires preparation of a State Implementation Plan (SIP) detailing how the state will attain the NAAQS within mandated timeframes. In response to this requirement, local air quality agencies, in collaboration with other agencies, such as ARB, periodically prepare Air Quality Management Plans (AQMPs) designed to bring the area into attainment with federal requirements and to incorporate the latest technical planning information. The AQMP for each nonattainment area is then incorporated into the SIP, which is submitted by ARB to USEPA for approval. USEPA often approves portions and disapproves other portions of submitted SIPs.

3.1.2.1.2 Emission Standards for Non-Road Diesel Engines

USEPA has established a series of progressively cleaner emission standards for new non-road (off-road) diesel engines. Tier 1 standards were phased in from 1996 to 2000; Tier 2 standards were phased in from 2001 to 2006; Tier 3 standards were phased in from 2006 to 2008; and Tier 4 standards, which require add-on emission control equipment, were phased in from 2008 to 2015. For each tier, the phase-in schedule is driven by engine size. To enable sulfur-sensitive control technologies in Tier 4 engines, USEPA mandated reductions in the sulfur content of non-road diesel fuels to 15 parts per million (ppm; also known as Ultra Low Sulfur Diesel), effective 2010 (DieselNet 2016). The federal fuel standard is preempted by the California standard, which took effect in 2006. These standards would apply primarily to construction equipment associated with the proposed Project.

3.1.2.2 State

3.1.2.2.1 California Clean Air Act

The California Clean Air Act (CCAA), adopted in 1988, requires nonattainment areas to achieve and maintain CAAQS and mandates that local air districts develop triennial plans for attaining CAAQS. ARB is responsible for establishing CAAQS, ensuring CCAA implementation, and regulating emissions

from consumer products and motor vehicles. The ARB established CAAQS for all pollutants for which USEPA has established NAAQS, as well as for sulfates, visibility, hydrogen sulfide, and vinyl chloride. CAAQS are generally more stringent than NAAQS.

3.1.2.2.2 California Diesel Fuel Regulation

The ARB has set sulfur limitations for diesel fuel sold in California for use in on- and off-road motor vehicles and to fulfill ARB's 2000 Diesel Risk Reduction Plan. Harbor craft and intrastate locomotives (switch locomotives) were originally excluded from the rule, but were later included by a 2004 rule amendment. Under this rule, diesel fuel used in motor vehicles, except harbor craft and intrastate locomotives, has been limited to 500 ppm sulfur since 1993 and to 15 ppm sulfur since September 2006. Diesel fuel used in intrastate locomotives has been limited to 15 ppm sulfur since January 1, 2007.

3.1.2.2.3 Heavy-Duty Truck Idling Regulation

This ARB rule became effective in 2005 and prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time, unless they are queuing, provided the queue is located beyond 100 feet from homes or schools.

3.1.2.2.4 California Air Resources Board In-Use Off-Road Diesel Vehicle Rule

In July 2007, ARB adopted a rule that requires owners of off-road mobile equipment powered by diesel engines 25 hp or larger to meet the fleet average or Best Available Control Technology requirements for NO_X and PM emissions by March 1 of each year. The rule is structured by fleet size: large, medium, and small. Medium-sized fleets receive deferred compliance, and small fleets are exempt from NO_X requirements and receive deferred compliance. The regulation was adopted in April 2008 and amended in 2011, delaying the initial compliance date for all fleets by 4 years. This regulation applies primarily to equipment proposed to be used during facility closure activities such as decontamination, deconstruction, and cleanup.

3.1.2.2.5 California Air Resources Board Statewide Bus and Truck Regulation

This regulation, adopted in 2008, requires the installation of PM retrofits on all heavy-duty trucks beginning in 2012 and replacement of older trucks starting in 2015. All vehicles must have 2010 model year engines or equivalent by 2023. This regulation applies primarily to on-road vehicles to be used during proposed facility closure activities such as hauling of debris and materials to and from the site.

3.1.2.2.6 California Air Resources Board Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft

In November 2007, ARB adopted a regulation to reduce diesel particulate matter and NO_X emissions from new and in-use commercial harbor craft. Under ARB's definition, commercial harbor craft

include tugboats, tow boats, ferries, excursion vessels, work boats, crew boats, and fishing vessels. The regulation implemented stringent emission limits on harbor craft auxiliary and propulsion engines. In 2010, ARB amended the regulation to add specific in-use requirements for barges, dredges, and crew/supply vessels.

3.1.2.2.7 California Air Resources Board Regulations for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Coast

In 2008, ARB adopted a clean fuel regulation for ocean-going vessels within 24 nautical miles of the California coast to further reduce emissions from shipping. Since then, the permitted sulfur content of marine gas oil and marine diesel oil has been progressively lowered and since 2014 may not exceed 0.1%. The ARB passed a rule in 2014 that allows marine vessels to be considered in compliance with the California ocean-going fuel regulation when they are complying with the North American Emission Control Area using alternative emission control technologies or non-distillate low sulfur (less than or equal to 0.1% sulfur) marine fuels.

3.1.2.2.8 Toxic Air Contaminant Regulations

California established the California TAC Program (AB 1807 and AB 2728) in 1983. This program sets provisions to implement the national program for control of hazardous air pollutants. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588), established in 1987, is designed to provide information to state and local agencies and to the public on the extent of airborne TAC emissions from stationary sources and the potential public health impact of those emissions. The Hot Spots Act requires that the Office of Environmental Health Hazard Assessment develop health risk assessment (HRA) guidelines. The Hot Spots Act requires operators of certain stationary sources to inventory air toxic emissions from their operations and prepare an HRA, if directed by their local air district, to determine the potential health impacts of their air toxic emissions.

3.1.2.3 Regional

3.1.2.3.1 San Joaquin Valley Air Pollution Control District

SJVAPCD is responsible for implementing federal and state regulations at the local level, permitting stationary sources of air pollution, and developing the local elements of the SIP. Emissions from indirect sources, such as automobile traffic associated with development projects, are addressed through SJVAPCD's air quality plans, which are each air quality district's contribution to the SIP. The most recent 2018 $PM_{2.5}$ Plan was adopted by the District Governing Board on November 15, 2018, and by the California Air Resources Board on January 24, 2019, and has been forwarded to USEPA for final approval.

In addition to permitting and rule compliance, air quality management at the local level is also accomplished through development of regional CEQA significance thresholds and mitigation measures. The District's thresholds of significance are based on the CAAQS and NAAQS and represent a regional approach to meeting CAAQS and NAAQS recognizing the air districts attainment status, emission sources, and regional geography. SJVAPCD's CEQA significance thresholds are applicable to the proposed Project.

3.1.2.3.2 Rule 4624: Transfer of Organic Liquid

Rule 4624 limits volatile organic compound (VOC) emissions from the transfer of organic liquid, depending on the size of the facility and the amount of product transferred per day. Both direct emissions limits and operational controls are required, and all facilities are required to keep detailed records of product transfers.

3.1.2.3.3 Rule 4632: Storage of Organic Liquids

The purpose of this rule is to limit VOC emissions from the storage of organic liquids and applies to any tank with a capacity of 1,100 gallons or greater in which any organic liquid is placed, held, or stored. Under this rule, an operator shall not place, hold, or store organic liquid in any tank unless such tank is equipped with a VOC control system identified as part of the rule, differing based on storage capacity.

3.1.3 Environmental Impacts and Mitigation Measures

3.1.3.1 Baseline

At the time of the NOP, NuStar operated a liquid bulk terminal at the Port serving a variety of products. The proposed Project involves changes to the diesel product mix and operations at the NuStar facility; therefore, the level of ULSD and renewable diesel in 2018 was considered as the baseline. In 2018, the facility received and transferred 3.147 million barrels of ULSD and had 17,001 truck calls. There were no vessel calls as part of baseline operations.

3.1.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on the Appendix G of the CEQA Guidelines (Environmental Checklist) and SJVAPCD guidance (Table 10), were used to determine whether the proposed Project would result in air quality impacts. The proposed Project would have an impact on air quality if:

- **AQ-1:** The project's emissions would conflict with or obstruct implementation of the applicable air quality plan.
- **AQ-2:** The project's emissions would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

- **AQ-3:** The project's emissions would expose sensitive receptors to substantial pollutant concentrations.
- **AQ-4**: The project would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Table 10
San Joaquin Valley Air Pollution Control District Thresholds

Pollutant	Threshold (tons per year)	NAAQS/CAAQS Screening Level (pounds per day)
NO_X	10	100
ROG	10	100
CO	100	100
PM_{10}	15	100
$PM_{2.5}$	15	100
SO_2	27	100

Note:
Source: SJVAPCD 2015a.

3.1.3.3 Methodology for Determining Impacts

Complete details, as well as modeling results related to the air quality analysis, can be found in Appendix E. A summary of assumptions related to the air quality analysis is provided as follows.

Construction emissions would be generated by construction equipment and worker vehicles. Proposed project construction would consist of dock improvements, installation of a pipeline between the dock and the terminal, and terminal improvements. Construction is anticipated to occur over a period of 8 months, with work occurring concurrently at the three locations. Based on the construction schedule, maximum daily and annual construction emissions were calculated by individual activity and total activity. Daily emissions for overlapping activities were summed for each calendar quarter. A full description of construction assumptions, including equipment hp ratings, can be found in Appendix E, specifically Tables E1.1 through E1.3.

Operational emissions would originate from vessels, terminal components, trucks, and employee vehicle movements. During operation, the terminal would receive renewable diesel primarily by vessel. Up to 12 marine vessels would bring up to 1,728,000 barrels of renewable diesel to the dock per year. The renewable diesel would be transferred from the vessels to NuStar's terminal via the new 12-inch pipeline. Product from vessels would be stored in tanks until it is ready for distribution. When ready for distribution, NuStar would pump renewable diesel to the existing on-site truck racks. Empty trucks would enter the terminal through the truck gates and be loaded with product at the truck

racks. The destination of the trucks would be customers, fueling stations, and other recipients within an approximately 50-mile radius, 35 miles of which would be within the SJVAB.

Emissions were calculated using industry accepted emission factors, and source activity (e.g., truck and vessel transit distance, vessel characteristics) provided by NuStar. Emission factors for vessel propulsion engines and auxiliary engines, as well as harbor craft activity, are provided in Appendix E, Tables E2.9 through E2.21. Emission calculations for vessels and harbor craft are determined by multiplying engine activity by the emission factors. Truck activity and calculated emissions are provided in Appendix E, Tables E2.22 through E2.25. Emission calculations for trucks are determined by multiplying activity by the emission factors. Global warming potential (GWP) for all operational activities is provided in Appendix E, Table E2.26. All activity, engine characteristics, emission factors, and supporting information are supported by references which are provided at the end of each Appendix E table.

Renewable diesel is not expected to result in appreciable emissions from tanks and associated pumps, valves, and other components because of its low vapor pressure, vapor density, and volatility based on the material safety data sheet (MSDS) for renewable fuel (Neste 2019). Vapor pressure, vapor density, and boiling point are three parameters normally reported on an MSDS, which indicate a material's propensity to evaporate and result in fugitive emissions. Vapor pressure is a measure of the material's tendency to form a vapor. The lower the vapor pressure, the lower the potential vapor concentration. The MSDS shows that the vapor pressure of renewable diesel is less than 0.3 millimeters of mercury (mm Hg). This is a very low vapor pressure, orders of magnitude lower than conventional diesel or gasoline. For comparison, conventional diesel fuel has a vapor pressure of approximately 2 mm Hg (CITGO 2018a), and gasoline has a vapor pressure of approximately 220 to 750 mm Hg (CITGO 2018b).

Vapor density is the weight per unit volume of a pure gas or vapor. Light gases (density less than 1) such as helium rise in air. Heavy gases and vapors (density greater than 1) can accumulate in low-lying areas such as pits and along floors. The MSDS shows that the vapor density of renewable fuel is greater than 1, making it heavy in gaseous form.

Boiling point is an indicator of product volatility. Specifically, a high boiling point indicates low volatility. The boiling point of renewable diesel is 150 to 315°C (300 to 600°F), which is comparable to diesel fuel. Although renewable fuel is a new product, the low volatility of diesel has been well documented. USEPA, in *AP-42: Compilation of Air Emissions Factors*, Chapter 3 (USEPA 2000), states that: "Evaporative losses are insignificant in diesel engines due to the low volatility of diesel fuels." USEPA, in *Evaporative Emissions from On-road Vehicles in MOVES2014* (USEPA 2014) also states that: "Due to the low vapor pressure of diesel fuel, diesel evaporative losses are considered negligible." SJVAPCD, in its *Compliance Assistance Bulletin 2013* (SJVAPCD 2013), states that: "Tanks used to store diesel are exempt from Enhanced Vapor Recovery" due to low volatility of diesel fuels.

Furthermore, ARB created the Alternative Diesel Fuels regulation (13 CCR 2293–2293.9 and Appendix 1), as a framework for low carbon, lower polluting, diesel fuel substitutes to enter the commercial market in California, while mitigating any potential environmental or public health impacts. Before new fuel specifications can be established, California Health and Safety Code (HSC) Section 43830.8 requires that a multimedia evaluation be conducted and reviewed by the California Environmental Policy Council (CEPC). The CEPC must determine whether the proposed regulation poses a significant adverse impact on public health or the environment. The ARB's 2015 *Multimedia Evaluation of Renewable Diesel* (ARB 2015) contains this determination. The ARB concluded that renewable diesel does not pose a significant adverse impact on public health or the environment from potential air quality impacts. In addition, ARB released a statement that renewable diesel should be treated the same as conventional ARB diesel for all purposes, including storage in underground storage tanks (ARB and SWRCB 2013).

Proposed project throughput and transportation mode split numbers are presented in Table 11. All emission factors and modeling assumptions can be found in Appendix E.

Table 11
Proposed Project Throughput and Transportation Mode Split Compared to Existing (Baseline) Levels

	Baseline: Existing ULSD	Proposed Project: ULSD and Renewable Diesel	Net Difference
Total Volume	3,147,000 barrels per year	3,931,000 barrels per year	784,000 barrels per year
Truck Calls	17,011	21,249	4,238
Vessel Calls	0	12	12

3.1.3.4 Impact Analysis

3.1.3.4.1 AQ-1: Would proposed Project emissions conflict with or obstruct implementation of the applicable air quality plan?

SJVAPCD has established thresholds of significance for criteria pollutant emissions, which are based on New Source Review offset requirements for stationary sources. Because the SJVAB is an extreme O_3 nonattainment area, stationary sources in SJVAPCD are subject to some of the toughest regulatory requirements in the nation. Emission reductions achieved through implementation of offset requirements are a major component of SJVAPCD's air quality plans. Therefore, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not

conflict or obstruct implementation of the air quality plans, while emissions exceeding those thresholds would conflict with and obstruct implementation.

Tables 12 through 15 present the construction and operational emissions resulting from the proposed Project. As shown, emissions would not exceed thresholds.

Impact Determination: As shown under AQ-2, because the proposed Project would not exceed thresholds, it would not conflict with and obstruct implementation of SJVAPCD's O_3 attainment plans, including its most recent 2016 Plan for the 2008 8-hour O_3 standard. Impacts would be considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.1.3.4.2 AQ-2: Would the project's emissions result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

SJVAPCD has developed quantitative criteria to evaluate the significance of air emissions under CEQA. Specifically, a significant impact would occur if implementation of a project alternative would result in emissions that exceed the SJVAPCD-established thresholds shown in Table 10. SJVAPCD's CEQA thresholds represent the emission levels that would result in a direct or indirect project impact, as well as impacts resulting in a cumulatively considerable net increase in pollutants. SJVAPCD applies the CEQA thresholds separately to three emission categories: 1) construction emissions; 2) operational non-exempt equipment emissions; and 3) operational exempt emissions.

Construction. Table 12 shows that the proposed Project would not generate construction emissions that exceed SJVAPCD's thresholds.

Table 12
Construction Emissions

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
	Annual (tons per year)					
2020 Construction	0.2	0.1	2.1	0.0	1.8	0.3
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
	Daily (pounds per day)					
2020 Construction	1.2	1.1	23.1	0.0	18.0	2.4
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No

Notes:
Emissions may not add precisely due to rounding.
Emissions estimated using CalEEMod 2016.3.1.

Operations. Operational non-exempt emissions include emissions from any operational source subject to stationary source air permitting. Operational exempt emissions include emissions from all operational sources that are exempt from stationary source air permitting, including both stationary and mobile sources (SJVAPCD 2015a). Locomotives and marine vessels are regulated by the federal and state governments. ARB is addressing rail emissions through a state-wide rail plan, which includes agreements directly with the two main line locomotive companies. The Central California Traction Company has also recently upgraded several of its locomotives, including a new ultra-low-emissions locomotive purchased through USEPA's Diesel Emissions Reduction Program.

ARB also regulates marine vessels through several comprehensive measures, including fuel and engine standards. In December 2007, ARB approved the "Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port" regulation, commonly referred to as the At-Berth Regulation, to reduce NO_X and PM emissions from diesel auxiliary engines on container ships, passenger ships, and refrigerated-cargo ships while they are berthing at a California port, defined as the ports of Los Angeles, Long Beach, Oakland, San Diego, San Francisco, and Hueneme. The At-Berth Regulation provides two options to reduce at-berth emissions: shore power or an alternative control technology that achieves equivalent emission reductions. Neither the Port nor liquid bulk vessels are covered under the 2007 At-Berth Rule. ARB is currently considering expanding the rule to include smaller fleets, additional vessel visits and types, and ports, including the Port. However, there are several issues, including cost and equipment availability, which would need to be addressed prior to expanding this rule to the Port and operations such as NuStar's. For example, most vessel calls related to the proposed Project are one-time visits, meaning they would call at the Port only one time per year; therefore, the cost to retrofit a ship to accept shore power would be cost-prohibitive. Exhaust gas scrubber systems, in which a bonnet scrubber is placed over a ship's stack either from a barge that is positioned alongside the ship or from a system placed on the terminal adjacent to the berth, were also considered for the proposed Project. However, these systems require proper placement due to the configuration and accessibility of the exhaust stacks to place a bonnet over the stack. The narrow width of the channel in the project area would prohibit the use of a barge-based bonnet system, and the barge would create a navigational constraint, especially when tug maneuvering is required to maintain the barge's

position. In addition, the berth is not configured with large available backlands to support a terminal-based exhaust gas scrubber system.

Tables 13 and 14 show operational emissions for proposed Project conditions. As shown, the majority of emissions would come from mobile sources. As discussed in Section 3.1.3.3, renewable diesel is not expected to result in appreciable emissions from tanks and associated pumps, valves, and other components because of its low vapor pressure, vapor density, and volatility. As shown, the proposed Project would result in a net increase of emissions, which is attributable primarily to truck and locomotive emissions.

Table 13
Proposed Project (2021) Annual Operational Emissions (tons per year)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Trucks	0.04	0.02	2.13	0.01	0.43	0.10
Ships Transit	0.20	0.19	4.25	0.75	0.43	0.20
Ships at Berth	0.05	0.05	2.26	0.08	0.30	0.19
Tugboats	0.06	0.05	1.16	0.00	0.65	0.06
Employee Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
2021 Project Total	**0.36**	**0.31**	**9.79**	**0.84**	**1.81**	**0.55**
CEQA Impacts						
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No

Note:
Emissions may not add precisely due to rounding

Table 14
Proposed Project (2021) Daily Operational Emissions (pounds per day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
2020 Project						
Trucks	0.00	0.00	0.80	0.00	0.70	0.13
Ships at Berth	1.11	1.03	23.28	4.13	2.38	1.08
Tugboats at Berth	0.04	0.03	0.75	0.00	0.43	0.04
2021 Project Total	**1.16**	**1.07**	**24.83**	**4.13**	**3.51**	**1.25**
CEQA Impacts						
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No

Note:
Emissions may not add precisely due to rounding.

Tables 13 and 14 present criteria pollutant emissions within the SJVAB. Although the proposed Project would generate substantially more emissions within the SJVAB than any other affected air basin, the proposed Project would result in vessel and truck trips in other air basins. Ships would travel through the Bay Area to the Port through areas under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Trucks would travel to various destinations in the Northern California area, including through areas overseen by the BAAQMD and the Sacramento Metropolitan Air Quality Management District (SMAQMD). NuStar will not own the renewable fuel itself, but will hold contracts with companies that own and store the fuel between product distribution and purchase. The renewable fuel will be sold to various customers throughout the Northern California area, and can include a range of deliveries from gas stations to refineries. While actual travel routes in these areas and the number of truck trips in these areas are somewhat speculative because the ultimate destination of cargo varies depending on market forces, general routes are known by NuStar, and therefore estimates of emissions in the BAAQMD and SMAQMD were also modeled. Potential truck distances are listed in Appendix E (Table E.23).

The following emissions would occur from vessels and trucks as a result of the proposed Project outside the SJVAB.

Table 15
Emissions within the Bay Area Air Quality Management District and Sacramento Metropolitan Air Quality Management District

	PM_{10}	$PM_{2.5}$	NO_X	VOC
BAAQMD				
2021 Project, Daily emissions (pounds/day)				
Ship Transit	0.7	0.6	29.1	2.5
Truck Transit	0.1	0.1	5.2	0.0
BAAQMD Significance Threshold	82	54	54	54
Significant?	No	No	No	No
2021 Project, Annual Emissions (tons/year)				
Ship Transit	0.0	0.0	5.0	0.0
Truck Transit	0.0	0.0	1.0	0.0
BAAQMD Significance Threshold	82	54	54	54
Significant?	No	No	No	No
SMAQMD				
2021 Project, Daily emissions (pounds/day)				
Truck Transit	0.11	0.05	5.16	0.01
Significance Threshold	80	82	65	65

	PM_{10}	$PM_{2.5}$	NO_X	VOC
Significant?	No	No	No	No
2021 Project, Annual Emissions (tons/year)				
Truck Transit	0.02	0.01	--	--
SMAQMD Significance Threshold	14.6	82	No threshold	No threshold
Significant?	No	No	NA	NA

Notes:
Emissions may not add precisely due to rounding.
Truck transit split between BAAQMD and SMAQMD.
No ship transit is assumed in the SMAQMD.

Impact Determination: As shown in Table 12, construction emissions would be below SJVAPCD significance thresholds. As shown in Tables 13, 14, and 15 operational emissions would be below SJVAPCD thresholds in the SJVAB as well as below the set thresholds of other air districts in which the trucks and vessels would transit. Therefore, emissions would be considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.1.3.4.3 AQ-3: Would proposed Project emissions expose sensitive receptors to substantial pollutant concentrations?

A significant impact would occur if a project would emit TACs that could cause a significant increase in health risks, including both carcinogenic and non-carcinogenic risks. A project is considered to have a significant TAC impact if it would:

- Result in ground-level concentrations of carcinogenic TACs that would increase the probability of contracting cancer for the maximally exposed individual by 20 in one million or more (SJVAPCD 2015b)
- Increase ground-level concentrations of non-carcinogenic TACs that would result in an acute or chronic hazard index exceeding one for the maximally exposed individual receptor (SJVAPCD 2015b)

Sources associated with the proposed Project that are expected to have emissions significant enough to warrant consideration include mobile source emissions. Specifically, these sources include the following:

- Construction equipment on site
- Vessel maneuvering at berth
- Truck loading and transport

Impacts to sensitive receptors are evaluated in terms of exposure to TACs. DPM emitted by on- and off-road vehicles is considered the TAC of most concern from motor vehicles. More than 90% of DPM is less than 1 µm in diameter, and thus is a subset of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). $PM_{2.5}$ comes from a variety of sources, but primarily from the burning of carbon-based fuels, such as gasoline, diesel, and wood. Numerous scientific studies have linked exposure to airborne $PM_{2.5}$ to increased severity of asthma attacks, development of chronic bronchitis, decreased lung function in children, respiratory and cardiovascular hospitalizations, and even premature death in people with existing heart or lung disease (ARB 2019). Because DMP is a subset of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death, hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies. Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly, who often have chronic health problems (ARB 2019).

Construction-related activities would result in short-term emissions of DPM from the exhaust of off-road heavy-duty diesel equipment. The health risks of TAC emissions are typically quantified when both of the following apply: sensitive receptors are located within 1,000 feet of an emission source; and exposure would occur over several years. The closest sensitive receptors would be located approximately 1,200 feet to the north of Dock 10/11, where construction would occur and where vessels would maneuver and berth, and 4,000 feet to the east of the terminal, where construction would occur and truck loading and movements would be concentrated. During construction of the proposed Project, emissions of DPM would be intermittently generated over an 8-month period starting in 2020. Operational emissions would occur over the entire lease period; however, as shown in Table 13, $PM_{2.5}$ emissions would only increase by approximately 0.4 ton per year over existing conditions.

Impact Determination: Due to the short construction period and the distance between activity and residential sensitive receptors, construction of the proposed Project would not expose sensitive receptors to substantial pollutant concentrations. As shown in Table 13, the majority of the $PM_{2.5}$, of which DPM would be a component, would be generated from ships at berth, which would be located more than 1,000 feet from the nearest receptor. Ships are expected to visit the dock one time a month and be in port for a maximum of 24 hours, thereby would not be a constant source of exposure to receptors. The proposed Project would result in a less-than-significant cancer risk, chronic health hazard, and acute health hazard at the maximally affected individual receptors. Therefore, the proposed Project's health risk impacts would be less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.1.3.4.4 AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

SJVAPCD's CEQA guidance defines a significant odor impact as one that creates objectionable odors affecting a substantial number of people. SJVAPCD's guidance lists facility types that commonly produce odors and the separation distance from sensitive receptors (typically 1 mile) needed to prevent significant odor impacts (SJVAPCD 2015a). As noted in SJVAPCD's guidance, the list of facility types is not meant to be all-inclusive. Consequently, SJVAPCD recommends that all potential odor sources be evaluated in additional detail if they are located within 1 mile of sensitive receptors. The closest sensitive receptor to Dock 10/11 is a residential area located approximately 1,200 feet to the north. The closest residential receptor to the NuStar terminal is located approximately 4,000 feet to the east.

During construction, diesel exhaust produced by off-road construction equipment could generate odors; however, several pieces of construction equipment would need to operate concurrently in a relatively small area to generate a constant plume of diesel exhaust that would cause objectionable odors for a substantial number of people. These circumstances would not occur as part of the proposed Project because construction would occur over a broad area and construction equipment would not all operate at the same time.

During operation, diesel exhaust produced by vessels and trucks could generate odors. However, the majority of the operation would occur within the confines of the Port. Odors from the product unloading area are not expected to be significant because of the low amount of fugitive emissions that would be generated and because of the substantial distance of the product unloading area from residences.

Impact Determination: Construction and operational odors would not affect a substantial number of people. Therefore, this impact is considered to be less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.2 Biological Resources

This section describes existing biological resources conditions in the study area and analyzes how the proposed Project may affect these resources. It also describes applicable rules and regulations pertaining to biological resources that could affect the proposed Project. For the purposes of the biological resources analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11) and the surrounding area, including the San Joaquin River.

3.2.1 Environmental Setting

Biological conditions occurring in the project area were observed during a reconnaissance survey conducted in August 2019 to assess current habitat conditions, determine presence of any jurisdictional waters and wetlands, and evaluate the project area's potential to support special-status species or sensitive habitats (Anchor QEA 2019). A search of the California Natural Diversity Database (CNDDB) was conducted to identify recorded special-status species occurrences within the U.S. Geological Survey (USGS) Stockton West 7.5-minute quadrangle and surrounding quadrangles (Terminous, Lodi South, Waterloo, Stockton East, Manteca, Lathrop, Union Island, and Holt; CDFW CNDDB 2019).

3.2.1.1 Habitat Communities

The NuStar facility is located within a highly developed and industrialized area. It is surrounded on three sides by existing industrial developments, roadways, and rail lines. This includes West Washington Street and the Yara North America facility to the north; Navy Drive and the Pacific Ethanol facility to the west; and Stork Road, the DTE Energy facility, BNSF Railway (BNSF) rail lines, and a barren lot planned for development of the Eco-Energy Liquid Bulk Receiving Terminal to the east. The Marathon Petroleum facility (formerly Tesoro Logistics Operations) is also located at 3003 Navy Drive, between the northernmost NuStar facility tanks and the rest of the NuStar facility. The area immediately south of the NuStar facility contains coverage of non-native grass and newly constructed drainage infrastructure (swale and drainage intakes) associated with the recent widening of Navy Drive to the west.

The NuStar facility is almost entirely developed with tanks, support buildings, pipelines, parking areas, hardscaping, containment berms and basins, and stormwater ponds. Vegetation within the facility itself includes ornamental landscaping at the facility entrances and support buildings, consisting of grasses and small shrubs and trees (approximately 20 feet tall or less). Tules (*Schoenoplectus sp.*) and other shrubs have established within the facility's stormwater ponds.

Photograph 1
Tules and shrubs in the NuStar facility's stormwater pond

Developed and undeveloped areas surrounding the NuStar facility are also sparsely vegetated. The parcel immediately south of the NuStar facility and the roadway shoulder west of Navy Drive are mostly covered in ruderal non-native grasses or small shrubs. There are also two small trees on the shoulder west of Navy Drive, across the roadway from the NuStar facility. The parcel west of Navy Drive contains non-native grasses and several small trees. As noted, vegetation occurs within a largely developed industrial landscape.

The proposed pipeline would also be located in the developed and industrialized area of the Port. The pipeline would be buried beneath or adjacent to roadways (West Washington Street, Stork Road, and Port Road A), developed industrial parcels (the NuStar; H.J. Baker & Bro., LLC; and IRM Stockton Terminal facilities and Dock 10/11), and rail lines. There are also aboveground pipelines that follow the general alignment of the proposed buried pipeline. These developed areas generally contain sparse vegetation with limited coverage of ruderal species and ornamental landscaping.

Photograph 2
Riprap, grasses, and riparian trees across from Dock 10/11

Dock 10/11 consists of an asphalt and concrete deck adjacent to the San Joaquin River (and Stockton DWSC), developed to accommodate vessel berthing. The deck area proposed for improvement is entirely surfaced in asphalt and concrete and is devoid of vegetation. The shoreline up and downstream of Dock 10/11 contains riparian trees, although these features are away from the proposed Project footprint. The San Joaquin River measures approximately 450 feet wide at the Dock 10/11 area, and operational depths are maintained through routine maintenance dredging undertaken by the Port.

Photograph 3
Dock 10/11 asphalt and concrete deck

3.2.1.2 Wetlands and Jurisdictional Waters

The NuStar facility's stormwater ponds are outside the proposed Project footprint. There are no known wetlands or jurisdictional waters within the proposed Project footprint. Vessels serving the NuStar facility from the San Joaquin River would berth at the existing Dock 10/11. No construction would occur in the San Joaquin River/Stockton Deep Water Ship Channel as part of the proposed Project.

3.2.1.3 Special-Status Wildlife Species

The CNDDB identifies 21 special-status (threatened or endangered under the federal Endangered Species Act [ESA] or California Endangered Species Act [CESA], state species of special concern, or CDFW fully protected species) wildlife species within the study area, as identified through a search of the proposed Project quadrangle and eight surrounding quadrangles (Appendix F). Potential species occurrence was determined based on habitat requirements and on-site conditions. The project site's

developed condition and location within a highly industrialized area precludes the presence of most special-status species, although several special-status bird and fish species may have a very low to low potential for occurrence in or around the project site. This includes Swainson's hawk (*Buteo swainsoni*; CESA threatened) and white-tailed kite *(Elanus leucurus*; CDFW fully protected). The project site may also provide suitable nesting habitat for Migratory Bird Treaty Act (MBTA)-protected bird species. Other species potentially present in the project area (specifically within the San Joaquin River adjacent to Dock 10/11) were identified based on critical habitat and essential fish habitat (EFH) designations (50 CFR 226; NOAA 2009). San Joaquin River waters that would accommodate vessels under proposed operating conditions are within designated critical habitat for delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss irideus*), and green sturgeon (*Acipenser medirostris*). San Joaquin River waters in the project area are also considered EFH for Pacific salmon and may provide habitat to Central Valley fall-run and late fall-run Chinook salmon (*Oncorhynchus tshawytscha*; NMFS 2019; CDFW 2019). State-threatened longfin smelt (*Spirinchus thaleichthys*) may also inhabit San Joaquin River waters. These potentially present species are described in the following subsections.

3.2.1.3.1 Swainson's Hawk

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

Trees along the San Joaquin River shoreline located up and downstream of Dock 10/11 may provide nesting habitat to the Swainson's hawk.

3.2.1.3.2 White-Tailed Kite

White-tailed kites nest and forage in a variety of settings. They hunt over grassland, savanna, cultivated fields, marshes, and riparian woodland and are also commonly observed foraging along freeway medians and edges. Kites prey primarily on voles and other small rodents but also eat birds, snakes, lizards, frogs, and large insects. They build stick nests in the tops of trees, preferentially near an open foraging area, and typically forage within 0.5 mile of the nest during breeding season, which extends from February through October. The nearest white-tailed kite occurrence was recorded approximately 3.6 miles southeast of the project area in April 2002 (CDFW CNDDB 2019).

As with Swainson's hawk, trees along the San Joaquin River shoreline up and downstream of Dock 10/11 may provide nesting habitat for white-tailed kites.

3.2.1.3.3 Green Sturgeon

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

Although the San Joaquin River adjacent to Dock 10/11 does not provide suitable spawning habitat for green sturgeon, the species may occur within waters used for NuStar vessel berthing during the upstream migration of spawning adults and downstream migration, resting, and foraging of juveniles (Caltrans and Port 2013). In addition, San Joaquin River waters adjacent to Dock 10/11 are within designated critical habitat for green sturgeon.

3.2.1.3.4 Delta Smelt

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

The Dock 10/11 area used for NuStar vessel berthing has already been developed and currently accommodates large vessels. This area does not provide the shallow edge waters preferred by delta smelt during spawning, which typically occurs within sloughs and shallow edge waters located within the upper Delta. San Joaquin River waters adjacent to Dock 10/11 are, however, within designated critical habitat for delta smelt.

3.2.1.3.5 Central Valley Steelhead

The Central Valley distinct population segment (DPS) of steelhead includes all populations in the Sacramento and San Joaquin rivers and their tributaries. The current distribution ranges from Keswick Dam in the Upper Sacramento River to the Merced River in the San Joaquin River Basin, with distribution primarily limited by impassable dams. Anadromous adults make their upstream spawning migrations beginning in July (peaking in September and October) after residing in the ocean for 2 to 3 years. Spawning occurs from December through April. Spawning, incubation, and the majority of rearing occurs farther upstream than the project area.

The Dock 10/11 area used for NuStar vessel berthing has already been developed; this area does not contain river bottom habitat suitable for spawning or incubation. However, steelhead may occur in San Joaquin River waters adjacent to Dock 10/11 during the upstream migration of spawning adults and downstream migration, resting, and foraging of juveniles (Caltrans and Port 2013). In addition, waters in the Dock 10/11 area are within designated critical habitat for this species.

3.2.1.3.6 Central Valley Fall-Run/Late Fall-Run Chinook Salmon

The Central Valley fall-run and late fall-run evolutionary significant units (ESUs) of Chinook salmon are two of the four distinct runs of salmon that spawn in the Sacramento-San Joaquin River system. The ESUs include all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin river basins and their tributaries east of Carquinez Strait. Fall-run Chinook are the most abundant run in the Central Valley (CDFW 2017). Fall-run salmon generally start migrating from the ocean and begin spawning in the tributaries of the San Joaquin River during the early fall, when water temperature begins to cool. Fall-run spawning occurs within the first 20 river miles below the first major dams and reservoirs on the Merced, Tuolumne, and Stanislaus rivers during October, November, and December.

Although the Dock 10/11 area used for NuStar vessel berthing does not provide suitable spawning habitat for Central Valley fall-run and late fall-run Chinook salmon, they may occur in Dock 10/11 waters during the upstream migration of spawning adults and downstream migration, resting, and foraging of juveniles (Caltrans and Port 2013). In addition, Dock 10/11 waters are within designated EFH for this species.

3.2.1.3.7 Longfin Smelt

Longfin smelt, a small euryhaline and anadromous fish, was historically among the most abundant fish in the Delta. Spawning adults congregate at the upper end of Suisun Bay and in the lower and middle Delta, especially in the Sacramento River channel and adjacent sloughs (USACE 2015). As they mature in the fall, adults found throughout San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin rivers.

While juveniles and adults are present throughout the estuary year-round (potentially including the Dock 10/11 area used for NuStar vessel berthing), the majority of the population is concentrated in the Suisun, San Pablo, and Central bays, as well as nearshore waters during the summer months. The Dock 10/11 area does not provide suitable spawning habitat for this species.

3.2.1.3.8 Special-Status Plant Species

There are 21 plant species considered rare, threatened, or endangered by the California Native Plant Society (CNPS; a CNPS Rank 1 or 2 species) with recorded occurrences in the vicinity of the project site, as identified through a search of the proposed Project quadrangle and eight surrounding quadrangles (Appendix G; CDFW CNDDB 2019). Of these 19 species, two are state or federal endangered: palmate-bracted bird's-beak (*Chloropyron palmatum*; federal and state endangered) and Delta button-celery (*Eryngium racemosum*; state endangered). Due to the lack of suitable habitats within the project area, none of the special-status plant species with recorded occurrences have the potential to occur within the project site.

3.2.1.3.9 Migratory Bird Treaty Act Protected Birds and Raptors

MBTA-protected birds could roost or nest in trees within or near to the project site. Ground nests may also be present. Several MBTA-protected birds have been observed at the Port, including, but not limited to the following (Anchor QEA 2018):

- Barn swallow (*Hirundo rustica*)
- Bushtit (*Psaltriparus minimus*)
- Belted kingfisher (*Megaceryle alcyon*)
- House finch (*Haemorhous mexicanus*)
- Cliff swallow (*Petrochelidon pyrrhonota*)
- White-tailed kite (*Elanus leucurus*)
- Swainson's hawk (*Buteo swainsoni*)
- Common raven (*Corvus corax*)

3.2.2 Applicable Regulations

3.2.2.1 Federal

3.2.2.1.1 Federal Endangered Species Act

Under the ESA, the Secretary of the Interior and the Secretary of Commerce have the joint authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). Pursuant to the requirements of the ESA, an agency reviewing a proposed Project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the study area and determine whether the proposed Project may affect or "take" such species. "Take" is defined by the ESA (16 USC 1532[19]) to mean, "to harass, harm, pursue, hunt, shoot, wound, kill,

trap, capture, or collect, or attempt to engage in any such conduct." An incidental take of a listed species requires consultation with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service to determine whether the proposed Project is likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3]).

3.2.2.1.2 Migratory Bird Treaty Act

The MBTA of 1918 (16 USC 703–711) is the primary legislation in the United States to conserve migratory birds. It implements the United States' commitment to four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The MBTA prohibits the taking, killing, trading, or possessing of migratory birds. This includes disturbance that causes nest abandonment or loss of reproductive effort (e.g., killing or abandonment of eggs or young).

3.2.2.2 State

3.2.2.2.1 California Endangered Species Act

Under the CESA, CDFW is responsible for maintaining a list of threatened, endangered, and candidate species (California Fish and Game Code [FGC] 2070). CDFW also designates "fully protected" or "protected" species as those that may not be taken or possessed. Species designated as fully protected or protected may or may not be listed as endangered or threatened. CDFW also tracks species of special concern, which are animal species whose populations have diminished and may be considered for listing if declines continue. Pursuant to the requirements of the CESA, an agency reviewing a proposed Project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the study area and determine whether the proposed Project would have a potentially significant impact on such species. "Take" of a species, under the CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of "take" does not include "harm" or "harass," as is included in ESA. As a result, the threshold for a take under the CESA may be higher than under ESA because habitat modification is not necessarily considered take under the CESA. CDFW may issue incidental take permits when adequate minimization measures are met and issuance of the permit would not jeopardize the continued existence of a state-listed species. Should the project applicant receive authorization to take federally listed species under ESA, take authorization may also be sought as a "consistency determination" from CDFW under FGC 2080.1.

3.2.2.2.2 California Native Plant Protection Act

The California Native Plant Protection Act (FGC 1900–1913), Natural Communities Conservation Planning Act, and CESA provide guidance on the preservation of plant resources. Vascular plants

listed as rare or endangered by the CNPS, but which may have no designated status or protection under federal or state endangered species legislation, are defined as follows:

- Rank 1A: Plants presumed to be extirpated in California and either rare or extinct elsewhere.
- Rank 1B: Plants rare, threatened, or endangered in California and elsewhere.
- Rank 2A: Plants presumed to be extirpated in California, but more common elsewhere.
- Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
- Rank 3: Plants about which more information is needed—a review list.
- Rank 4: Plants of limited distribution—a watch list.

In general, plants listed as CNPS Rank 1A, 1B, 2A, or 2B also meet the definition of FGC 1901, Chapter 10 of the Native Plant Protection Act, and FGC 2062 and 2067. The CNDDB identifies three special-status plant species (CNPS Rank 1 or 2 species) with historic ranges in the vicinity of the study area. However, suitable habitat or microhabitat conditions specific to these species does not exist at the project site.

3.2.2.2.3 Fish and Game Code 3503, 3511, 3513, 4700, 5050, and 5515

Provisions of the MBTA are adopted through the FGC. Under FGC 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or related regulations. FGC 3513 prohibits take or possession of any designated migratory non-game bird or any part of such migratory non-game bird. The state code offers no mechanism for obtaining an incidental take permit for the loss of non-game, migratory birds.

The FGC strictly prohibits the incidental or deliberate take of fully protected species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock; therefore, avoidance measures may be required to avoid a take (FGC 3511 for birds, 4700 for mammals, 5050 for reptiles and amphibians, and 5515 for fish).

3.2.2.3 Local

3.2.2.3.1 San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The SJMSCP, in accordance with ESA Section 10(a)(1)(B) and CESA Section 2081(b) Incidental Take Permits, provides compensation for the conversion of open space to non-open space uses which affect the plant, fish, and wildlife species covered by the plan. The SJMSCP covers 97 species, including federal and state-listed species, as well as species specifically addressed by CEQA.

For projects with the potential to adversely affect special-status species or habitats, project proponents may opt into the SJMSCP to obtain take coverage for species covered by the plan. Opting into the SJMSCP typically entails adhering to avoidance and minimization measures during project construction and mitigating for potential species take or loss of habitat (through credit purchase or other means).

3.2.2.3.2 Stockton Municipal Code Title 16, Division 5, Chapter 16.130

Title 16, Division 5, Chapter 16.130 of the City Municipal Code provides protection for heritage oaks in the City. Heritage oak trees are defined as any *Quercus lobata* (commonly known as valley oak), *Quercus agrifolia* (coast live oak), or *Quercus wislizeni* (interior live oak) tree which is located on public or private property within the limits of the City and which has a trunk diameter of 16 inches or more, measured at 24 inches above actual grade. Removal of any heritage oak requires a permit from the City Community Development Department.

3.2.3 Environmental Impacts and Mitigation Measures

3.2.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port and the remainder of the project site was within highly developed and industrialized areas, as detailed in Section 3.2.1. Vegetation within the immediate project area included ornamental landscaping and ruderal groundcover and shrubs, with limited vegetation in surrounding areas.

3.2.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine whether the proposed Project would result in impacts on biological resources. The proposed Project would have an impact on biological resources if:

- **BIO-1:** The project would 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.
- **BIO-2:** The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- **BIO-3:** The project would have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means.
- **BIO-4:** The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- **BIO-5:** The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- **BIO-6:** The project would conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

3.2.3.3 Methodology for Determining Impacts

Potential impacts on biological resources were qualitatively evaluated based on the habitat preferences for various species known or suspected to be in the project area, as well as the quantity and quality of existing habitat. Potential impacts were analyzed using recent USFWS and CDFW lists for special-status species with the potential to inhabit the study area, local observations, and professional expertise and judgment in evaluating how the proposed Project could interact with biological resources.

The proposed measurement indices used to evaluate impacts on biological resources include impacts on special-status species or habitats. The proposed Project would be considered to have a significant impact if it would be inconsistent with applicable regulations and policies protecting biological resources.

3.2.3.4 Impact Analysis

3.2.3.4.1 BIO-1: Would the 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?

The proposed Project would be constructed within existing developed industrialized areas. The project site and surrounding area are devoid of unique habitats or habitat features suitable for special-status species, except for mature trees near the project site, including riparian trees along the San Joaquin River shoreline. These trees may provide suitable nesting habitat for Swainson's hawk, white-tailed kites, or MBTA-protected bird species. The proposed Project would not remove or directly disturb any mature trees; however, construction noise could temporarily adversely affect nesting birds, if present. Ground-nesting birds protected by the MBTA may also be present within or near the immediate project footprint, and construction activities also have the potential to disturb nests, if present.

Impact Determination: Construction of the proposed Project has the potential to adversely affect special-status species that could be present in the project area, which would constitute a potentially significant impact.

Mitigation Measures: The following mitigation measure would be implemented during construction to reduce potential impacts:

- **MM-BIO-1: Obtain Coverage under the SJMSCP or Conduct Nesting Bird Surveys.** To avoid impacts on potentially present special-status bird species, the proposed Project will obtain coverage under the SJMSCP. NuStar will submit an application for coverage to the San Joaquin Council of Governments (SJCOG) within 60 days of project construction. SJCOG will review the project, prepare a staff report, and submit the report to the SJMSCP Habitat Technical Advisory Committee, who determines whether the project will be covered under the SJMSCP. Assuming the 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 project. NuStar will implement all required ITMMs identified by the SJCOG.

  If the proposed Project is not able to obtain coverage under the SJMSCP, NuStar will conduct nesting bird 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 commencing 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/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.

  Residual Impact: Less-than-significant impact.

3.2.3.4.2 BIO-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

There are no riparian habitats or other sensitive natural communities within the immediate project footprint. While the Dock 10/11 component of the proposed Project would be constructed near vegetated portions of the San Joaquin River shoreline, it would be constructed within an existing developed area and would not affect any riparian vegetation or habitat.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impact to riparian habitat or other sensitive natural communities.

Mitigation Measures: None required.

Residual Impact: No impact.

3.2.3.4.3 BIO-3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

There are no wetlands within the project footprint, and no in-water work is required as part of the proposed Project. Ships would berth at existing docks that currently receive vessels or other ship calls. Stormwater detention ponds at the NuStar facility that may exhibit signs of wetland hydrology, soil, and vegetation would be unaffected by the proposed Project. In addition, these ponds are managed as part of the facility's stormwater system and are therefore likely exempt from state and federal regulations governing wetland features.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impact to federally protected wetlands.

Mitigation Measures: None required.

Residual Impact: No impact.

3.2.3.4.4 BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Although the project area is along the Pacific Flyway, an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coast states and provinces of North America, the developed nature of the project area and

small size of the riparian corridor along the San Joaquin River likely preclude migratory bird species from using the project site as a stopover during their migration.

The Dock 10/11 berthing area is not within any nursery sites for special-status fish species, and the proposed Project would not impede migration within the San Joaquin River or other waters. Although docked vessels would temporarily impede localized movement of fish within the immediate berthing area, fish movement throughout the remainder of the channel would remain unimpeded. The very small increase in vessels calls to existing docks (estimated at up to 12 ship visits per year) is not anticipated to degrade aquatic habitat values compared to existing conditions. Under existing conditions, Port docks accommodate a multitude of vessels throughout the year (252 vessels in 2018 [Port 2019c]) and numerous other vessels, tugs, and skiffs pass by Dock 10/11 en route to the turning basin or other marine terminals to the east.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impact to movement of fish or wildlife species, wildlife corridors, or to wildlife nursery sites.

Mitigation Measures: None required.

Residual Impact: No impact.

3.2.3.4.5 BIO-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed Project would not require removal of any oak or street trees and would therefore not conflict with the City Heritage Tree Ordinance or City Municipal Code pertaining to street trees. Conformance with the SJMSCP is addressed under BIO-1. There are no other local policies or ordinances for protecting biological resources that are applicable to the project site or proposed Project.

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

Mitigation Measures: None required.

Residual Impact: No impact.

3.2.3.4.6 BIO-6: Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The SJMSCP is the only conservation plan in the project area. As discussed under BIO-1, mature trees near the project footprint, including riparian trees along the San Joaquin River, may provide suitable

nesting habitat for Swainson's hawk, white tailed kites, or MBTA-protected bird species. Nests of ground-nesting MBTA-protected bird species may also be present in the project area. Construction activities associated with the proposed Project may directly disturb ground-nesting birds, or indirectly disturb tree-nesting birds (e.g., noise disturbance), if present.

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

Mitigation Measures:

- MM-BIO-1: Obtain Coverage under the SJMSCP or Conduct Nesting Bird Surveys.

Residual Impact: Less-than-significant impact.

3.3 Cultural Resources

This section details the existing historical and archaeological resources within the project area; the variety of resources in the project area and surrounding vicinity; and the relevant federal, state, and local regulations and policies. The information presented in this section is largely based on historical maps and documents about the development of the project area.

Cultural resources are defined as archaeological sites, elements of the historic built environment (e.g., buildings, structures, bridges, or other built features), and places of traditional cultural importance that meet one of the following criteria (14 CCR 15064.5):

- Listed in or eligible for listing in the California Register of Historical Resources (CRHR)
- Listed in a local preservation register
- Identified as significant in a historical resource survey (unless the preponderance of evidence demonstrates that it is not historically or culturally significant)
- Determined to be significant by the CEQA lead agency, provided the determination is supported by substantial evidence considering the whole record

For the purposes of this analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11).

3.3.1 Environmental Setting

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

The project area is in the traditional territory of the Yokuts tribe and may also have been used or settled by Plains Miwok and Wintun peoples. Yokuts communities were organized into a number of tribes united by a common language (Golla 2007). They lived throughout the San Joaquin Valley and relied on the region's rich fishing and hunting resources (Kroeber 1976). Native American

communities were severely impacted by European contact (Milliken 1995). However, Yokuts people have endured and are now members of several federally recognized tribes.

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

The gold rush that began in 1848 spurred a boom in the Stockton area, and the city incorporated in 1850. Hundreds of vessels, from paddlewheelers to barks, plied the area serving miners. The Swamp Land Act of 1850 (also known as the Overflow Land Act) allowed for the transfer of wetlands from federal to state ownership, which began the process of reclaiming lands through drainage, dredging, levee construction, and fill placement (Garone 2011). Post-gold rush, the economy was driven by shipbuilding and agriculture, which remain primary industries today.

There is evidence of industrial and land development in the immediate vicinity of the project site since at least the early 1900s, which intensified through the mid to late twentieth century. By 1913, levees had been constructed that channelized the San Joaquin River and Stockton DWSC and allowed for land-making through filling of adjacent uplands. Prior to historic landmaking, the project area would have been seasonally inundated. A USGS topographic map from 1913 shows the levees adjacent to waterways and a dirt road in roughly the same location as Navy Drive.

The area became part of the Stockton Ordnance Depot during World War II, and paved roads and rail spurs at the Port are visible in USGS topographic maps from this period and a 1947 aerial photo. In the photo, the existing terminal portion of the project area was an agricultural field adjacent to the Stockton Ordnance Depot, and Dock 10/11 did not yet exist. Industrial development intensified through the mid to late twentieth century. The terminal portion of the project area has been used for bulk liquid storage since at least 1952. The Dock 10/11 portion of the project area appears to have been built around 1970 (parts of the structure first appear on a topographic map from that year) and it is visible in a 1971 aerial photo.

Findings from geotechnical studies at various locations around the Port are consistent with the area's environmental and cultural history. On Rough and Ready Island, approximately 1.1 miles east of the project area, borings revealed 6 feet of "fill material placed at the site during previous grading activities at the Port" (CET 2011). Similarly, an investigation in Stockton approximately 2 miles to the west of the project area identified 4 to 7 feet of underlying fill (Engeo 2009). Although these sites are not in the immediate project vicinity, the relatively flat topography of the study area and the shared

landform history of levee construction and fill placement indicates that a conservative estimate of 4 feet of fill across the project site is appropriate.

According to a search of the California Historical Resources Information System (CHRIS), there are no recorded cultural resources in the project area. Two archaeological sites have been recorded within a mile of the project area. Site P-39-05238 is a historic refuse scatter along West Charter Way, approximately 0.9 mile southeast of the project area. Site CA-SJO-103, a precontact village site containing burials, is located near the eastern approach of the West Charter Way Bridge (Garwood Bridge) over the San Joaquin River, approximately 0.75 mile south of the project area. No archaeological surveys have been conducted in the project area.

3.3.2 Applicable Regulations

3.3.2.1 State

3.3.2.1.1 California Environmental Quality Act

CEQA and the CEQA Guidelines include procedures for identifying, analyzing, and disclosing potentially significant adverse impacts of a project to historical and unique archaeological resources, including resources listed in or formally determined eligible for the National Register of Historic Places (NRHP), the CRHR, or local registers. CEQA requires the lead agency to consider the effects of a project on archaeological resources and determine whether any identified archaeological resource is a historical resource (i.e., if the archaeological resource meets the criteria for listing in the CRHR) (CEQA Guidelines Sections 15064.5[a][1],[3] and 15064.5[c][1–2]). An archaeological resource that qualifies as a historical resource under CEQA generally qualifies for listing under Criterion 4 of the CRHR (CEQA Guidelines Section 15064.5[a][3][D]; NRHP Criterion D). An archaeological resource may qualify for listing under Criterion 4 when it can be demonstrated that the resource has the potential to significantly contribute to questions of scientific or historical importance. Archaeological resources that are not historical resources according to the above definitions may be "unique archaeological resources," as defined in PRC 21083.2, which generally provides that "non-unique archaeological resources" do not receive any protection under CEQA. If an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of a project on those resources are not considered significant under CEQA.

3.3.2.1.2 California Executive Order W-26-92

California Executive Order (EO) W-26-92 affirms that all state agencies shall recognize, preserve, and maintain significant heritage resources of the state.

3.3.2.2 Local

3.3.2.2.1 City of Stockton Municipal Code

The City designates Landmarks and Historic Sites under the City Municipal Code, Title 16, Division 7, Chapter 16.220. Landmarks are artifacts, natural features, or structures notable for one or more of the following: archaeological interest; architectural craftsmanship, style, or type; association with a historic event or person; association with the heritage of the City, state, or nation; visual characteristics; relationship to another landmark; or integrity as a natural environment. Historic sites are areas, neighborhoods, properties, or sites which meet one or more of the following: archaeological interest; association with the heritage of the City, state, or nation; visual characteristics; association with a particular way of life important to the City; or association with a historic event, significant person, or a person significant to a specific national origin. Historic sites cannot be relocated or demolished without a permit.

3.3.3 Environmental Impacts and Mitigation Measures

3.3.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port and the remainder of the project site was within highly developed and industrialized areas.

3.3.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine whether the proposed Project would result in impacts on cultural resources. The proposed Project would have an impact on cultural resources, including tribal cultural resources, if:

- **CHR-1:** The project would cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
- **CHR-2:** The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- **CHR-3:** The project would disturb any human remains, including those interred outside of formal cemeteries.

3.3.3.3 Methodology for Determining Impacts

The CEQA guidelines define a substantial adverse change in the significance of a historical resource as a significant effect on the environment. A substantial adverse change to archaeological or historical resources is defined to include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (CEQA Guidelines Section 15064.5[b][1]). The significance of a historical

resource is materially impaired when a project diminishes the characteristics that convey its historical significance and that justify its inclusion on a historic register. This is consistent with the criteria for determination of adverse effect in the National Historic Preservation Act Section 106 regulations and guidelines.

3.3.3.4 Impact Analysis

3.3.3.4.1 CHR-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

The project site is an industrial site with no recorded historical resources. Improvements are proposed to Dock 10/11, but it is less than 50 years old and therefore not a potential historical resource. No other structures would be modified or demolished. There would be no changes to the character of the surrounding area. As previously noted, a search of CHRIS concluded that there are no recorded historical resources in the project area.

Impact Determination: Because there are no historical resources in the project area, there would be no impacts to historical resources.

Mitigation Measures: None required.

Residual Impact: No impact.

3.3.3.4.2 CHR-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Ground disturbing activities to be undertaken as part of the proposed Project would include the following:

- Approximately four feet below the surface along the portions of the pipeline where trenching is needed (approximately 700 feet).
- Up to 50 feet below the surface along the portions of the pipeline where directional drilling will occur (approximately 2,800 feet)
- Approximately 4 feet deep at the directional drilling entry point (directional drilling exits at a trenching section)

Artificial fill in the project area is likely only 1 to 4 feet thick (possibly underlain by an unknown amount of dredge spoils), so trenching and drilling entry are unlikely to encounter native sediments. Direction drilling would encounter native sediments below fill. However, the landform history and nearby borings results indicate that the native sediments in the project area were probably inundated at least seasonally, and if so, would have little potential for archaeological resources.

Impact Determination: The proposed Project is not expected to encounter intact archaeological resources. However, because the proposed Project includes disturbance of soil through direct removal, if archaeological materials are present in previously undisturbed native sediments, they could potentially be disturbed during construction, which would constitute a potentially significant impact.

Mitigation Measures: While the proposed Project is not expected to encounter archaeological resources, in the unlikely event of such a discovery, the following mitigation measure would be implemented to reduce any impacts:

- **MM-CHR-1: Stop Work in the Area If Prehistoric or Historical Archaeological Resources Are Encountered.** In the event that any artifact, or an unusual amount of bone, shell, or non-native stone, is encountered during construction, work would be immediately stopped and relocated to another area. The contractor would stop construction within 10 meters (30 feet) of the exposure of these finds until a qualified archaeologist can be retained by the Port to evaluate the find (see 36 CFR 800.11.1 and 14 CCR 15064.5[f]). Examples of such cultural materials might include concentrations of ground stone tools such as mortars, bowls, pestles, and manos; chipped stone tools such as projectile points or choppers; flakes of stone not consistent with the immediate geology, such as obsidian or fused shale; a historic trash pit containing bottles and/or ceramics; or structural remains. Native American tribes and the Office of Historic Preservation would be notified of the find. Native American tribes consulted on the proposed Project to date include the Wilton Rancheria and the Buena Vista Tribe of Miwuk Indians. If the resources are found to be significant, they would be avoided or mitigated.

Residual Impact: Less-than-significant impact.

3.3.3.4.3 CHR-3: Would the project disturb any human remains, including those interred outside of formal cemeteries?

Impact Determination: As described under CHR-2, the proposed Project would be built in fill, possibly extending into native sediments that have low potential for human remains. However, because the proposed Project includes disturbance of soil through direct removal, if remains are present in previously undisturbed native sediments, they could potentially be disturbed during construction, which would constitute a potentially significant impact.

Mitigation Measures:

- MM-CHR-1: Stop Work in the Area If Prehistoric or Historical Archaeological Resources Are Encountered.

Residual Impact: Less-than-significant impact.

3.4 Geology/Soils

This section describes the geology and soil conditions at the project site and analyzes how the proposed Project may affect those conditions. This section also describes applicable rules and regulations pertaining to geology and soil conditions, including but not limited to seismic hazards. For the purposes of the geology and soils analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11) and immediate adjacent areas. The analysis in this section is based on regional soil and seismic hazard information provide by federal, state, and local government agencies, and in part on information and data presented in the Facility Response Plan prepared for the existing NuStar facility (Technical Response Planning 2018).

3.4.1 Environmental Setting

3.4.1.1 Soils

The NuStar facility is entirely underlain by Yellowlark gravelly loam, as mapped by the Natural Resources Conservation Service (NRCS; NRCS 2019). Site-specific observations at the facility identify near-surface soils composed predominantly of hard dark brown, silty clay (Technical Response Planning 2018).

Soil conditions within the proposed pipeline area have been identified in regional maps, as well as through on-site borings taken for the *Geotechnical Exploration Report* (Sage Engineering 2019). Per General Plan soil types maps, the entirety of the pipeline alignment and the Dock 10/11 area is also underlain by Yellowlark gravelly loam (City 2018b). Regional geologic maps (Wagner et al. 1991) depict Quaternary alluvial units (the Dos Palos Formation and the Modesto Formation) at the proposed pipeline location, as well as artificial fill on the portion of the proposed pipeline alignment adjacent to the Stockton Deep Water Ship Channel (Sage Engineers 2019). Test borings taken along the pipeline alignment identified soils conditions consisting predominantly of lean clays, silts, and fine- to medium-grained sand with relatively high fines content. Thin lenses of poorly-graded fine sand containing less than 5% fines also exist. No particles over 2 millimeters in diameter were encountered in the borings (Sage Engineering 2019).

During boring, groundwater was encountered at a depth of about 3 feet below ground surface (Sage Engineering 2019). This is consistent with typical groundwater depths for Yellowlark gravelly loam (3 to 4 feet below ground surface; NRCS 2019); and with groundwater elevation records for the NuStar facility parcel, which identify groundwater depths of 4 feet (Technical Response Planning 2018).

3.4.1.2 Fault Rupture

Surface fault rupture is defined as slip on a fault plane that has spread to the Earth's surface and caused a rupture or disturbance. Fault rupture almost always follows pre-existing faults, which are

zones of weakness. No known active faults (defined by the state of California as faults that show evidence of movement during the past 10,000 years) are within 25 miles of the project area (Caltrans and Port 2013), and the project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (Stockton Port District 2012; SEG 2018). Numerous active and potentially active faults, however, are identified east and west of the project site. The closest significant earthquake fault to the City is the Greenville Fault, which is located roughly 22 miles west-southwest of the City (City 2018b).

3.4.1.3 Ground Shaking

Ground shaking is the most widespread effect of earthquakes. The estimated likelihood of a magnitude 6.7 or greater earthquake in greater San Francisco Bay area before 2036 is 63%. For individual faults in proximity to the project site, forecasted probabilities include 31% for the Hayward Fault, 7% for the Calaveras Fault, and 3% for the Greenville Fault (22 miles from the City; the closest earthquake fault to the project site). The project site's significant setback from active earthquake faults would help mitigate impacts related to ground shaking. For other similar industrial sites at the Port in proximity to the project site, the estimated Maximum Considered Earthquake (MCE) peak ground acceleration adjusted for site class effects was determined to be 0.393g (based on both probabilistic and deterministic seismic ground motion; SEG 2018). Nonetheless, regional seismic activity could cause accelerations severe enough to cause major damage to structures and foundations not designed to resist the forces generated by earthquakes. Underground utility lines are also susceptible where they lack sufficient flexibility to accommodate the seismic ground motion (City 2018b).

3.4.1.4 Liquefaction and Lateral Spreading

Soil liquefaction is a state of soil particle suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source); relatively clean, loose granular soils (primarily poorly graded sands and silty sands); and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile. However, liquefaction has occurred in soils other than clean sand.

Lateral spreading is a form of liquefaction that results in lateral ground movement during which cohesive soil layers may fracture, subside, rotate, or disintegrate as a result of seismic activity. During an earthquake, lateral spreading usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spreading has generally been observed to take place in the direction of a free face (i.e., retaining wall, slope, and channel) but has also been observed to a lesser extent on ground surfaces with very gentle slopes.

Shallow groundwater conditions encountered and mapped at the project site, as well as presence of sandy soils, may indicated susceptibility to liquefaction and lateral spreading. However, the type of ground movement expected from large earthquakes in San Joaquin County is expected to be a rolling type of motion, which would be less likely to cause liquefaction (San Joaquin County 2010). The California Geological Survey and U.S. Geological Survey have not mapped any seismically-induced liquefaction hazard zones at the project site or within the City (City 2018b). Lateral spreading risk is further minimized by the site's flat topography; however, the Dock 10/11 area occurs on the San Joaquin River bank slope, which is inherently more susceptible to liquefaction and lateral spreading compared to flat areas.

3.4.1.5 Slope Failure and Slope Stability

Earthquakes can cause significant slope stress, potentially resulting in earthquake-induced landslides. Landslides most commonly occur in areas with steep slopes or within slide-prone geologic units that contain excessive amounts of water. Other factors that affect slope stability include site geology, climate, and human activity. As noted for liquefaction and lateral spreading, the project site has flat topography, while the Dock 10/11 area is adjacent to the sloped San Joaquin River shoreline. The California Geological Survey has not mapped any landslide hazard zones in the project area or in its immediate vicinity (City 2018b).

3.4.1.6 Expansive Soils

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

NRCS identifies the entirety of the project site as containing expansive soils (SJCGIS 1999), and clay soils were identified at the NuStar facility and along the pipeline alignment (Technical Response Planning 2018; Sage Engineering 2019). No evidence of expansive soil damage such as foundation uplift or swelling was observed at the project site (Anchor QEA 2019).

3.4.1.7 Subsidence and Settlement

Subsidence involves a sudden sinking or gradual settling and compaction of soil and other surface material with little or no horizontal motion. Land surface subsidence can result from both natural and man-made phenomena, including tectonic deformation, consolidation, hydrocompaction, collapse of underground cavities, oxidation of organic-rich soils, rapid sedimentation, and the withdrawal of groundwater. Expansive soils and materials are more susceptible to subsidence, including estuarine sediments, organic detritus, or thick organic deposits. Settlement occurs when ground shaking reduces the amount of pressure existing between soil particles, resulting in a reduction of the volume

of the soil. Areas are susceptible to differential settlement if they are underlain by compressible sediments, such as poorly engineered artificial fill. Differential settlement can damage structures, pipelines, and other subsurface entities. Earthquakes and seismic activity can accelerate and accentuate settlement.

As noted, the project site has been identified as potentially susceptible to soil expansion, which may also reveal susceptibility to subsidence. Although site specific conditions are unknown, levees and islands throughout the delta are known to be composed of fill materials, which may be susceptible to settlement.

3.4.1.8 Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. The project site resides within a Mediterranean climate, which is exemplified by moist winters and dry summers. Therefore, during the winter the project area is more prone to water erosion, while in the summer the project area is more prone to wind erosion. No evidence of erosion was observed within the project site (Anchor QEA 2019).

3.4.1.9 Paleontology

The proposed Project is located in an already disturbed area east of the San Joaquin River, south of the confluence with the Stockton DWSC. Prior to historic land modifications, the region was characterized by extensive wetlands, with dry land available only on small hills and natural levees (Wagner 1981). The area was a slightly elevated stream terrace with the low-lying Delta to the west and the higher ground of the Central Valley to the east.

The Bureau of Land Management developed a classification system based on the potential for the occurrence of significant paleontological resources in a geologic unit and the associated risk for impacts to the resource (BLM 2007, 2008). The system is summarized here. Any rock material that contains fossils has the potential to yield fossils that are unique or significant to science. However, paleontologists consider that geological formations having the potential to contain vertebrate fossils are more sensitive than those likely to contain only invertebrate fossils. Invertebrate fossils found in marine sediments are usually not considered by paleontologists to be unique resources, because the geological contexts in which they are encountered are widespread and fairly predictable. Invertebrate fossil species are usually abundant and well-preserved. In contrast, vertebrate fossils are much rarer than invertebrate fossils, and are often poorly preserved. Therefore, when found in a complete state, vertebrate fossils are more likely to be a significant resource than are invertebrate fossils. Thus, geologic formations having the potential to contain vertebrate fossils are considered the most sensitive. Vertebrate fossil sites are usually found in non-marine upland deposits (BLM 2007). The project site is situated on fill materials, atop Holocene alluvium. Alluvial deposits typically contain only invertebrate fossils (if any), and those are out of original depositional context (BLM 2007).

Vertebrate fossils are considerably more likely to be significant or unique, as are fossils in their original context (BLM 2008).

3.4.2 Applicable Regulations

3.4.2.1 Federal

3.4.2.1.1 International Building Code

The International Building Code addresses the design and installation of building systems through requirements that safeguard public health and safety. The code establishes minimum regulations for building systems, using prescriptive and performance-related provisions. The International Building Code is available for adoption and use by jurisdictions internationally. The California Building Code is based on the International Building Code.

3.4.2.2 State

3.4.2.2.1 Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. According to the act, buildings for human occupancy cannot be constructed in regulatory "earthquake fault zones" established and mapped around the surface traces of active faults. This typically includes areas within approximately 200 to 500 feet of major fault lines. The construction of habitable structures is not proposed as part of the proposed Project, and the study area is not in an earthquake fault zone as defined by the act; as such, this act would not apply to the proposed Project.

3.4.2.2.2 Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 was developed to reduce threats to public health and safety and to minimize property damage caused by earthquakes, including the effects of ground shaking, liquefaction, landslides, other ground failure, and other hazards. The act directs the California Geological Survey to identify and map seismic hazard zones for the purpose of assisting cities, counties, and other local permitting agencies to regulate certain development projects in these zones. Before a development permit may be granted for a site in a seismic hazard zone, a geotechnical investigation of the site must be conducted, and appropriate mitigation measures must be incorporated into the project's design.

3.4.2.2.3 California Building Code

The California Building Code contains the minimum standards for design and construction in California. The standards provide requirements for general structural design and include means for determining earthquake loads, as well as other loads (e.g., flood, snow, and wind), for inclusion into building codes. The provisions of the California Building Code apply to the construction, alteration,

movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. This code would apply to construction of the proposed Project.

3.4.2.2.4 MOTEMS

MOTEMS are building standards (California Building Code, Chapter 31F: Marine Oil Terminals) that apply to all marine oil terminals in California. MOTEMS establish minimum engineering, inspection, and maintenance criteria for marine oil terminals to protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills. CSLC is the enforcing agency for the MOTEMS.

3.4.2.3 Local

3.4.2.3.1 Stockton Municipal Code

City Municipal Code Section 15.48.050, "Construction and Application," includes a requirement that seeks to mitigate hazards associated with erosion: "During construction, construction activities shall be designed and conducted to minimize runoff of sediment and all other pollutants onto public properties, other private properties and into the waters of the United States." Section 15.48.110, "Erosion Control Requirements," contains specific provisions for erosion control for those construction projects where a grading permit is not required. Section 15.48.070 includes requirements for a grading permit that apply to most construction projects. Such permits require implementation of erosion control measures, often referred to as BMPs.

3.4.2.3.2 General Plan

The *Envision Stockton 2040 General Plan Public Review Draft* (2040 General Plan; City 2018b) contains a safety element that addresses environmental hazards, including but not limited to seismic hazards. Relevant safety element policies include the following:

- **Policy SAF-2.1:** Ensure that community members are adequately prepared for natural disasters and emergencies through education and training.
- **Policy SAF-2.2:** Prepare sufficiently for major events to enable quick and effective response.

The General Plan is considered a policy document rather than a formal regulation, though many elements are based on existing regulations.

3.4.3 Environmental Impacts and Mitigation Measures

3.4.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port and the remainder of the project site was within highly developed and industrialized areas.

3.4.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine whether the proposed Project would result in impacts related to geology and soils. The proposed Project would have an impact related to this topic if:

- **GEO-1:** The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.
  - Strong seismic ground shaking.
  - Seismic-related ground failure, including liquefaction.
  - Landslides.
- **GEO-2:** The project would result in substantial soil erosion or the loss of topsoil.
- **GEO-3:** The project would be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- **GEO-4:** The project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- **GEO-5:** The project would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.
- **GEO-6:** The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

3.4.3.3 Methodology for Determining Impacts

Impacts to or associated with geological conditions were qualitatively evaluated based on the potential for the alternatives to temporarily or permanently alter the geology of the project area. In addition, because geological hazards such as earthquakes happen independently of the proposed Project, the potential for damage to proposed structures or increased risk of injury due to geologic and seismic hazards were also qualitatively evaluated.

The measurement index for evaluating impacts associated with geology, soils, or seismicity is risk to the public or the environment from geologic processes. A project would be considered to have a major impact if it would result in substantial changes in risks to the public and the environment throughout the project area.

3.4.3.4 Impact Analysis

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

The project area is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, and no known surface expression of active faults is believed to cross the project site; therefore, fault rupture through the site is not anticipated.

The proposed Project area is considered subject to relatively low seismicity and ground shaking. MCE peak ground acceleration for similar nearby facilities at the Port has been estimated at 0.393g. Damage to existing structures and on-site improvements would be possible in the event of a large earthquake. The proposed MOTEMS upgrades to Dock 10/11 would provide better resistance to earthquakes. Other proposed improvements would be constructed in adherence with applicable seismic design parameters and would not increase the potential for human injury or loss of life. This includes adherence to seismic design parameters from the 2016 California Building Code and American Society of Civil Engineers.

The proposed Project site exhibits evidence of a high groundwater table, which may indicate susceptibility to liquefaction or lateral spreading. NRCS maps also identify the site as within an area with expansive soils, and site-specific investigations have encountered clay soils. Existing structures do not exhibit any damage or apparent susceptibility to these geologic hazards. All grading would be performed in accordance with the recommended grading specifications contained in the City Grading Regulations, and the proposed improvements would be constructed in adherence with applicable seismic standards, including MOTEMS compliance improvements.

The NuStar facility does not contain any steep slopes or other features suggesting susceptibility to slope failure or landslides. The shoreline adjacent to Dock 10/11 contains slopes typical of riverbank settings. In this area, riprap and vegetation provide slope stability. The proposed Project would not result in changes that would increase the potential for slope failure or landslides.

Additional protection from seismic hazards would be provided through maintenance and as-needed implementation of applicable hazard response plans. The existing NuStar facility maintains earthquake preparedness procedures as documented in the Facility Response Plan (Technical Response Planning 2018). This includes precautions to minimize impacts before, during, and after earthquakes. This plan would be maintained and implemented as needed for operations under the proposed Project. Emergency response plans have been developed for the area in consideration of potential natural disasters, which would address and minimize potential hazards during emergencies such as a large seismic event.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impacts related to fault rupture, liquefaction, lateral spreading, and landslides and less-than-significant impacts related to seismic ground shaking.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.4.3.4.2 GEO-2: Would the project result in substantial soil erosion or the loss of topsoil?

Because the NuStar facility is generally flat and largely contains previously developed surfaces that appear to have been compacted or otherwise prepared for development, the potential for substantial soil erosion is considered minimal. Although the Dock 10/11 project site is located on the San Joaquin River, this riverbank areas contains riprap or vegetation that provides slope stability. Evidence of erosion was not observed within or surrounding the NuStar facility, Dock 10/11, or along the buried pipeline alignment.

Throughout the construction areas, BMPs for controlling erosion would be implemented to reduce erosion of soils during excavation or other ground disturbing activities. Topsoil that would be removed during grading or other surface preparation does not serve agricultural purposes or other valuable functions.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impact from soil erosion or loss of topsoil.

Mitigation Measures: None required.

Residual Impact: No impact.

3.4.3.4.3 GEO-3: Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

As addressed under GEO-1, the proposed Project would be located in an area potentially susceptible to ground shaking, liquefaction, and settlement. In consideration of design standards relating to seismic hazards plans addressing earthquake hazards and the region's relatively low seismicity and susceptibility to ground shaking, potential impacts associated with ground shaking, liquefaction, and settlement would be reduced to a level of less than significant. MOTEMS improvements at Dock 10/11 would further minimize potential impacts from seismic hazards. During construction, adherence to OSHA trenching and excavation safety guidelines would minimize the potential for worker injury associated with unstable soils. There are no additional hazards pertaining to unstable geologic units or soil on- or off-site.

Impact Determination: Based on the analysis presented above, the proposed Project would result in less-than-significant impacts related to geologic unit or soils instability.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.4.3.4.4 GEO-4: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

NRCS identifies the entirety of the project site as containing expansive soils (SJCGIS 1999), and site-specific investigations have encountered clay soils (Technical Response Planning 2018; Sage Engineering 2019). Evidence of expansive soil damage such as foundation uplift or swelling was not observed at the NuStar facility (Anchor QEA 2019). As part of the proposed Project, site grading and surface preparation would be completed as needed to eliminate the potential for expansion.

Impact Determination: Based on the analysis presented above, the proposed Project would result in less-than-significant impacts related to siting on expansive soils.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.4.3.4.5 GEO-5: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

The proposed Project would be served by the municipal sewage system and would not require the use of septic tanks or alternative wastewater disposal systems or affect any such systems.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impact related to septic tanks or alternative wastewater disposal systems.

Mitigation Measures: None required.

Residual Impact: No impact.

3.4.3.4.6 GEO-6: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

There are no known unique geological or paleontological resources in the project area. Ground disturbance would occur in already disturbed or previously developed areas. Due to its geomorphological history, the project area is not likely to contain any fossils other than invertebrate fossils that are in a re-deposited context (see Section 3.4.1.9 for more information).

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impact related to unique paleontological or geologic resources.

Mitigation Measures: None required.

Residual Impact: No impact.

3.5 Greenhouse Gas Emissions

This section describes the GHG impacts of the proposed Project and analyzes how the proposed Project may affect global climate change. It also describes applicable rules and regulations pertaining to GHG emissions. Because GHG emissions are global and the state includes a comprehensive GHG reduction program required to be implemented at state, regional ,and local levels, the study area is defined as California.

3.5.1 Environmental Setting

Global climate change results from GHG emissions caused by several activities, including fossil fuel combustion, deforestation, and land use change. GHGs play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface, which otherwise escapes to space. The most prominent GHGs contributing to this process include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Certain refrigerants, including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and hydrofluorocarbons (HFCs), also contribute to climate change. The greenhouse effect keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows for successful habitation by humans and other forms of life.

Global warming potential (GWP) is a measure of how much a given mass of GHG contributes to global warming. A relative scale is used to compare the gas in question to carbon dioxide (whose GWP is defined as 1). In this analysis, CH_4 is assumed to have a GWP of 21 and N_2O 310. Refrigerants have GWPs ranging from 76 to 12,240. Consequently, using each pollutant's GWP, emissions of CO_2, CH_4, N_2O, CFCs, HCFCs, and HFCs can be converted into CO_2 equivalence, also denoted as CO_2e.

Fossil fuel combustion removes carbon stored underground and releases it into the atmosphere. Emissions of GHGs are responsible for the enhancement of the greenhouse effect and contribute to what is termed "global warming," a trend of unnatural warming of the Earth's natural climate. Increased concentrations of GHGs in the earth's atmosphere increase the absorption of radiation and further warm the lower atmosphere. This process increases evaporation rates and temperatures near the surface. Climate change is a global problem, and GHGs are global pollutants, unlike criteria pollutants (such as O_3, CO, and PM) and TACs, which are pollutants of regional and local concern.

Global warming is the increase in average global temperatures of the earth's surface and atmosphere. The natural balance of GHGs in the atmosphere regulates the earth's temperature; without this natural greenhouse effect, the earth's surface would be approximately 60°F cooler (USGCRP 2014).

Recent environmental changes linked to global warming include rising temperatures, shrinking glaciers, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (IPCC 1995; USGCRP 2014; CCCC 2012). In California, an assessment of climate change impacts

predicts that temperatures will increase between 4.1°F to 8.6°F by 2100, based on low and high global GHG emission scenarios (CCCC 2012). Predictions of long-term negative environmental impacts in California include worsening of air quality problems; a reduction in municipal water supply from the Sierra snowpack; sea level rise; an increase in wildfires; damage to marine and terrestrial ecosystems; and an increase in the incidence of infectious diseases, asthma, and other human health problems (CCCC 2012).

3.5.2 Applicable Regulations

3.5.2.1 Federal

3.5.2.1.1 Greenhouse Gas Endangerment Finding (December 7, 2009)

In the 2007 *Massachusetts v. Environmental Protection Agency* case, the U.S. Supreme Court gave USEPA the authority to regulate GHGs as air pollutants under the CAA. The endangerment finding was published by USEPA on December 15, 2009 (74 Fed. Reg. 239).

3.5.2.1.2 Heavy-Duty Vehicle National Program

In September 2011, USEPA and the National Highway Traffic Safety Administration (NHTSA) developed a program designed to reduce fuel consumption (and GHG emissions by association) from medium- and heavy-duty vehicles. The program was directed at model year 2014 to 2018 vehicles and is projected to reduce GHG emissions by approximately 270 million metric tons.

3.5.2.1.3 Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards

In May 2010, USEPA and NHTSA developed a program designed to reduce fuel consumption (and GHG emissions by association) from light-duty vehicles. The program was directed at model year 2012 to 2016 vehicles and is projected to reduce GHG emissions by approximately 960 million metric tons. In October 2012, USEPA and NHTSA expanded the program to vehicle model years 2017 through 2025. Requirements of this program apply to light-duty vehicles, such as worker vehicles, used during proposed closure activities.

3.5.2.1.4 Renewable Fuel Standard

In 2005, USEPA's Renewable Fuel Standard established the first renewable fuel volume mandate in the United States. The original Renewable Fuel Standard program required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. The program was expanded in 2007 and currently requires that 36 billion gallons of renewable fuel be blended into gasoline by 2022. This program, although not directly relevant to proposed Project activities, serves to highlight the developing GHG regulatory framework.

3.5.2.2 State

3.5.2.2.1 California Executive Order S-3-05

EO S-3-05, signed by then-Governor Schwarzenegger on June 1, 2005, established the following GHG reduction targets for California: 1) by 2010, reduce GHG emissions to 2000 levels; 2) by 2020, reduce GHG emissions to 1990 levels; and 3) by 2050, reduce GHG emissions to 80% below 1990 levels. EO S-3-05 also called for CalEPA to prepare biennial reports on: 1) progress made towards achieving these goals; 2) impacts to California from global warming; and 3) mitigation and adaptation plans to combat these impacts. The most recent of these Climate Action Team reports was completed in December 2010 (CAT 2010).

3.5.2.2.2 Assembly Bill 32: California Global Warming Solutions Act of 2006, Scoping Plan (2008), Scoping Plan Update (2014), and Scoping Plan 2030 (2017)

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

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

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

The ARB prepared an update to the Scoping Plan designed to reduce GHG emissions 40% below 1990 inventory levels by 2030 (ARB 2017b).

3.5.2.2.3 California Senate Bill 97 and Amendments

Senate Bill (SB) 97, enacted in 2007, directed the State Office of Planning and Research to develop CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions." In

December 2009, the Office of Planning and Research adopted amendments to Appendix G of the CEQA Guidelines (Environmental Checklist), which created a new resource section for GHG emissions and indicated criteria that may be used to establish the significance of GHG emissions.

3.5.2.2.4 California's Renewables Portfolio Standard

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewables Portfolio Standard is an ambitious renewable energy standard. The Renewables Portfolio Standard requires that 33% of total retail sales of electricity be procured from eligible renewable sources by the end of 2020. Renewables Portfolio Standard requirements were conservatively excluded from emission calculations associated with electricity use.

3.5.2.2.5 Senate Bill 1368 (GHG Emissions Standard for Baseload Generation)

SB 1368 was signed into law in September 2006. The law prohibits retail sellers of electricity in California from entering into a long-term financial commitment for baseload generation if the GHG emissions are higher than those from a combined-cycle natural gas power plant.

3.5.2.2.6 Senate Bill 375

The law requires metropolitan planning organizations (MPOs) to incorporate a "sustainable communities' strategy" in their regional transportation plans that will achieve GHG emission reduction targets set by ARB. Current targets for the state's largest MPOs call for a 19% reduction in GHG emissions from cars and light trucks from 2005 emissions levels by 2035. SJCOG has adopted a Sustainable Communities Strategy that would reduce on-road GHG emissions by 24.4% by 2020 (compared to the 2005 baseline) and by 23.7% by 2035 (compared to the 2005 baseline; SJCOG 2014).

3.5.2.2.7 State Standards Addressing Vehicle Emissions

AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. ARB estimated that the regulation will reduce climate change emissions from light-duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030.

3.5.2.2.8 Governor's Executive Order S-01-07 (January 2007) and Low Carbon Fuel Standards (approved April 2009, effective April 2010)

EO S-01-07 was enacted by then-Governor Schwarzenegger on January 18, 2007. The executive order mandated that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020, and that an LCFS for transportation fuels be established for California.

3.5.2.2.9 Senate Bill 350

This law established clean energy, clean air, and GHG reduction goals. The bill increases California's renewable electricity procurement goal from 33% by 2020 to 50% by 2030. In addition, SB 350 requires California to double statewide energy efficiency savings in electricity and natural gas end use by 2030.

3.5.2.3 Regional

3.5.2.3.1 San Joaquin Valley Air Pollution Control District

SJVAPCD adopted the Climate Change Action Plan (CCAP) in August 2008 to assist lead agencies in assessing and reducing the impacts of project-specific GHG emissions on global climate change. The CCAP relies on the use of performance-based standards, otherwise known as Best Performance Standards (BPS), to assess the significance of project-specific GHG emissions on global climate change. Projects implementing BPS are determined to have a less-than-significant impact. Otherwise, demonstration of a 29% reduction in GHG emissions from business-as-usual (BAU) is required to classify a project's impact as less than significant. In 2009, SJVAPCD adopted its Final Staff Report, *Climate Change Action Plan: Addressing GHG Emissions Impacts under CEQA*. SJVAPCD was not able to determine a specific quantitative level of GHG emissions increase above which a project would have a significant impact on the environment, and below which it would have an insignificant impact. SJVAPCD staff concluded that impacts of project-specific emissions on global climatic change are cumulative in nature, and the significance thereof should be examined in that context. SJVAPCD requires all projects to reduce their GHG emissions, whether through project design elements or mitigation. Projects achieving performance-based standards that have been demonstrated to be BPS would be considered to have a less-than-significant cumulative impact on global climate change (SJVAPCD 2009).

3.5.2.4 Local

3.5.2.4.1 San Joaquin County General Plan

San Joaquin County released its *Draft 2035 General Plan for San Joaquin County* in 2014, which included climate planning and promoting sustainable development patterns (San Joaquin County 2015).

3.5.2.4.2 City of Stockton General Plan

The City updated and adopted its 2040 General Plan on December 4, 2018, which includes new GHG measures, including measures to comply with a 2008 Settlement Agreement with the state and the Sierra Club that requires the City to address GHG reductions including through specific provisions in the Stockton 2040 General Plan. The 2040 General Plan represents a substantial change in the policy framework for future development in Stockton compared to the prior 2035 General Plan. The

fundamental shift is from emphasizing growth in "outfill" areas at the periphery of the city to focusing new construction and redevelopment in existing "infill" neighborhoods. This change is reflected in the land use map and the associated map depicting the transportation network required to serve future development, and in the goals, policies, and actions throughout the General Plan. In addition, the 2040 General Plan includes the following policies regarding GHG and climate change, and applicable to the proposed Project:

- **Policy TR-3.2:** Require new development and transportation projects to reduce travel demand and GHG emissions, support electric vehicle charging, and accommodate multi-passenger autonomous vehicle travel as much as feasible.
- **Policy CH-5:** Accommodate a changing climate through adaptation, mitigation, and resiliency planning and projects.
  - ***Action CH-5.1B:*** Maintain and implement the City Climate Action Plan (CAP) 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.

3.5.2.4.3 City of Stockton Climate Action Plan

In 2014, the City approved the CAP, which outlines a program to reduce GHG emissions from both existing and new development within the financial limitations of both the City government and the Stockton community. Consistent with SJVAPCD, the CAP relies on a goal of 29% reduction in GHG emissions from BAU by 2020. As described in the CAP, 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. The CAP relies on numerous voluntary measures for both existing and new development, but also includes several mandatory measures where required by other state or local existing mandates and other City initiatives (City 2014).

3.5.3 Environmental Impacts and Mitigation Measures

3.5.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port serving a variety of products. The proposed Project only involves changes to the diesel product mix and operations at the NuStar facility; therefore, the level of ULSD and renewable diesel in 2018 was considered as the baseline. In 2018, the facility received and transferred 3.147 million barrels of ULSD and had 17,001 truck calls. There were no vessel calls as part of baseline operations.

3.5.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist) and SJVAPCD guidance, were used to determine if the proposed Project would result in GHG impacts. The proposed Project would have a GHG impact if:

- **GHG-1**: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- **GHG-2**: The project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

3.5.3.3 Methodology for Determining Impacts

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

In December 2018, the California Natural Resources Agency clarified several points regarding the method for determining GHG impacts in CEQA documents. CEQA Guidelines, Section 15064.4, includes the following provisions:

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

Based on the above guidance, this analysis analyzes the GHG emissions that would be generated as a result of the proposed Project in Section 3.5.3.4.1 and addresses how potential emissions as well as project design would compare to state, regional and local plans to address climate change in Section 3.5.3.4.1.

3.5.3.4 Impact Analysis

3.5.3.4.1 GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

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

SJVAPCD has established GHG thresholds for projects subject to CEQA. For projects implementing SJVAPCD's BPS, quantification of project-specific GHGs is not required (SJVAPCD 2009). SJVAPCD's BPS generally apply to projects with stationary industrial emission sources. Most the proposed Project's emissions are from mobile sources; therefore, SJVAPCD's BPS do not apply. SJVAPCD has not established BPS for the wide variety of land use sources that can occur within the San Joaquin Valley. Instead, SJVAPCD recommends determining whether the GHG emissions applied to a project would result in a 29% reduction compared to BAU. However, the BAU approach has been invalidated in the 2015 *Center for Biological Diversity v. California Department of Fish and Wildlife* California Supreme Court decision. Several California air districts, including BAAQMD, have established a GHG threshold of 1,100 metric tons of CO_2e per year for land use plans and 10,000 metric tons per year for stationary sources. However, the proposed Project is neither a land use plan nor a stationary source.

The South Coast Air Quality Management District (SCAQMD) has established a threshold of 10,000 metric tons per year of CO_2e emissions per year for industrial projects, including port projects which include a number of industrial emission sources. Construction GHG emissions, amortized over the life of a project, are required to be included in a project's annual GHG emissions totals (SCAQMD 2011). For purposes of this analysis, SCAQMD's industrial project threshold is used to evaluate the significance of the proposed Project's GHG emissions. The analysis also considers the proposed Project's consistency with applicable provisions of the plans, goals, or strategies identified in Section 3.2.5.

GHG emissions during construction would come from construction equipment, worker vehicle trips, and energy used on site. As described in Section 2.2.3, construction is expected to last 8 months. Table 3 (Section 2.3) provides a summary of the construction schedule. A full description of emission sources, including equipment horsepower ratings, is included in Appendix E.

GHG emissions during proposed Project operations would originate from vessel maneuvering and at-berth emissions, and truck engines. During operation, the facility would receive shipments via vessels. Product would be offloaded at the berth (vessels) and transferred to the terminal. Trucks would transfer the product from the terminal to the local Northern California market. The proposed Project's operational mode split is summarized in Tables 4 and 11.

Table 16 shows the total proposed Project GHG emissions, as estimated using CalEEMod. Construction emissions would occur in 2020. Operational emissions include line-haul locomotives, switching locomotives, and on-road vehicles. The total emissions include the annual operational emissions plus the amortized construction emissions. Detailed emission estimates are summarized in Appendix E.

Table 16
Proposed Project Construction and Operational Greenhouse Gas Emissions

Source Category	CO_2	CH_4	N_2O	CO_2e
Annual GHG Emissions (metric tons per year)				
2020 Construction	337	0	0	338
Amortized Annual Construction	11	0	0	11
2021 Project Operation				
Trucks	1,052	0	0	1,103
Ships at Berth	1,031	0	0	1,056
Ships Transit	3,753	0	0	3,812

Source Category	CO_2	CH_4	N_2O	CO_2e
Tugboats	76	0	0	78
Employee Vehicles	0	0	0	0
Total	**5,924**	**0**	**0**	**6,059**

Notes:
Emissions may not add precisely due to rounding.
Construction emissions were amortized over 30 years.
Total annual GHG emissions are the sum of amortized construction and annual operational emissions.

Impact Determination: As shown in Table 16, the proposed Project would result in a net increase in GHG emissions over baseline conditions of 6,096 metric tons per year. The bulk of the proposed Project's GHG emissions would be from vessels. Emissions would not exceed the industrial threshold of 10,000 metric tons per year and therefore are considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.5.3.4.2 GHG-2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed above, there are numerous state-wide regulations and initiatives related to overall GHG reductions. SJVAPCD's BPS generally apply to projects with stationary industrial emission sources. Most the proposed Project's emissions are from mobile sources; therefore, SJVAPCD's BPS do not apply. The CAP relies on a 29% reduction in BAU by 2020. However, construction and operation would not occur until 2020; therefore, this standard is no longer applicable. The proposed Project will be subject to future state and local requirements imposed by ARB's 2017 Climate Change Scoping Plan Update (ARB 2017b). The Scoping Plan Update describes how California will reduce its GHG emissions by 40% below 1990 levels by 2030. The City's 2040 General Plan includes several policies that are applicable to the proposed Project, specifically Policy TR-3.2, which requires new development and transportation projects to reduce GHG emissions, and Policy CH-5.2, which expands opportunities for recycling, re-use of materials, and waste reduction.

The proposed Project would likely reduce regionwide GHG emissions by increasing the renewable diesel supply within California to meet carbon intensity goals for transportation fuels, which is consistent with state policies. As discussed in Section 2.2.1, renewable diesel is a component of California's LCFS (RFA 2016) and use of renewable diesel will help the state meet overall GHG reduction goals. Renewable diesel burns more completely than biodiesel and petroleum diesel during the combustion process resulting in reduced tailpipe emissions. The California Energy Commission reports that renewable diesel has 58 to 80% lower GHG emissions than petroleum diesel

(CEC 2019). Therefore, while there are GHG emissions associated with the proposed Project, the increased use of renewable diesel would ultimately help California meet the LCFS.

Impact Determination: While the proposed Project facilitates compliance with the LCFS, it does not currently include project-level measures that comply with the City's 2040 General Plan. Impacts would therefore be considered significant.

Mitigation Measures: The following mitigation measures would be implemented to reduce GHG emissions in compliance with the City's 2040 General Plan:

- **MM-GHG-1: Construction Idling Reductions.** NuStar would 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-GHG-2: Construction Recycling.** NuStar would require construction contractors to recycle construction and demolition debris where feasible.
- **MM-GHG-3: Truck Idling Reductions.** NuStar would require trucks to minimize idling time to 2 minutes where available while on terminal. Truckers would be required to shut down trucks while waiting over 2 minutes while on the terminal or NuStar would implement programs, such as appointment systems in periods of congestion, to ensure trucks move efficiently through the terminal. Exceptions include vehicles in a queue waiting for work at the truck rack.
- **MM-GHG-4: Use of Clean Trucks.** Where possible, NuStar would encourage the use of clean trucks (defined as model year 2017 or newer) to transport fuel. NuStar would educate customers about the SJVAPCD Truck Replacement Program during contract discussions.
- **MM-GHG-5: Energy/Waste Audit.** NuStar would develop a plan for reducing overall energy use at its terminal. The plan would incorporate the following measures at a minimum:
  - Replace less-efficient bulbs with energy-efficient light bulbs, where applicable.
  - Identify areas for waste reduction, including reductions in single use products in terminal buildings.

Residual Impact: Implementation of MM-GHG-1, 2, 3, 4, and 5 would reduce GHG emissions consistent with the City's 2040 General Plan policies. Impacts would be less than significant.

3.6 Hazards and Hazardous Materials

This section describes the known hazards and hazardous material conditions in the project area. The analysis in this section is based in part on information and data available from the California Department of Toxic Substances Control (DTSC) EnviroStor and the State Water Resources Control Board GeoTracker database websites; site-specific and regional emergency response plans; U.S. Department of Transportation (DOT) and MOTEMS regulations; federal, state, and local regulations; fire hazard maps; public records for school and airfields; and NuStar's Facility Response Plan (Technical Response Planning 2018). For the purposes of the hazards and hazardous materials analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11) and immediately surrounding areas.

3.6.1 Environmental Setting

3.6.1.1 Listed Hazardous Material Sites

Surrounding sites potentially containing hazardous materials were identified through a search of the DTSC EnviroStor and the State Water Resources Control Board GeoTracker database websites (DTSC 2019; SWRCB 2019). Within a 1.5-mile radius of the proposed Project footprint, the EnviroStor database lists 33 cleanup sites and the GeoTracker database identifies 48 cleanup sites with active, open, or unidentified statuses (with some site occurring in both databases). Of these occurrences, the following nine are within less than 1,000 feet of the project site (including the NuStar terminal).

3.6.1.1.1 The Learner Company

This site is located at 2711 Navy Drive. The former Learner Company site was operated as a scrap metal salvage facility since 1976. Between the years of 1978 to 1984, an auto shredding operation was conducted at the site. A Voluntary Cleanup Agreement was executed on August 3, 2009. A Removal Action Workplan for soil excavation and off-site disposal was completed and reported on in a Removal Action Implementation Report approved by DTSC on March 7, 2012 (DTSC 2019). The cleanup site remains open, and a Land Use Covenant (LUC) was issued by DTSC to address soil contamination by lead, cadmium, and polychlorinated biphenyls (PCBs). The LUC describes allowable site uses and excavation requirements. These requirements would apply to any project construction or operation within the former Learner Company site.

DTSC concluded that the former Learner Company site, as remediated and subject to the restrictions of the LUC, does not present an unacceptable threat to human health or safety or the environment, if limited to commercial or industrial land use. The LUC prohibits use of the former Learner Company

site as a residence, hospital, school for persons under the age of 21, or daycare center. Other applicable LUC environmental restrictions include the following:

- No activities that will disturb the soil at or below grade (e.g., excavation, grading, removal, trenching, filling, earth movement, mining, or drilling) shall be allowed at the property without a Soil Management Plan preapproved by DTSC in writing.
- Any soil brought to the surface by grading, excavation, trenching or backfilling shall be managed in accordance with all applicable provisions of state and federal law.

Groundwater monitoring well data from the Learner Company site does not show exceedances of any of the constituents measured, as reported in the most recent monitoring reports from 2003. The LUC does, however, identify soils as containing arsenic and vanadium (documented as naturally occurring and not related to the former site activities) and groundwater as containing methyl tert-butyl ether.

3.6.1.1.2 NuStar Terminal

The existing NuStar site has been used for fuel distribution since the 1960s. The terminal includes a containment area which stores liquid product received via pipeline. Ethanol is stored in three 33,000-barrel tanks at the NuStar site. Gasoline releases at the terminal occurred in March 2002, and in June 2002, 1,000 gallons of diesel were released at the facility. Fuel-impacted soil was excavated and removed. The NuStar terminal remains identified on the GeoTracker database as an open cleanup site with verification monitoring as of June 29, 2018.

A Monitoring and Reporting Program (No. R5-2017-0808) for the NuStar terminal monitoring wells was issued by CVRWQCB on April 5, 2017, and groundwater monitoring continues (SWRCB 2019). Chemical concentrations have generally decreased over time but remain higher than the CVRWQCB objectives in certain wells (Cascadia 2019).

3.6.1.1.3 Kinder Morgan Energy Partners Stockton Terminal

This site is located at 2947 Navy Drive. It includes a petroleum pipeline and distribution manifold surrounded by other petroleum storage and distribution terminals, located within an area of widespread groundwater impacts associated with Kinder Morgan's operation and those terminals. Land in the vicinity of the site is anticipated to continue to be used as a bulk fuel terminal for the foreseeable future. The cleanup site remains open with verification monitoring as of 2001.

3.6.1.1.4 Tesoro (now Marathon) Stockton Bulk Fuel Terminal

This site is located at 3003 Navy Drive, and is bounded by West Washington Street to the north, Navy Drive to the west, and Stork Road to the east. The terminal lease area contains fuel distribution terminals and associated pipeline facilities. The Tesoro Stockton Bulk Fuel Terminal consists of seven aboveground storage tanks, conveyance piping, a truck loading rack, and several buildings. Soil and

groundwater were impacted with total petroleum hydrocarbon-related constituents. The impacted soil was excavated from the site, and ozone injection was conducted to address the groundwater impacts as part of the Stockton Terminals Technical Committee cleanup activities. Tesoro monitors groundwater at the site in conjunction with other terminals in the area. This site is monitored as part of the Stockton Terminals Technical Committee. The site remains open with verification monitoring as of 2002.

3.6.1.1.5 Arco Products Company Stockton Terminal

This site is located at 2700 West Washington Street, and covers approximately 9.6 acres bounded on the north by West Washington Street and to the east by Stork Road. The site is an operating fuel storage and distribution terminal, surrounded by similar facilities. There have been several relatively minor cleanup actions at the site since 2004. The most recent was a 5-gallon gasoline leak in 2009 which resulted in excavation and disposal of contaminated soils. The site remains open with assessment and interim remedial action as of December 19, 2012.

3.6.1.1.6 Stockton Terminals Technical Committee

This site is located along Navy Drive and consists of several parcels. Former operators within the terminal lease area include Time Oil, Unocal, and Stockton Petroleum. Unocal ceased operations in 1992, Stockton Petroleum in 1992 or 1993, and Time Oil in 1996. ST Services is currently using the former Time Oil Facility. Additionally, Kinder Morgan Energy Partners operates a terminal, pump station, and associated subsurface pipelines, which provide fuel to the adjacent terminals. This cleanup program site remains open.

Several Stockton Terminals Technical Committee groundwater monitoring sites occur within or at the periphery of the NuStar facility, some of which exhibit exceedances of VOCs or total petroleum hydrocarbons, which were recorded as recently as June 2019 (Cascadia 2019). Groundwater monitoring at Stockton Terminals Technical Committee monitoring wells is ongoing, with the most recent CVRWQCB monitoring and reporting program dated April 5, 2017. The former Time Oil facility site is also listed on the EnviroStor database for identified soil contamination from 1987, identified for continued evaluation since 1995.

3.6.1.1.7 Stockton Petroleum

This site is located at 3025 Navy Drive. The GeoTracker database identifies a gasoline discharge occurring during tank closure in 1994. The cleanup action site remains open but inactive as of November 24, 1999.

3.6.1.1.8 HydroAgri North America

This site is located at 3019 Navy Drive. HydroAgri North America (also known as Yara North America) operates a fertilizer storage and distribution facility. On 29 July 1998, a pipeline about 5 feet below

ground surface transporting UAN 32 (urea ammonium nitrate, 32%) from a Port dock to Yara North America facility on Navy Drive leaked, releasing UAN 32 beneath the H.J. Baker and Bro site. Product bubbled up to the surface, making a puddle 25 yards long and 0.5-inch deep. Liquid was vacuumed up, and the pipeline was to be dug up and repaired. The site remains open and inactive as of July 31, 1998.

3.6.1.1.9 Former Rice Terminals Site

The former Rice Terminals site, located north-northwest of the West Washington Street and Navy Drive intersection, historically stored and distributed bulk urea ammonium nitrate fertilizer solution using aboveground storage tanks. Bulk ammonium tanks appear to have contributed ammonium to soil and groundwater. Recent site investigations show that the maximum nitrate and ammonium concentrations reported at the former Rice Terminals site have decreased greatly in both soil and groundwater since 2005; concentrations in groundwater remain higher than applicable screening levels. Given the pronounced decrease in nitrate and ammonium concentrations over the past 10 years, an ongoing source of nitrate and ammonium does not appear to be present at the site. Moreover, groundwater nitrate concentrations reported are consistent with residual concentrations at the neighboring Lesco site, where a source of fertilizer-contaminated soil was removed in 2011. For these reasons, recent site investigation concludes that additional characterization or active remedial activities are unwarranted at this site and recommends monitoring of specific areas to document continuing reductions in groundwater concentrations (Environmental Risk Services 2015). The site status remains open and under assessment as of May 27, 2019

3.6.1.2 On-site Hazardous Materials

The existing NuStar terminal handles bulk petroleum and other products including ethanol, gasoline, diesel, ULSD, renewable diesel, biofuels, fuel additives, and lubricants. Liquid bulk commodities are stored in 33 tanks with capacity of 878,000 barrels. The facility is currently served by pipeline, rail, and truck. These operations occur in compliance with Stockton Port District permits. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 USC 9601 et seq.), certain types of ethanol and components of some gasolines (e.g., benzene) are classified as hazardous substances. Each of these commodity materials are flammable and may be hazardous if improperly managed.

Other potentially hazardous materials used for common facility maintenance (e.g., lubricating oils, cleaners, equipment fuel) may also be present on site. These materials are stored and used per manufacturer recommendations.

As noted, the NuStar facility remains identified on the GeoTracker database as an open cleanup site with verification monitoring as of June 29, 2018.

3.6.1.3 Emergency Plans

3.6.1.3.1 Regional Municipal Plans

The San Joaquin County Office of Emergency Services (SJCOES) authored the 2019 San Joaquin County Emergency Operations Plan (EOP; SJCOES 2019), which addresses the County's response to all hazards including incident management structure, compliance with relevant legal statutes, other relevant guidelines, whole community engagement, continuity of government focus, and critical components of the incident management structure. The EOP includes response protocol specific to hazards and hazardous materials.

3.6.1.3.2 NuStar Facility Plans

NuStar maintains a comprehensive Facility Response Plan detailing plans and actions for a variety of potential emergencies, including but not limited to natural disasters; medical emergencies; bomb threats; and fires or explosions (Technical Response Planning 2018). The plan communicates policies and procedures to follow in an emergency. The Facility Response Plan additionally includes an SPCC Plan specific to the facility. These plans would also apply to the proposed Project.

The facility also maintains fire prevention and firefighting resource plans. The fire prevention plan contains training requirements for facility employees. The firefighting resource plan details the extinguishing media and foam requirements for the truck loading bays, rail unloading/loading bays, and each bulk storage container in the facility; the foam type and foal solution required; and special considerations/tactics in the event of a fire for each structure. The plan contains specific information for each product with general firefighting information.

The California Environmental Reporting System (CERS) is the statewide web-based system that supports the electronic exchange of required Unified Program information among businesses, local governments, and USEPA. Unified Program information that is required to be submitted and reported electronically to CERS includes, but is not limited to, facility data regarding hazardous material regulatory activities (such as hazardous materials business plans, site maps, and chemical inventories); underground and aboveground storage tanks; hazardous waste generation; and inspection, compliance, and enforcement actions.

The facility also maintains a facility physical security plan. Facility employees are required to read the security plan and complete annual refresher training, including information regarding implementation of the security plan. The security manager ensures that in-depth training is conducted every 3 years for employees who handle hazardous materials covered by the security plan, perform regular functions related to hazardous materials covered by the security plan, or are responsible for the implementation of the security plan. Employees have an awareness of the security risks associated with hazardous materials transportation at the facility and are provided information on the methods available to enhance facility security, the objectives of the security plan, and

procedures associated with the security plan. Employees are apprised of their security responsibilities and informed of actions to take if a security breach occurs. A component of the training includes information on how to recognize and respond to security threats.

3.6.1.3.3 Rail Emergency Plans

3.6.1.3.3.1 BNSF Hazardous Material Plans

BNSF is a partner member of the Responsible Care® program, a voluntary chemical safety and handling management system under the auspices of the American Chemistry Council. In addition, BNSF has several internal programs, discussed as follows, to address personnel safety and reduce releases of hazardous materials due to accidents (also called accident releases). BNSF works with customers to reduce non-accident releases by improving packaging and containment. In the event that a problem does occur, BNSF's spill response program, discussed as follows, is designed to minimize impact to the environment, the community, and BNSF operations.

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

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

BNSF additionally participates in the Transportation Community Awareness and Emergency Response outreach program. BNSF provides hazardous materials awareness training to the communities in which BNSF facilities are located. These programs, which include both classroom and hands-on sessions, are designed to promote an understanding of safe transportation of hazardous materials by rail.

BNSF's spill response program delivers resources to the area of the spill in the shortest time possible. The program includes 200 emergency response personnel who are located throughout the BNSF system. All response personnel are required to complete annual responder training. This support team has responsibility for monitoring all emergency responses, mobilizing response and remediation contractors, and lending technical support when necessary. BNSF has also posted a toll-free emergency telephone number at highway/rail crossings to provide the public with a way to contact BNSF immediately in an emergency.

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

3.6.1.3.3.2 Union Pacific Hazardous Materials Management Group

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

1. **Prevention.** UP HMM team members regularly inspect tank cars moving on the UP network. UP HMM is responsible for training employees about hazardous materials safety. U.S. Department of Transportation (DOT)-defined "hazmat employees" are required to be trained in the safe handling of hazardous materials. Train crews are required to carry a copy of *Instructions for Handling Hazardous Materials*, provided by UP HMM, while operating a train carrying hazardous materials.
2. **Preparedness.** UP HMM develops the UP *Hazardous Materials Emergency Response Plan*, a performance-based plan which provides guidance about reporting a release as well as a list of training requirements for those responding to an incident. UP HMM team members reach out to fire departments on an annual basis to offer training or information to assist fire departments in their preparation for a potential incident.
3. **Response.** The response process used by UP HMM is designed to be incorporated into public response incident command structure. UP's Response Management Communication Center (RMCC) is an around-the-clock security response center where critical call dispatchers manage calls from the public, law enforcement, and others who are reporting emergencies and other

incidents on UP's 32,000-mile network. RMCC follows all regulations regarding notification of local, state, and federal agencies in the event of an accident and works closely with first responders throughout an incident. In addition, UP has approximately 30 highly trained hazardous materials responders. HMM response equipment includes firefighting trailers, foam caches, air monitoring equipment, and specialty tools.

4. **Recovery.** In the event of a hazardous material incident, UP is equipped to transfer any liquid or compressed gas from damaged tanks and clean and purge any damaged cars. The UP Site Remediation Group is responsible for remediation and closure with regulatory agencies.

3.6.1.4 Schools and Airports

There are no schools, airstrips, airports, or other sites potentially sensitive to hazards or hazardous materials within the proposed Project vicinity. The nearest school is Washington Elementary School, located approximately 0.6 mile to the east. The closest airport is the Stockton Municipal Airport, located approximately 5 miles southeast of the project site.

3.6.1.5 Wildfire Hazards

The project site is not within any fire hazard severity zones (Cal Fire 2007). There are no wildlands within the project area, and wildland fires do not pose a risk to the project site.

3.6.2 Applicable Regulations

3.6.2.1 Federal

3.6.2.1.1 Hazardous Materials Transportation Uniform Safety Act of 1990

In 1990, Congress enacted the Hazardous Materials Transportation Uniform Safety Act (HMTUSA; Public Law [PL] 101-615, 1990) to clarify the maze of conflicting state, local, and federal regulations. Like the Hazardous Materials Transportation Act (HMTA; PL 93-933, 1975), the HMTUSA requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary of Transportation also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property.

The statute includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for the issuance of federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials. The HMTA requires that carriers report accidental releases of hazardous materials (e.g., spills) to DOT at the earliest practical moment.

3.6.2.1.2 U.S. Department of Transportation Hazardous Materials Regulations (49 CFR 100–185)

The DOT Hazardous Materials Regulations cover all aspects of hazardous materials packaging, handling, and transportation. Under DOT regulations, a hazardous material is "a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law" (49 CFR 171.8). 49 CFR 172 ("Emergency Response"), 173 ("Packaging Requirements"), 174 ("Rail Transportation"), 176 ("Carriage by Vessel"), 177 ("Highway Transportation"), 178 ("Packaging Specifications"), 180 ("Packaging Maintenance"), and 397 ("Driving and Parking Rules") would apply to the proposed project activities. Additional potentially applicable parts include 49 CFR 171 ("General Information, Regulations and Definitions") and 172 ("Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans").

3.6.2.1.3 Emergency Planning and Community Right-to-Know Act (42 USC 11001 et seq.)

Also known as Title III of the Superfund Amendments and Reauthorization Act, the Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted by Congress as the national legislation on community safety. This law was designated to help local communities protect public health, safety, and the environment from chemical hazards. To implement EPCRA, Congress required each state to appoint a State Emergency Response Commission. These commissions were required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee for each district. EPCRA provides requirements for emergency release notification, chemical inventory reporting, and toxic release inventories for facilities that handle chemicals.

3.6.2.2 State

3.6.2.2.1 Hazardous Material Release Response Plans and Inventory Law (California Health and Safety Code, Division 20, Chapter 6.95)

This state right-to-know law requires businesses to develop a Hazardous Material Management Plan (HMMP) or a business plan for hazardous materials emergencies if they handle more than 500 pounds, 55 gallons, or 200 cubic feet of hazardous materials. In addition, the business plan must include an inventory of all hazardous materials stored or handled at the facility above these thresholds. This law is designed to reduce the occurrence and severity of hazardous materials releases. The HMMP or business plan must be submitted to the Certified Unified Program Agency (CUPA), in this case, the San Joaquin County Public Health Services, Environmental Health Division (SJCEHD). The state has integrated the federal EPCRA reporting requirements into this law, and once a facility is in compliance with the local administering agency requirements, submittals to other agencies are not required.

3.6.2.2.2 California Health and Safety Code Chapter 13 (Standards Applicable to Transporters of Hazardous Waste) (22 CCR 66263.10–66263.50)

These regulations establish standards that apply to persons transporting hazardous waste within, into, out of, or through the state if the transportation requires a manifest under the California Health and Safety Code (CHSC), Section 25160. "Transporter" means a person engaged in the off-site transportation (or movement) of hazardous waste by air, rail, highway, or water. This hazardous waste regulation applies to carriers transporting hazardous waste when that waste is subject to the manifesting requirements of Chapter 12. In general, transporters of hazardous waste must comply with these requirements and statutory requirements in CHSC, Division 20, Chapter 6.5, Articles 6 and 6.5, as well as the specific DOT requirements referenced throughout the transporter regulations.

3.6.2.2.3 Occupational Health and Safety, including 29 Code of Federal Regulations

The California Division of Occupational Safety and Health (Cal/OSHA) and the Federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Pursuant to the Occupational Safety and Health Act of 1970, OSHA has adopted numerous regulations pertaining to worker safety, contained in 29 CFR. These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling. Cal/OSHA assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in 8 CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that MSDSs be available to employees and that employee information and training programs be documented.

3.6.2.2.4 MOTEMS

MOTEMS are building standards (California Building Code, Chapter 31F: Marine Oil Terminals) that apply to all marine oil terminals in California. MOTEMS establish minimum engineering, inspection, and maintenance criteria for marine oil terminals to protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills. CSLC is the enforcing agency for the MOTEMS.

3.6.2.3 Local

3.6.2.3.1 City of Stockton General Plan

The City updated and adopted its 2040 General Plan on December 4, 2018, which includes the following policies specific to hazardous materials:

- **Policy SAF-2.6.** Minimize the risk to city residents and property associated with the transport, distribution, use, and storage of hazardous materials.
  - ***Action SAF-2.6A.*** Restrict transport of hazardous materials within the city to routes that have been designated for such transport.
  - ***Action SAF-2.6B.*** When appropriate, require new development to prepare a hazardous materials inventory and/or prepare Phase I or Phase II hazardous materials studies, including any required cleanup measures.
  - ***Action SAF-2.6C.*** Educate the public regarding the types of household hazardous wastes and the proper methods of disposal.

3.6.2.3.2 Unified Hazardous Waste and Hazardous Management Regulatory Program (SB 1082, 1993) and San Joaquin County Public Health Services

The Unified Hazardous Waste and Hazardous Management Regulatory Program (SB 1082, 1993) is a state and local effort to consolidate, coordinate, and make consistent existing programs regulating hazardous waste and hazardous materials management. CalEPA adopted implementing regulations for the Unified Program (27 CCR, Division 1, Subdivision 4, Chapter 1) in January 1996. The Unified Program is implemented at the local level by CUPAs.

SJCEHD is the CUPA for all cities and unincorporated areas within San Joaquin County. The concept of a CUPA was created by the California legislature to minimize the number of inspections and different fees for businesses. SJCEHD provides the management and record keeping of hazardous materials and underground storage tank sites for San Joaquin County, including the City. Through the Hazardous Materials Program, SJCEHD inspects businesses for compliance with the Hazardous Waste Control Act. Hazardous waste is subject to storage time limits, disposal requirements, and container labeling requirements. SJCEHD also issues permits to businesses that handle quantities of hazardous materials or wastes greater than or equal to 55 gallons, 500 pounds, or 200 cubic feet of a compressed gas at any time. Businesses who handle those quantities of hazardous materials or wastes are required to submit an HMMP to SJCEHD. The HMMP must include an inventory of hazardous materials and hazardous wastes, as well as an emergency response plan to incidents involving those hazardous materials and wastes.

3.6.2.3.3 California Health and Safety Code Section 25500 and San Joaquin County Office of Emergency Services

The responsibilities of the San Joaquin County Office of Emergency Services (SJCOES) include effective planning for emergencies, including those related to hazardous material incidents. SJCOES coordinates planning, response to emergencies, improves procedures for incident notification, and provides training and equipment to safety personnel. SJCOES is required by CHSC Section 25500 to: 1) prepare an inventory and information system for the storage and location of hazardous materials in San Joaquin County; 2) oversee the preparation and collection of plans for those businesses that use hazardous substances; 3) prepare area response plans that will incorporate inventory data, training for emergency responses, and evacuation plans; and 4) present an inspection plan and data management plan to the state for approval.

3.6.2.3.4 Senate Bill 1889 and San Joaquin County Risk Management Plans

SB 1889 requires businesses that handle threshold quantities of regulated substances included in the federal Accidental Release Prevention Program to submit risk management plans (RMPs). SB 1889 also requires businesses that handle more than a threshold quantity of state-regulated substances that are not also over the federal threshold to implement the Accidental Release Prevention Program upon a request from the local government implementing agency. Where a CUPA has been established (SJCEHD for San Joaquin County), they will be the first contact for a business. The SJCOES Hazardous Materials Division administers the RMP program, which requires businesses that use specific extremely hazardous substances to prepare a comprehensive plan to reduce the risk of an accident.

An RMP includes safety information, hazard review, operating procedures, training, maintenance, compliance audits, and incident investigation. The RMP must consider the proximity to sensitive populations located in schools, residential areas, general acute care hospitals, long-term health care facilities, and child day care facilities. The RMP must also consider external events such as seismic activity. There are three program levels depending on the type of business, potential impact, accident history, and other factors.

3.6.2.3.5 City of Stockton Fire Department

The City Fire Department provides limited oversight of hazardous materials. The Fire Department is responsible for conducting inspections for code compliance and fire-safe practices, and for the investigation of fire and hazardous materials incidents. The Fire Department regulates explosive and hazardous materials under the Uniform Fire Code, and permits the handling, storage, and use of any explosive or other hazardous material.

3.6.3 Environmental Impacts and Mitigation Measures

3.6.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port and the remainder of the project site was within highly developed and industrialized areas.

3.6.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine if the proposed Project would result in impacts related to hazards and hazardous materials. The proposed Project would have an impact if:

- **HAZ-1:** The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- **HAZ-2:** The project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- **HAZ-3:** The project would emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- **HAZ-4:** The project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- **HAZ-5:** The project would be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area.
- **HAZ-6:** The project would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- **HAZ-7:** The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

3.6.3.3 Methodology for Determining Impacts

Analysis of impacts pertaining to hazards and hazardous materials was based on existing hazardous material conditions recorded on- and off-site; existing and planned emergency action plans; and siting relative to schools, residents, airports, or other sensitive receptors.

3.6.3.4 Impact Analysis

3.6.3.4.1 HAZ-1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Operation of the proposed Project entails continued liquid bulk commodity management, with the addition of receipt, storage, and distribution of renewable diesel by vessel. These operational changes would neither increase NuStar's storage capacity at the terminal nor result in the storage of any products not currently allowed under its existing lease at the Port. The proposed Project additionally includes MOTEMS improvements to accommodate receipt of renewable diesel by vessel, which include dock upgrades to ensure better resistance to earthquakes and reduce the potential of oil spills.

Most of the commodities managed at NuStar are not classified as hazardous under CERCLA, with the exception of ethanol and certain components that may be present in gasolines. Renewable diesel is not classified as hazardous under CERCLA. However, these existing and proposed commodity materials are flammable and may be hazardous if improperly managed. In consideration of these potential hazards, the facility operates according to a comprehensive Facility Response Plan that details plans and actions for a variety of potential emergencies. The Facility Response Plan additionally includes an SPCC plan specific to the facility. The plan would be updated to include the modifications occurring at the dock, the pipeline between the dock and the terminal, and at the terminal.

Passive facility design measures and inspections are in place or proposed to prevent hazards from management of liquid bulk products. At the NuStar facility, this includes existing secondary containment systems around storage tanks, which would continue to operate under the proposed Project. The transfer manifold at Dock 10/11 would be enclosed by concrete, providing secondary containment in the event of a spill. Additionally, water flowing from the manifold vault would pass through an oil-water separator, to be installed adjacent to the manifold. The 12-inch pipeline would be tested hydrostatically in its entire length after installation and equipped with cathodic protection.

Liquid bulk product shipment via truck and vessel would be subject to safety regulations that govern the storage and handling of hazardous materials, which would limit the severity and frequency of potential releases of hazardous materials that could result in increased exposure of people to health hazards. With the exception of vessel transport, this would represent a continuation of existing activities. Transportation via roadway is governed by the DOT Hazardous Materials Regulations, which cover all aspects of hazardous materials packaging, handling, and transportation. Maritime transport would occur in compliance with 49 CFR Subchapter C (Vessel Specific Section 176) regulating transport of hazardous materials. The City Fire Department would additionally provide

oversight for the handling, storage and use of any flammable, explosive, or otherwise hazardous materials.

During the period of 2007 to 2016, 642 maritime transport hazardous material accidents were recorded throughout the United States as reported by the DOT Pipeline and Hazardous Materials Safety Administration (DOT PHMSA; DOT PHMSA 2017). Although DOT PHMSA does not provide statistics for accidents per maritime shipping mile traveled, their most recent Comparison of Risk data shows a hazardous materials shipping risk of 4.2 deaths per 100 million shipments (including air, highway, rail, and water shipments; DOT PHMSA 2004). As noted, maritime transport of hazardous materials would occur in compliance with 49 CFR Subchapter C (Vessel Specific Section 176). The U.S. Coast Guard (USCG) is responsible for providing maritime accident response.

Construction activities would involve the use of equipment that contains oil, gas, or hydraulic fluids that could be spilled during normal usage or during refueling. The proposed Project would be required to obtain NPDES Construction Stormwater General Permit coverage, which would require the development of a Stormwater Pollution Prevention Plan.

During construction, avoidance and minimization measures would also be implemented to avoid hazardous material impacts. Repurposed tanks would have remaining product removed using a vacuum truck or other pumping means and offloaded into another NuStar tank. Tank interiors would be washed down and rinse water would be transported and disposed of at an approved disposal facility. Any solid waste generated from cleaning the tanks would be placed into 55-gallon drums and disposed of at a licensed facility, in compliance with hazardous waste handling requirements. During drilling to install the pipeline, progress of the drill would be monitored at all times and spill containment equipment maintained on site for immediate response in the unlikely event of a frac-out.

Impact Determination: Adherence with NPDES requirements, along with other general construction BMPs, would ensure that that the proposed Project would result in less-than-significant impacts to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.6.3.4.2 HAZ-2: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

As described under HAZ-1, site operation pertaining to bulk liquid receiving, storage, and distribution would occur in compliance with all applicable regulations designed to minimize the potential for accidents. NuStar maintains and implements a Facility Response Plan detailing plans

and actions for a variety of potential emergencies (including notifications to be made to emergency responders and agencies), which would be updated to include the project construction and operational modifications. The City Fire Department is equipped to provide response in the unlikely event of a site accident, and response plans have been developed for the region. Furthermore, safety and environmental control measures are integrated into the facility's design and operation. The proposed Project includes MOTEMS improvements which would ensure better resistance to earthquakes and reduce the potential of oil spills.

Impact Determination: Based on the analysis presented above, the proposed Project would result in less-than-significant impacts to the public or the environment through reasonably foreseeable upset and accident conditions.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.6.3.4.3 HAZ-3: Would the project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The nearest school to the project site is the Washington Elementary School, located approximately 0.6 mile to the southeast. No school is proposed within the 0.25-mile radius of the project site, and given the area's zoning (Port lands), it is unlikely that a school would be constructed within this radius.

While proposed Project construction and operation would not occur within 0.25 mile of a school, transportation of potentially hazardous materials may occur in the vicinity of existing or proposed schools. Trucks would travel on dedicated truck routes, and transport of hazardous materials would occur in compliance with Caltrans and DOT regulations. Containers used to store hazardous materials would be properly labeled and kept in good condition, and a qualified transporter would be selected to comply with DOT and Caltrans regulations. Under existing conditions, transport of hazardous materials from other industrial facilities in the region occurs and may also include routes within the vicinity of schools.

Impact Determination: Based on the analysis presented above, the proposed Project would result in no impacts related to hazardous material emissions or handling in the vicinity of a school.

Mitigation Measures: None required.

Residual Impact: No impact.

3.6.3.4.4 HAZ-4: Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The NuStar facility is listed on the GeoTracker database as an open cleanup site with verification monitoring, and portions of the pipeline alignment may traverse other parcels listed on the GeoTracker or EnviroStor databases.

Proposed project improvements at the NuStar facility would require minimal excavation, and the pipeline would be installed via HDD with 700 feet of trenching. This minimized extent of excavation would reduce the chance for construction personnel to be exposed to on-site contaminants, and would minimize the potential for releases of such substances to the environment. Nevertheless, the possibility exists that construction activities would encounter soil contamination or that could expose workers to health hazards.

As these site conditions are commonly encountered during redevelopment of industrialized areas, construction contractors would be required to have ensured appropriate training of workers, developed contingencies for responding to contaminated soil, and to comply with established measures to protect human health and the environment. Known or suspected contaminated substances in structures and soil would be removed in accordance with federal, state, and local regulations prior to construction and with appropriate regulatory oversight as necessary (e.g., by the City Fire Department, CVRWQCB, or DTSC), thereby minimizing the exposure of construction workers to contaminants, and minimizing the potential for releases of such substances to the environment. As noted in HAZ-1, pipeline drilling would be monitored and spill containment equipment maintained on site for immediate response in the unlikely event of a frac-out.

Impact Determination: Any excavation in potentially contaminated areas would occur in compliance with federal, state, and local regulations developed to protect workers and other receptors from exposure to hazardous materials. Therefore, impacts are considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.6.3.4.5 HAZ-5: Would the project be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?

The proposed Project is not located within an airport land use plan area, and the nearest airport is located 5 miles southeast of the project site. Truck shipping would occur on existing dedicated truck routes, and transport of hazardous materials would occur in compliance with Caltrans and DOT regulations.

Impact Determination: Based on the analyses presented above, the proposed Project would result in no impacts related to aviation, airports, or public use of airports.

Mitigation Measures: None required.

Residual Impact: No impact.

3.6.3.4.6 HAZ-6: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The adopted NuStar Facility Response Plan would remain applicable with implementation of the proposed Project, and would be updated to include the modifications occurring at the dock, the pipeline between the dock and the terminal, and the modifications at the terminal. The *San Joaquin Emergency Operations Plan* (SJCOES 2019) was developed in consideration of activities occurring within industrial areas of the City. USCG is responsible for providing maritime accident response. Additionally, the City Fire Department is equipped to respond during an emergency.

Impact Determination: The proposed Project would not interfere with implementation of any response or hazardous material plans. Construction would occur within existing developed industrial areas of the Port and would not physically interfere with any emergency response or evacuation pathways. As discussed in Section 3.8.3.4, the proposed Project would have less-than-significant traffic impacts, including effects on emergency response. Therefore, impacts are considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.6.3.4.7 HAZ-7: Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The project site is not located within any designated fire hazard severity zones, and the site is not susceptible to wildland fire hazards. The facility is located within a heavily industrialized area of the City, and there is no surrounding vegetation that would be susceptible to wildland fires. Construction

and operation of the proposed facility would not expose individuals or structures to any wildland fire risks.

Impact Determination: As the proposed Project is not within any designated fire hazard severity zones and the site is not susceptible to wildland fire hazards, the proposed Project would result in no impacts related to wildland fires.

Mitigation Measures: None required.

Residual Impact: No impact.

3.7 Noise

This section describes the existing noise and vibration environment of the proposed Project and surrounding area and analyzes how the proposed Project may affect these characteristics. This section also describes applicable rules and regulations pertaining to noise and vibration. For the purposes of the noise and vibration analysis, the study area is defined as the project site and the surrounding area extending approximately 1,200 feet from Dock 10/11 to the nearest sensitive receptors (residential area to the north across the river). The study area also includes the NuStar terminal, which is approximately 4,000 feet from the nearest sensitive receptor (a residential area to the southeast of the terminal).

3.7.1 Environmental Setting

Existing noise in the project area can be attributed to various stationary and mobile sources, including ship traffic, tractor-trailer truck traffic, rail activity, and terminal equipment (Port 2004). Other sources that contribute to the existing noise environment in the general site vicinity include recreational boating along the San Joaquin River (reduced during fall and winter months), landscaping activities (e.g., leaf blowing and lawn mowing), and local and regional roadway traffic on nearby local roads and highways (i.e., Interstate 5 [I-5] and State Routes 4 [SR-4] and 99 [SR-99]). Noise monitoring previously conducted for the Rough and Ready Development Plan concluded that the equivalent continuous noise level (L_{eq}) on Rough and Ready Island near the project generally ranges between 60 decibels (A-weighted; dBA) and 84 dBA, with higher levels from short-term increases in noise levels 85 dBA or higher.

Noise-sensitive land uses are generally considered to be uses in which noise exposure could result in health-related risks to individuals or places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses such as parks, historic sites, cemeteries, and other recreation areas are also considered sensitive to increases in exterior noise levels. Schools, places of worship, hotels, libraries, nursing homes, retirement residences, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest sensitive receptor includes a residential area approximately 1,200 feet to the north.

3.7.1.1 Fundamentals of Sound

Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to the human ear. Noise is most simply defined as unwanted sound. Sound is measured in dB and accounts for variations such as frequency and amplitude, using a relative scale adjusted to the human range for hearing (referred to as the A-weighted decibel [dBA]). More specifically, the dBA measures sound reflective of how the average human ear responds to sound;

the range of human hearing typically ranges from 0 dBA (the threshold of hearing) to about 140 dBA (the threshold for pain).

A given noise may be more or less tolerable depending on the duration exposure, as well as the time of day which the noise occurs. The community noise equivalent level (CNEL) measures the cumulative 24-hour noise exposure, considering not only the variation of the A-weighted noise level but also the duration and the time of day of the noise. Various state and local agencies have adopted CNEL as the measure of community noise, including the State Department of Aeronautics and the California Commission on Housing and Community Development.

3.7.1.1.1 Percentile-exceeded Noise Level

The percentile-exceeded noise level, designated as L_n, describes the noise level that is met or exceeded by a fluctuating sound level n-percent of a stated time period. For example, the L_{50} is the sound level that is equaled or exceeded for 50% of the time period (equivalent to 30 minutes in an hour) and the L_{25} is the sound level that is equaled or exceeded for 25% of the time period (equivalent to 15 minutes in an hour).

3.7.1.2 Fundamentals of Groundborne Vibration

Groundborne vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. Each of these measures can be further described in terms of frequency and amplitude. Displacement is the easiest descriptor to understand; it is simply the distance that a vibrating point moves from its static position (i.e., its resting position when the vibration is not present). The velocity describes the instantaneous speed of the movement, and acceleration is the instantaneous rate of change of the speed.

Although displacement is fundamentally easier to understand than velocity or acceleration, it is rarely used for describing groundborne vibration, because: 1) human response to groundborne vibration correlates more accurately with velocity or acceleration; 2) the effect on buildings and sensitive equipment is more accurately described using velocity or acceleration; and 3) most transducers used in the measurement of groundborne vibration actually measure either velocity or acceleration. For this study, velocity was the fundamental measure used to evaluate the effects of groundborne vibration.

Vibration consists of rapidly fluctuating motions with an average motion of zero. The peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity. The accepted unit for measuring PPV in the United States is inches per second.

3.7.2 Regulatory Setting

3.7.2.1 Federal

OSHA has established acceptable occupational noise exposure levels (29 CFR 1910.95). These regulations state that employees shall not be exposed to occupational noise levels greater than 90 dB without adequate hearing protection. If occupational noise levels exceed 85 dB, the employer must establish a hearing conservation program as described under 29 CFR 1910.95(c–o). For occupational noise exposure levels greater than 90 dB, the daily period of noise exposure must be decreased from 8 hours, as described under 29 CFR 1910.95(b).

The USEPA Office of Noise Abatement and Control was established to coordinate federal noise control activities and issued the Noise Control Act of 1972 (42 USC 4901 et seq.), establishing programs and guidelines to identify and address the effects of noise on public health and welfare and the environment. USEPA determined in 1981 that subjective issues such as noise would be better addressed at lower levels of government, and responsibilities for regulating noise control policies were transferred to state and local governments in 1982.

3.7.2.2 State

The State of California General Plan Guidelines, published by the Governor's Office of Planning and Research, provides guidance for the acceptability of projects within areas that are exposed to specific noise levels. For areas zoned for industrial, manufacturing, utilities, and agricultural land uses, the normally acceptable level of community noise exposure is less than 75 CNEL with 70 to 80 CNEL considered conditionally acceptable (OPR 2003). The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

For the protection of fragile, historic, and residential structures from groundborne vibration, Caltrans recommends a threshold of 0.2 inch per second PPV for normal residential buildings and 0.08 inch per second PPV for old or historically significant structures (Caltrans 2004).

3.7.2.3 Local

The City has developed community noise control regulations and standards which are consistent with or exceed the guidelines of the State Office of Noise Control and the standards adopted by the Federal Highway Administration (FHWA), Caltrans, and other government and regulatory agencies (City Municipal Code Title 16, Division 3, Chapter 16.60). Regarding construction, the City prohibits "operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work between the hours of 10:00 PM and 7:00 AM, so that the sound creates a noise disturbance across a residential property line, except for emergency work

of public service utilities." State law requires general plans to use the CNEL or the day/night average sound level (L_{dn}) to describe the community noise environment (in dBA) and its effects on the population.

The City's 2040 General Plan establishes goals, policies, and criteria for determining land use compatibility with major noise sources within the community. The 2040 General Plan includes Policy SAF-2.5, which protects the community from health hazards and annoyance associated with excessive noise levels.

Policy SAF-2.5 includes the following standards:

- **Action SAF-2.5A:** Prohibit new commercial, industrial, or other noise-generating land uses adjacent to existing sensitive noise receptors, such as residential uses, schools, health care facilities, libraries, and churches, if noise levels are expected to exceed 70 dBA CNEL when measured at the property line of the noise sensitive land use
- **Action SAF-2.5B:** Require projects that would locate noise sensitive land uses where the projected ambient noise level is greater than the "normally acceptable" noise levels listed in Table 5-1 (included below as Table 17) to conduct an acoustical analysis. If existing noise standards are exceeded, a proposed Project shall not incrementally increase noise levels by more than 3 dBA.
- **Action SAF-2.5C:** Require noise produced by commercial uses to not exceed 75 dBA L_{dn}/CNEL at the nearest property line.
- **Action SAF-2.5D:** Grant exceptions to the noise standards for commercial and industrial uses only if a recorded noise easement is conveyed by the affected property owners.
- **Action SAF-2.5E:** Require all new habitable structures to be set back from railroad tracks to protect residents from noise, vibration, and safety impacts

Table 17
Maximum Allowable Noise Exposure by Land Use Per City of Stockton 2040 General Plan

Land Use	Noise Level, L_{dn} (dBA)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Residential							
Urban Residential Infill							
Hotels, Motels							
Schools, Libraries, Churches, Hospitals, Extended Care Facility							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							

Land Use	Noise Level, L_{dn} (dBA)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Mining, Industrial, Manufacturing, Utilities, Agriculture							

Notes:
Source: City 2018b.
Normally Acceptable
Conditionally Acceptable
Unacceptable

3.7.3 Environmental Impacts and Mitigation Measures

3.7.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port serving a variety of products. The proposed Project only involves changes to the diesel product mix and operations at the NuStar facility; therefore, the level of ULSD and renewable diesel in 2018 was considered as the baseline. In 2018, the facility received and transferred 3.147 million barrels of ULSD and had 17,001 truck calls as detailed in Section 2.2.2. There were no vessel calls as part of baseline operations.

3.7.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine if the proposed Project would result in impacts related to noise and vibration. The proposed Project would have an impact if:

- **NV-1:** The project would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- **NV-2:** The project would result in generation of excessive groundborne vibration or groundborne noise levels.
- **NV-3:** The project would result in, for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

3.7.3.3 Methodology for Determining Impacts

The noise and vibration analysis was performed to determine whether the proposed Project would affect existing noise and vibration levels in the vicinity of the project site. Specifically, the proposed Project was evaluated to determine if noise and vibration levels would exceed pertinent thresholds for residential and commercial structures and if an acoustical analysis was required.

3.7.3.4 Impact Analysis

3.7.3.4.1 NV-1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction. Construction activities typically require the use of numerous pieces of noise-generating equipment. These activities would temporarily increase ambient noise levels on an intermittent basis. Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers. Table 18 presents the typical noise level of proposed construction equipment for the proposed Project.

Table 18
Proposed Construction Equipment

Type of Equipment	Typical Sound Level at 50 feet (dBA)
Crane	85
Grader	85
Loader	80
Truck	84
Dozer	85
Compactor	80
Backhoe	80
Concrete Saw	85
Welder	73

Source: FTA 2006.

Construction noise attenuates with distance from the source. Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, and senior care facilities would each be considered noise- and vibration-sensitive and may warrant unique measures for protection from

intruding noise. The closest sensitive receptor to the project site, a residential area, is located approximately 1,200 feet to the north.

To calculate noise from construction, construction equipment was input into the FHWA Roadway Construction Noise Model, a computer program that enables the prediction of construction noise levels for a variety of operations based on a compilation of empirical data and the application of acoustical propagation formulas. As a conservative approach, no shielding was assumed. As shown in Table 19, the model indicates the maximum sound level (L_{max}) of combined noise equipment would be 56.4 dBA and the continuous noise level (L_{eq}) would be 52.4 dBA at 1,200 feet, which is within the normally acceptable range for ambient noise levels in residential areas (0 to 60 dBA) and below the City's maximum noise level for industrial uses (80 dBA). Therefore, an acoustical analysis is not warranted.

Table 19
Construction Daytime Noise Limits and Exceedances

Equipment	Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}
Crane	52.9	45	80	60	None	None
Tractor	56.4	52.4	80	60	None	None
Front End Loader	51.5	47.5	80	60	None	None
Chain Saw	56.1	49.1	80	60	None	None
Welder/Torch	46.4	42.4	80	60		
Flat Bed Truck	46.6	42.7	80	60		
Crane	56.4	56.2	80	60	None	None
Total	**56.4**	**52.4**	**80**	**60**	**None**	**None**

Notes:
The L_{max} noise limit is representative of the maximum volume permitted by the City for industrial uses.
Per previous noise analyses conducted, the existing day-night noise level (CNEL) near the project site ranges between 60 to 84 dBA (Port 2004). To analyze noise increases conservatively, a baseline of 60 dBA was used as the hourly L_{eq} limit.
Evening and night noise have not been analyzed because construction would not occur during evening hours (7:00 PM to 10:00 PM) or nighttime hours (10:00 PM to 7:00 AM).

A noise analysis was also completed for construction at the terminal. As discussed, the closest residential receptor is 4,000 feet and numerous buildings shield the residential area from construction. Even assuming no shielding, the (L_{max}) of combined noise equipment would be 45.9 dBA and the continuous noise level (L_{eq}) would be 47 dBA at 4,000 feet, which are below applicable limits.

Operation. The City's noise regulations and standards apply to operations of the proposed Project. Specifically, the City's General Plan regulates industrial uses with L_{dn} of 70 dBA and below as "normally acceptable," and between 71 and 80 dBA as "conditionally acceptable" following the incorporation of noise reduction features. Noise levels above 80 dBA are considered unacceptable. The City's noise ordinance also requires that the maximum sound level generated by industrial land uses, or other permitted noise-generating activities within any industrial zoning district, remain below 80 dBA. Previous noise monitoring conducted determined that the existing average day-night noise level nearby the project site ranges between 60 to 84 dBA.

The City's noise ordinance further defines noise standards for industrial uses that adjoin any other industrial or public facilities districts. Noise standards are also restricted for industrial uses located adjacent to noise-sensitive land uses such as residential and zoning districts. In this case, the project site neither adjoins other industrial or public facilities districts, nor is it adjacent to noise-sensitive land uses. Instead, the project site is surrounded on all sides by Port land and uses.

As part of the proposed Project, approximately 43 new truck trips (or approximately four per hour) would enter and exit the project site per day. New vessel operations would occur at Dock 10/11 (one vessel call per month); however, similar sized vessels already use the area on a regular basis. Because the closest residence is over 1,200 feet to the north of Dock 10/11 and 4,000 feet east of the terminal, with numerous buildings shielding operations from receptors, the different locations for offloading and loading operations and general location within the Port would reduce overall noise at the receptors.

Impact Determination: As shown in Table 19, the proposed Project's construction noise levels would be within the existing range for ambient noise levels in the area and below the City's maximum noise level for industrial uses. For these reasons, noise associated with construction of the proposed Project would result in a less-than-significant impact.

The proposed Project's operations noise levels would be within the City's acceptable ambient noise levels for the area. Operations are consistent with existing Port uses, and would occur within areas zoned industrial, noise levels are not expected to affect sensitive land uses. Therefore, the proposed Project operations would not exceed noise level standards from applicable ordinances, and impacts are considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.7.3.4.2 NV-2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Unless heavy construction activities are conducted extremely close (within a few feet) to neighboring structures, vibrations from construction activities rarely reach levels that damage structures. Typical vibration levels associated with construction equipment are provided in Table 20. Heavy equipment (e.g., a large bulldozer) generates vibrations levels of 0.089 inch per second PPV at a distance of 25 feet.

Table 20
Vibration Velocities for Construction Equipment

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

Note:
Source: FTA 2006.

The construction vibration damage criterion for buildings that are extremely susceptible to vibration damage is 0.12 inch per second PPV. This is the strictest PPV vibration threshold established by the Federal Transit Administration (FTA). The nearest building to the construction area would be approximately 50 feet to the north and the typical vibration level from heavy equipment at this distance would be less than 0.035 inch per second PPV, which would not exceed the FTA damage criteria.

Proposed project operations would create some groundborne vibrations due to truck movements. However, the project area is industrial, and any vibrations produced as a result of proposed Project operations would be low and infrequent.

Impact Determination: Because the construction-related vibration would not exceed FTA thresholds, the proposed Project would result in a less-than-significant impact related to construction vibration. Due to the industrial nature of the area and the anticipated low and infrequent emissions of vibrations, it is expected that the proposed Project-related operational vibration would result in a less-than-significant impact.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.7.3.4.3 NV-3: Would the project result in, for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

There are no public airports located within 2 miles of the project area. The nearest public airport is the Stockton Metropolitan Airport, located nearly 5.5 miles southeast from the project site. The project site is not located in the vicinity of a private airstrip.

Impact Determination: Due to the distance of the project site from the nearest public airport or private airstrip, the proposed Project would not expose people residing or working in the project area to excessive noise levels. There would be no impact.

Mitigation Measures: None required.

Residual Impact: No impact.

3.8 Transportation

This section describes the existing transportation resources in the project area surrounding the project site and analyzes how the proposed Project may affect transportation. Transportation resources for the proposed Project include roads and highways. For the purposes of the transportation analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11) and the surrounding area including roadways and the Stockton DWSC. This section also describes applicable rules and regulations pertaining to transportation resources. During construction, trucks would be used to transport construction equipment to and haul construction waste from the sites. Construction workers and facility personnel would access the sites almost exclusively by personal vehicles. During operation, trucks would enter and exit the NuStar terminal. No new operational personnel are expected as a part of transportation. Public transportation, bicycle use, and pedestrian access to the facility is extremely limited.

3.8.1 Environmental Setting

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

3.8.1.1 Existing Roadways Providing Regional and Local Access

The Port is served by a number of regional freeways and highways, namely I-5, SR-4, and SR-99, with local roads serving the terminals and wharves. I-5, Fresno Avenue, Center Street, and El Dorado Street serve the major north-south movements of traffic in the proposed Project vicinity, and Washington Street, Navy Drive, and Charter Way serve the east-west flow of traffic in the area. Existing roadways are discussed as follows:

- **I-5** provides local, regional, and statewide access to the proposed Project. It is an eight-lane freeway with a freeway-to freeway interchange located at the confluence of I-5 and SR-4.
- **SR-4** is an east-west highway. Immediately west of I-5, SR-4 is also called Charter Way, and is an east-west arterial with two lanes. The roadway has four through lanes. Surrounding land uses are mainly industrial, with some commercial uses at major intersections. The second part of SR-4, known as the Crosstown Freeway, begins at Fresno Avenue, has an interchange with I-5, and continues east. This section of SR-4 is a divided freeway with two to four lanes in each direction, plus auxiliary lanes. Caltrans opened the Crosstown Freeway Extension project in 2016, which extended the Crosstown Freeway west from Fresno Avenue to Navy Drive. The extension is elevated and crosses over Fresno Avenue, creating a grade separation that now prohibits highway traffic from entering the Boggs Tract neighborhood at Fresno Avenue.

- **Navy Drive** is a four-lane facility with a partial interchange, which integrates the SR-4 Crosstown Freeway extension with a direct route into the Port's West Complex that improves traffic flow, decreases idle times, and improves safety.
- **Washington Street** is a two-lane east-west collector and an arterial, which begins in the west at Navy Drive and terminates at the Weber Avenue intersection. Washington Street was previously the major east-west facility through the Port area and the residential area east of the Port. However, following the opening of the Crosstown Freeway extension, Washington Street from the railroad tracks west is now a private Port road, which will likely be closed to traffic in the near future.
- **Fresno Avenue** is a north-south roadway from north of Washington Street through the residential area south of Charter Way. The facility is two lanes wide. Between Hazelton Avenue and Charter Way, Fresno Avenue is surrounded by mainly industrial land uses.

3.8.1.2 Maritime Navigation

The Port is served by the Stockton DWSC within the San Joaquin River, which provides access to the Port from the San Francisco Bay. Vessel traffic in the study area includes commercial shipping and recreational vessels, as well as vessels to support periodic maintenance dredging operations. All commercial deep draft vessels calling on the Port pick up a bar pilot at the offshore sea buoy before entering the San Francisco Bay through the Main Ship Channel.

3.8.1.3 Existing Public Transit Service

There are no public transit facilities within the Port.

3.8.1.4 Existing Bike and Pedestrian Facilities

Bike and pedestrian facilities are extremely limited within the Port. There are no bike lanes and most roads are private and do not include sidewalks.

3.8.2 Applicable Regulations

3.8.2.1 Federal Navigational Rules

Under 14 USC and 33 USC, USCG has authority for maritime law enforcement and rule-making with regard to navigation, as well as responsibility for search and rescue on the navigable waters of the United States. USCG Vessel Traffic Service, San Francisco, designates traffic lanes for inbound and outbound vessel traffic, specifies separation zones between vessel traffic lanes, and governs vessels entering and leaving ports. The Inland Navigational Rules Act of 1980 (PL 96-591, 94 Statute 3415, 33 CFR 83), more commonly known as the Inland Rules, governs many rivers, lakes, harbors, and inland waterways. The International Regulations for Preventing Collision at Sea have also been incorporated into federal regulations (PL 95-75, 91 Statute 308, 33 USC 1–8). Together, these regulations (known as the Rules of the Road) govern open bodies of water to promote navigational safety, including

requirements for steering and sailing practices, navigation lights and day-shapes, and sound signals for both good and restricted visibility.

3.8.2.2 State

Caltrans policies are applicable to the proposed Project and are summarized in Caltrans's *Guide for the Preparation of Traffic Impact Studies*, which provides a summary of goals and policies (Caltrans 2002). Traffic analysis in California is guided by policies and standards set at the state level by Caltrans and local jurisdictions.

The California Harbors and Navigation Code vests authority with the California Department of Boating and Waterways to regulate matters of navigational safety for the state's boating public. The code establishes laws and regulations governing the equipment and operation of vessels on waters of the state, including within the study area.

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

Under the updated 2018 Guidelines, the CEQA analysis must consider the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. However, because transportation planning is done on a regional level, lead agencies will have a grace period until July 1, 2020, before the VMT metric for analyzing transportation impacts becomes mandatory on a statewide basis.

3.8.2.3 Regional

SJCOG has developed a Regional Transportation Plan (RTP), which guides the region's transportation development over a 20-year period and covers all modes of transportation. The RTP is updated every 3 years to reflect changes in available funding, economic activity, and population, and to incorporate

findings from corridor studies and major infrastructure investments. The projects included in the RTP are also assessed as to their effect on air quality, as the RTP is used in the SIP to ensure states are meeting federal conformity standards. If a project is included in the RTP, its effect on regional conformity goals has been accounted for. The current 2018 RTP was adopted by the SJCOG Board in June 2018. The City is responsible for coordination with regional transportation plans.

SJCOG has formed a SB 743 Technical Working Group to address shifting from LOS to VMT in local agency and SJCOG CEQA analysis and adapting related SJCOG programs such as the RTP, if necessary. No draft guidance is available at this time.

3.8.2.4 Local

The City's 2040 General Plan guides the maintenance, design, and operation of transportation, including streets and highways, within the project area. The following goals and policies applicable to the Port and proposed Project are provided for transportation:

- **Policy TR-1.1:** Ensure that roadways safely and efficiently accommodate all modes and users, including private, commercial, and transit vehicles, as well as bicycles and pedestrians and vehicles for disabled travelers.
  - **Action TR-1.1A:** Direct truck traffic to designated truck routes that facilitate efficient goods movement and minimize risk to areas with concentrations of sensitive receptors, such as schools, for example by disallowing any new truck routes to pass directly on streets where schools are located, and vulnerable road users, like pedestrians and bicyclists.
  - **Action TR-1.1B:** Maintain and periodically update a schedule for synchronizing traffic signals along arterial streets and freeway interchanges to facilitate the safe and efficient movement of people and goods and to provide signal priority for transit vehicles at intersections.
  - **Action TR-1.1C:** Require roadways in new development areas to be designed with multiple points of access and to address barriers, including waterways and railroads, in order to maximize connectivity for all modes of transportation
  - **Action TR-1.1D:** Update existing Precise Road Plans to reflect the 2040 General Plan, including changes in land use and level of service requirements, and a shift in priority from vehicular travel to travel by all modes through complete streets.
- **Policy TR-1.2:** Enhance the use and convenience of rail service for both passenger and freight movement.
  - **Action TR-1.2C:** Provide grade separations at railroad crossings on arterial streets where feasible to ensure public safety and minimize traffic delay.
- **Policy TR-1.3:** Facilitate expanded port and airport operations, service, and development as travel and goods movement assets to the community and sources of employment growth.

As noted above, SB 743 requires moving from LOS to VMT as the metric to evaluate transportation network performance and land use and transportation planning decisions, with investments oriented toward reducing VMT. The 2040 General Plan includes the following policies related to integrating SB 743 into future planning:

- **Policy TR-4.1:** Utilize LOS information to aid understanding of potential major increases to vehicle delay at key signalized intersections.
  - **Action TR-4.1A:** Strive for LOS D or better for both daily roadway segment and peak hour intersection operations, except when doing so would conflict with other land use, environmental, or economic development priorities, and with the following additional exceptions:
    - In the Greater Downtown, strive for LOS E or better, but LOS F may be acceptable after consideration of physical or environmental constraints and other City goals and policies.
    - Roadway segments determined to be operating at deficient LOS by SJCOG in the Regional Congestion Management Program (RCMP)
    - Accept worse than adopted-standard LOS at intersections where widening the intersection would reduce bicycle and pedestrian safety and/or increase pedestrian crossing times such that they would create longer traffic delays due to signal timing.
  - **Action TR-4.1B:** Amend the City's Transportation Impact Analysis Guidelines to reflect the updated LOS goals under
  - **Action TR-4.1.A** and to refine the threshold at which a project needs to evaluate LOS impacts.
- **Policy TR-4.2:** Replace LOS with: 1) VMT per capita; and 2) impacts to non-automobile travel modes, as the metrics to analyze impacts related to land use proposals under CEQA, in accordance with SB 743.
  - **Action TR-4.2A:** To evaluate the effects of new development and determine mitigation measures and impact fees, require projects to evaluate per capita VMT and impacts to transit, bicycle, and pedestrian modes.
  - **Action TR-4.2B:** Amend the City's Transportation Impact Analysis Guidelines to include alternative travel metrics and screening criteria.
- **Policy TR-4.3:** Use the threshold recommended by OPR for determining whether VMT impacts associated with land uses are considered significant under state environmental analysis requirements. Amend the City's Transportation Impact Analysis Guidelines to:
  - Establish a threshold of 15% below baseline VMT per capita to determine a significant transportation impact under CEQA.
  - Identify screening criteria that will streamline certain types of development and/or development in certain areas by not requiring a VMT analysis.

While the policies call for amending the City's Transportation Impact Analysis Guidelines, new guidelines are not yet available. In the absence of new Transportation Impact Analysis Guidelines or SB 743 guidance, the proposed Project would be required to adhere to the City's existing transportation policies (City 2003). The City requires traffic impact analyses for projects generating 100 or more vehicle trips during the AM or PM peak hours. LOS is used by transportation planners and engineers as the standard measure for determining traffic congestion on roadways and intersections. Because the project area is within the City's jurisdiction, it is subject to LOS standards used by the City. The City identifies the minimum acceptable operations criteria for roadway segments and signalized intersections to be LOS D.

3.8.3 Environmental Impacts and Mitigation Measures

3.8.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal, which is served by pipeline, rail and truck. The proposed Project only involves changes to the diesel product mix and operations at the NuStar facility; therefore, the transportation resources and level associated with ULSD and renewable diesel in 2018 was considered as the baseline. In 2018, the facility received and transferred 3.147 million barrels of ULSD and had 17,001 truck calls.

3.8.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine if the proposed Project would result in impacts to traffic and transportation resources. The proposed Project would have an impact if:

- **TT-1:** The project would conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- **TT-2:** The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).
- **TT-3:** The project would substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- **TT-4:** The proposed Project would result in inadequate emergency access.

3.8.3.3 Methodology for Determining Impacts

Because the project area is within the jurisdiction of the City, the proposed Project is subject to LOS standards used by the City. The City identifies the minimum acceptable operations criteria for roadway segments and signalized intersections to be LOS D (City 2003).

On-road construction trips are restricted to worker vehicle trips (15 per day) and periodic limited deliveries of construction equipment.

Operationally, trucks would enter the facility at the truck gates off of Navy Drive. Consistent with the information presented in Table 4 presenting the proposed Project's renewable diesel throughput compared to existing levels, Table 21 presents the shift in operational transportation modes analyzed in Section 3.8.3.4. The proposed Project would result in increased truck trips per year as compared to baseline conditions.

Table 21
Operational Mode Shift

	Baseline Conditions	Conditions After Proposed Project	Net Difference Attributed to Proposed Project
Truck Calls	17,011	21,249	4,238
Vessel Calls	0	12	12

3.8.3.4 Impact Analysis

3.8.3.4.1 TT-1: Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The City's Transportation Impact Analysis Guidelines require the preparation of a transportation impact analysis for any project estimated to generate more than 100 AM or PM peak-hour trips.

Construction. Except for the initial movement of construction equipment to the site at the start of construction and eventual movement from the site at the end of construction, construction of the proposed Project would not affect roads or other transportation corridors. There would be approximately ten truck trips per day during the initial phases to haul away debris and import clean fill and construction material. Construction-related traffic would remain under the threshold of 100 trips during peak hours.

Operations. Estimates of new annual, daily, and peak hour project operational vehicle trip generation were developed for the proposed Project and are presented in Table 22.

Table 22
Project Vehicle Trip Generation Estimates

Vehicles	Size	Annual	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Product Deliveries[1,2]	4,238 truckloads	8,476	43	4	2	3	4	2	2
Passenger Car Equivalents[3]		71,824	86	8	4	6	8	4	4

Notes:

1. Each truck was assumed to include one inbound and one outbound trip. Some trips may be chained, resulting in lower trip generation than presented here.
2. Trip generated based on provided information for existing and proposed Project site. Entering and exiting percentages are based on the Institute of Transportation Engineers *Trip Generation Manual, 9th Edition* (ITM 2012) average distribution for Intermodal Truck Terminal (Land Use Code 030):
   Daily: T = A / 200 (Assumes deliveries/shipments occur on approximately 200 days of the year.)
   AM: 10% of daily; Enter = 40%; Exit = 60%
   PM: 10% of daily; Enter = 47%; Exit = 53%
   Where T = trips generated, A = average annual trips
3. Each truck trip is accounted for as two vehicle trips to account for the travel behaviors of large trucks.

Numbers may not add exactly due to rounding.

Impact Determination: For both construction and operation, the proposed Project is expected to generate significantly less than 100 net-new vehicle trips in either the morning or evening peak hours, even considering the passenger car equivalents for truck trips during operations, as shown on Table 22, and no further off-site analysis is required. Impacts would be considered less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.8.3.4.2 TT-2: Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

SJCOG is responsible for ensuring local government conformance with the RCMP, a program aimed at reducing regional traffic congestion. The RCMP requires that each local jurisdiction identify existing and future transportation facilities that will operate below an acceptable service level and provide mitigation where future growth degrades that service level. SJCOG has review responsibility for proposed development projects that are expected to generate 125 or more vehicle trips during the weekday AM or PM peak-hours or 500 or more total daily vehicle trips on any day of the week.

Impact Determination: Because the proposed Project would not generate more than 125 peak hour trips or more than 500 daily trips, it would not conflict with the RCMP. Therefore, there would be no impact.

Mitigation Measures: None required.

Residual Impact: No impact.

3.8.3.4.3 TT-3: Would the project substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Washington Street, Navy Drive, SR-4, and Charter Way all provide primary access to the project site from the interstate highway system and are all designated to accommodate trucks carrying combustible materials. While renewable diesel is combustible, added truck traffic would be limited to the routes designed and designated to accommodate trucks carrying combustible materials, and the proposed Project is not expected to substantially increase hazards. Trucks would travel on dedicated truck routes, and transport of hazardous materials would occur in compliance with Caltrans and DOT regulations. Containers used to store hazardous materials would be properly labeled and kept in good condition, and a qualified transporter would be selected to comply with Caltrans and DOT regulations.

Impact Determination: The proposed Project does not include any modifications to the existing transportation network and is consistent with overall uses at the Port. Therefore, impacts would be less than significant.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.8.3.4.4 TT-4: Would the project result in inadequate emergency access?

All vehicular access to and from the project site would be provided from Stork Avenue which connects to both Washington Street and Navy Drive, such that if one route was blocked, there are alternate routes to access the site. While truck trips would increase as part of the project, the trucks can be accommodated within the larger port network which is designed for port and industrial operations. The Port has developed an emergency response plan to address emergency needs Port-wide, and the Port maintains its own Police Department, which is responsible for providing security protection of Port tenants on a 24-hour basis. Additionally, the closest fire station to the project site is approximately 3.5 miles to the east of the site at 110 West Sonora Street. There are two additional fire stations located at 3499 Manthey Road and 1501 Picardy Drive, approximately 4 miles south and northeast of the project site, respectively.

Impact Determination: Because the proposed Project is not expected to increase the need for emergency services or block any emergency access routes, the proposed Project is expected to have less-than-significant impacts related to inadequate emergency access.

Mitigation Measures: None required.

Residual Impact: Less-than-significant impact.

3.9 Tribal Cultural Resources

This section details the existing tribal cultural resources within the study area and the relevant federal, state, and local regulations and policies. The information presented in this section is largely based on tribal consultation to date, as well as information from the cultural resources evaluation in Section 3.3.

Tribal cultural resources are defined in PRC 21074 as follows:

5. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for the CRHR or a local preservation register; or
6. A resource determined by the lead agency to be significant pursuant, after considering the significance of the resource to a California Native American tribe.

For the purposes of this analysis, the study area is defined as the project site (the terminal, pipeline route, and Dock 10/11).

3.9.1 Environmental Setting

As noted in Section 3.3.1.1, the project area is in the traditional territory of the Yokuts tribe and may also have been used or settled by Plains Miwok and Wintun peoples. Two Native American tribes have requested to be contacted regarding projects at the Port: the Buena Vista Rancheria of Miwok Indians and the Wilton Rancheria. Under AB 52, the NAHC must also be consulted.

The Port provided the NOP to the NAHC in June 2019, and received a response describing the AB 52 process. The Port sent a letter in July 2019 confirming that the AB 52 process will be followed, and requesting a search of the Sacred Lands File; no response has been received to date. The Port sent letters notifying the Buena Vista Rancheria of Miwok Indians and the Wilton Rancheria of the proposed Project in July 2019. A response was received via email on August 22, 2019, from the Wilton Rancheria. The Wilton Rancheria requested that, if archaeological resources are encountered, work should stop in the area of discovery, and the Wilton Rancheria should be notified. This request has been incorporated into MM-CHR-1.

3.9.2 Applicable Regulations

3.9.2.1 State

3.9.2.1.1 Assembly Bill 52

AB 52, enacted in 2016, establishes a formal role for California Native American Tribes in the CEQA process and promotes the involvement of California Native American Tribes in the decision-making process when it comes to identifying and developing mitigation for impacts to resources of importance to their culture. AB 52 requires consideration of tribal cultural resources, which are

defined as a property, landscape, or object which is of cultural value to a tribe and is eligible for the CRHR or a local historic register (or is determined by the lead agency to be a tribal cultural resource). Under the updated guidelines, tribes must be notified of a project when it is initiated, and can request consultation within 30 days, after which the lead agency must begin consultation within 30 days of the request.

3.9.3 Environmental Impacts and Mitigation Measures

3.9.3.1 Baseline

At the time of publication of the NOP for the proposed Project, NuStar operated a liquid bulk terminal at the Port and the remainder of the project site was within highly developed and industrialized areas.

3.9.3.2 Thresholds

For purposes of this DEIR, the following thresholds, which are based on Appendix G of the CEQA Guidelines (Environmental Checklist), were used to determine whether the proposed Project would result in impacts on tribal cultural resources. The proposed Project would have an impact on tribal cultural resources, including tribal cultural resources, if:

- **TCR-1**: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 21074.

3.9.3.3 Methodology for Determining Impacts

The CEQA guidelines define a substantial adverse change in the significance of a tribal cultural resource as a significant effect on the environment. A substantial adverse change to tribal cultural resources is defined to include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource (its eligibility for the CRHR or local preservation registers) would be materially impaired (CEQA Guidelines Section 15064.5[b][1]).

3.9.3.4 Impact Analysis

3.9.3.4.1 TCR-1: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074.

Impact Determination: Native American tribes and the NAHC have been consulted per AB 52, and no tribal cultural resources have been identified. Previously unrecorded archaeological sites or human remains could be tribal cultural resources. As described in Section 3.3.3.4.2, the proposed Project would be built in fill, possibly extending into native sediments that have low potential for archaeological materials or human remains. However, because the proposed Project includes

disturbance of soil through direct removal, if archaeological materials remains are present in previously undisturbed native sediments, they could potentially be disturbed during construction. If archaeological materials or human remains are encountered during construction, impacts could be considered potentially significant.

Mitigation Measures:

- MM-CHR-1: Stop Work in the Area If Prehistoric or Historical Archaeological Resources Are Encountered.

Residual Impact: Less-than-significant impact.

4 Cumulative Impacts

4.1 Requirements for Cumulative Impact Analysis

CEQA requires that EIRs analyze cumulative impacts. As defined in Section 15355 of the CEQA Guidelines, a cumulative impact consists of an impact that is created as a result of the combination of a project evaluated in an EIR together with other reasonably foreseeable projects causing related impacts in the vicinity of the proposed Project. CEQA Guidelines Section 15130 requires that an EIR discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable." The following definition of cumulatively considerable is provided in CEQA Guidelines Section 15065(a)(3):

> "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

According to CEQA Guidelines Section 15130(b):

> [t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Cumulative impact assessments are not required for impacts that do not result in part from a project evaluated in an EIR. Therefore, the cumulative impact analysis in this section focuses on whether the impacts of the proposed Project are cumulatively considerable within the context of impacts caused by other past, present, or future projects. The cumulative impact scenario considers other projects proposed within the area defined for each resource that have the potential to contribute to cumulatively considerable impacts.

According to CEQA Guidelines Section 15130(b):

> Factors to consider when determining whether to include a related project should include the nature of each environmental resource being examined, the location of the project and its type. Location may be important, for example, when water quality impacts are at issue since projects outside the watershed would probably not contribute to a cumulative effect. Project type may be important, for example, when the impact is specialized, such as a particular air pollutant or mode of traffic.

In preparing the cumulative impact analysis, related projects that have been or may be constructed in the geographic scope of the proposed Project were reviewed and evaluated. Using guidance provided in CEQA Guidelines Section 15130, past projects related to the development of the Port and present and future projects that have similar potential for impacts and are located in the same geographical area as the proposed Project were identified. Section 4.1.1 includes a discussion of past projects that have shaped the Port and Table 23 presents a list of present and probable future projects considered for their related impacts. In consideration of these projects, cumulative impact analyses for each environmental issue potentially affected by the proposed Project are presented herein. For several resource areas, this cumulative impact analysis also included projected future growth as a factor.

4.1.1 Projects Considered Under Cumulative Analysis

Consistent with CEQA guidelines, the cumulative impact scenario considers other projects proposed within the geographic scope defined for each resource that have the potential to contribute to cumulatively considerable impacts. Impacts were identified using the "list" methodology. Resource areas were analyzed using a list of closely related projects that have been or would be constructed in the cumulative geographic scope. The list of related projects is provided in Section 4.1.1.2.

4.1.1.1 Past History of the Port

This section describes the past projects that have contributed to the development of the Port and surrounding area. These projects have collectively established the general project area as a working port and transportation hub. Collectively, the projects contribute to the baseline conditions present in the project area, Port, and surrounding area, including air quality attainment status and cultural significance.

The City has been a hub of trade since the early 1800s when the gold rush spurred the movement of goods and materials from the coast inland by boat on the San Joaquin River and later rail. Following the gold rush, trade continued to support area agriculture. By the early 1900s, the City was a major industrial and transportation center, supporting flour mills, wagon factories, iron foundries, and

shipyards. In 1930, dredging of the San Joaquin River began to increase navigational depths and create a navigation channel to support larger vessels (City 2019). many islands, including Tinsley, Fern, Headreach, and Tule islands, to create the navigation channel still used today. In 1933, the Port of Stockton opened as the first inland seaport in California. The first dock and transit shed were constructed at the Port in the 1930s followed by the unified rail. The Port officially opened in 1933 with the arrival of a cargo ship carrying 75,000 tons of lumber from the Pacific Northwest. The first on-dock rail operation started in 1934 and the first petroleum container was constructed at the Port during the same year. Deepening of the navigation channel to 35 feet MLLW began in 1935 (Port 2017).

The Port strategically elected not to pursue containerization in the 1960s, establishing itself as one of the largest dry/break-bulk and liquid bulk ports on the west coast. The Port continued to modernize through the mid and late 1900s to support bulk shipments, including replacing older timber wharves with concrete wharves and expanding warehouse facilities. Today, the Port supports warehouse storage and handling facilities for both dry and liquid bulk materials, facilities, and equipment to handle break-bulk and containerized cargoes by land or sea. Over time, the Port has continued to grow, adding land and terminals, with the most recent acquisition, Rough and Ready Island, in 2000.

The area surrounding the Port has also grown. Since the 1940s, there have been major commercial and residential developments, and industrial growth, mostly to the north of the Port. The transportation network, especially highways, has consequently grown to accommodate growth in residential, agricultural, and energy sectors (City 2019).

4.1.1.2 Present and Future Projects

As shown in Table 23 and Figure 6, a total of 21 present or reasonably foreseeable future related projects (approved or proposed) were identified within the general vicinity of the proposed Project that could contribute to cumulative impacts. These projects were selected because they are located in the Port or are located in the immediate project area (generally within the City) through which proposed Project mobile sources (i.e., trucks and vessels) would be likely to travel (including roadways in the area). Projects in the table were analyzed to determine whether they may have the potential to result in related impacts to those of the proposed Project (e.g., air quality impacts from the use of construction equipment or new sources of combustion) when considered in conjunction with the proposed Project. The cumulative geographic scope differs by resource and sometimes for impacts within a resource; related projects may contribute to a cumulative risk in one resource area but not in another. Cumulative regions of influence are documented in Section 4.2.

Table 23
Related Present and Future Projects Considered in the Cumulative Impact Analysis

Reference No.	Project Name	Location	Project Description	Project Status
1	Port of Stockton West Complex Development Plan: Marine Terminal Development	Port of Stockton	Marine terminal-related development associated with the Port's West Complex	In progress
2	Port of Stockton West Complex Development Plan: Commercial and Industrial Park Development	Port of Stockton	Upland commercial development associated with the Port's West Complex	In progress
3	Port of Stockton West Complex Development Plan: Infrastructure Improvements	Port of Stockton	Industrial development associated with the Port's West Complex	In progress
4	State Route 4 Crosstown Freeway Ramp Extension	City of Stockton	Extension of existing ramps with 1 mile of elevated structure. Minor widening and realignment of Navy Drive between Fresno Ave and BNSF underpass	Complete
5	Navy Drive Widening	Port of Stockton	Widening Navy Drive to accommodate traffic changes from SR-4 Crosstown Freeway Ramp Extension Project	Complete
6	Daggett Road Grade Separation	Port of Stockton	Construction of a new bridge over the BNSF railroad tracks on Daggett Road (now known as the Port of Stockton Expressway)	Complete
7	McCloy Avenue Extension	Port of Stockton	Extension of McCloy Avenue on the Port's West Complex	Complete
8	Targa Stockton Terminal	Port of Stockton	Construction and operation of a tank farm/terminal facility on approximately 19 acres within the rail circle that encompasses the Pacific Ethanol production facility, use of Berth No. 9 at the Port, and an existing public right of way for a product pipeline for transferring fuels	In progress

Reference No.	Project Name	Location	Project Description	Project Status
9	SATCO Marine Terminal	Port of Stockton	Construction and operation of a sulfuric acid facility on the East Complex	In progress
10	Nautilus Data Technology Data Storage Facility	Port of Stockton	Construction and operation of a waterborne data center facility at the West Complex	In progress
11	San Francisco Bay to Stockton (John F. Baldwin and Stockton Ship Channels) Navigation Improvement	Stockton Deep Water Ship Channel	Deepening the Stockton Deep Water Ship Channel by 5 to 7 feet to improve maritime commerce efficiencies	Planning underway
12	Twitchell and Mandeville Island Dredged Material Placement Sites	Port of Stockton	Construction and operation of new dredge material placement sites for maintenance dredged sediment	Complete
13	ACE Rail Maintenance Facility Improvements	San Joaquin Regional Rail Commission	Installation of Wayside Power at the ACE Rail Maintenance Facility to reduce idling time for the diesel locomotives, thereby reducing emissions and noise nuisance concerns raised by nearby sensitive receptors	Complete
14	Open Window Master Development Plan	City of Stockton	Master Development Plan for downtown Stockton	Planning underway
15	Minier Avenue Complete Streets Road Plan	City of Stockton	Project consists of a lane reduction from four to two lanes and the addition of Class II bicycle lanes throughout the project area and other traffic improvements	In progress
16	Contanda Port Road A Facility Expansion	Port of Stockton	Project consists of expanding an existing liquid bulk terminal by removing fourteen existing ASTs and replacing them with five new ASTs of greater capacity	IS/MND issued; in progress

Reference No.	Project Name	Location	Project Description	Project Status
17	Contanda Renewable Diesel Bulk Liquid Terminal Development	Port of Stockton	Project consists of the development of a new renewable diesel bulk liquid terminal at the Port. As part of the project, sixteen ASTs of varying capacity would be built at a vacant parcel at the Port. Project would come into the Port via vessels and rail and leave via truck	EIR certified; in permitting stage
18	Eco-Energy Liquid Bulk Receiving Terminal Development	Port of Stockton	Project consists of construction and operation of a 10-acre liquid bulk receiving terminal, which would be operated only using unit trains (replacing existing manifest train movements at NuStar). A pipeline would connect the Eco-Energy Liquid Bulk Receiving Terminal with the NuStar terminal.	EIR certified; in permitting stage
19	NuStar Ethanol Infrastructure Upgrades	Port of Stockton	Project consists of on-terminal infrastructure upgrades to accommodate Eco-Energy supplied ethanol	In progress; permit required from SJVAPCD but no Port approval required
20	NuStar Domestic Renewable Diesel	Port of Stockton	Project consists of on-terminal infrastructure upgrades to accommodate domestic renewable diesel deliveries	In progress; permit required from SJVAPCD but no Port approval required
21	Lehigh Southwest Stockton Terminal	Port of Stockton	Project consists of redeveloping an existing bulk cement terminal, including installing a new unloader and structural upgrades and replacements. The project would increase vessel, truck, and rail calls at the facility.	In progress; NOP issued
22	Proposed Project			

1. Port of Stockton West Complex Development Plan: Marine Terminal Development
2. Port of Stockton West Complex Development Plan: Commercial and Industrial Park Development
3. Port of Stockton West Complex Development Plan: Infrastructure Improvements
4. State Route 4 Crosstown Freeway Expansion Project
5. Navy Drive Widening Project
6. Daggett Road Grade Seperation Project
7. McCloy Avenue Extention Project
8. Targa Stockton Terminal Project
9. SATCO Marine Terminal
10. Nautilus Data Technology Data Storage Facility
11. San Francisco Bay to Stockton (John F. Baldwin and Stockton Ship Channels) Navigation Improvement Project
12. Twitchell and Mandeville Island Dredge Material Placement Sites
13. ACE Rail Maintenance Facility Improvements
14. Open Window Master Development Plan
15. Miner Avenue Complete Streets Road Plan Project
16. Contanda Port Road A Facility Expansion
17. Contanda Renewable Diesel Bulk Liquid Terminal Development Project
18. Eco-Energy Liquid Bulk Receiving Terminal Development
19. NuStar Ethanol Infrastructure Upgrades
20. NuStar Domestic Renewable Diesel

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Figure 6
Cumulative Projects
Draft Environmental Impact Report
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

4.2 Analysis of Cumulative Impacts

The proposed Project, in conjunction with other past, present, and reasonably foreseeable future related projects, has the potential to result in significant cumulative impacts when its independent impacts and the impacts of related projects combine to create impacts greater than those of the proposed Project alone. The proposed Project would not contribute to cumulative impacts related to those environmental resource areas on which it would have no impact, including all issues associated with aesthetics, agricultural and forestry resources, energy, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, utilities and services, and wildfire. Rationale for this determination is summarized in Section 4.2.1. The cumulative impact evaluation subsequently presented in Section 4.2.2 is therefore focused on the same resources evaluated in Section 3: air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazards and hazardous materials, noise, transportation, and tribal cultural resources.

4.2.1 Cumulative Impacts for Unaffected Environmental Resource Areas

4.2.1.1 Aesthetics

The proposed Project would not affect any rock outcroppings, historic buildings, or designated state scenic highways. The existing visual character of the project area is not considered scenic and would not be changed by the proposed improvements. The proposed Project would have no impacts related to aesthetics, which precludes the proposed Project from cumulatively contributing to an impact on this resource.

4.2.1.2 Agricultural and Forestry Resources

The project site does not include any farmlands or forestry resources. The proposed Project would have no impact on farmlands or forest lands, which precludes the proposed Project from cumulatively contributing to an impact on these resources.

4.2.1.3 Energy

The proposed Project would not require any unusual or excessive construction equipment or practices compared to projects of similar type and size. Construction and operations would comply with standard BMPs such as equipment idling restrictions and maintaining equipment according to manufacturers' specifications. The proposed Project would not waste or unnecessarily consume energy resources or conflict with renewable energy or energy efficiency plans. The proposed Project includes a minor expansion of existing operations but would not increase NuStar's storage capacity at the terminal or result in the storage of any products not currently allowed under its existing lease. Operations within the facility itself, including energy demands, would be largely unchanged. For these reasons, the proposed Project would result in no impacts on energy, which precludes the proposed Project from cumulatively contributing to an impact on this resource.

4.2.1.4 Hydrology and Water Quality

During construction, the proposed Project would adhere to the requirements of the NPDES Construction Stormwater General Permit to avoid water quality impacts. During operations, the NuStar facility would continue to operate with active and passive spill control measures, including secondary containment and regular system inspections, as outlined in NuStar's SPCC for the facility. Proposed improvements at Dock 10/11 would reduce the potential for water quality impacts during proposed Project operations. MOTEMS improvements are designed protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills. The proposed Project would result in no impacts on groundwater or drainage patterns, and would not conflict with or obstruct implementation of water quality control plans. The proposed Project is outside the 100-year floodplain and any tsunami, seiche, or mudflow hazard zones. Although it is located within a dam inundation zone, the proposed Project would have no effect on existing levee or dam failure inundation hazards and would not result in increased exposure to these hazards. For these reasons, the proposed Project would result in no impacts on hydrology and water quality, which precludes the proposed Project from cumulatively contributing to an impact on these resources.

4.2.1.5 Land Use and Planning

The project site is zoned for industrial uses and does not include any residences, hospitals, schools, convalescent facilities, or other features that would constitute an established community. The proposed Project is consistent with all applicable and established zoning regulations and requirements and would have no impacts related to land use, which precludes the proposed Project from cumulatively contributing to an impact on this resource. For these reasons, the proposed Project would result in no impacts to land use and planning, which precludes the proposed Project from cumulatively contributing to an impact on these resources.

4.2.1.6 Mineral Resources

There are no mineral resources within the project site, and extraction of mineral resources within San Joaquin County is focused in the southwestern portion of the County in the vicinity of the San Joaquin River. The project site is within an MRZ-1 classified area, which indicates that "adequate information indicates that no significant mineral deposits are present or it is judged that little likelihood exists for their presence" (City 2007). Therefore, the proposed Project would have no impact related to mineral resources, which precludes the proposed Project from cumulatively contributing to an impact on this resource.

4.2.1.7 Population and Housing

There are no housing units within the project site, and the zoning precludes construction of any housing. No new homes, businesses, or road extensions would occur as part of the proposed Project.

Therefore, the proposed Project would result in no impacts pertaining to population and housing, which precludes the proposed Project from cumulatively contributing to an impact on these resources.

4.2.1.8 Public Services

The proposed Project would not result in the need for additional public facilities or services, including fire or police protection, schools, or parks, beyond those currently available in the project area. The project area is adequately served by the City Fire Department, City Police Department, and Port Police. In addition, the proposed Project would include construction and operation of an on-site fire protection system operated and maintained by Port and NuStar employees. Any minor increases in demand would be accommodated by these existing service providers. The proposed Project would result in no impact to fire protection, police, schools, parks, or other public facilities, which precludes the proposed Project from cumulatively contributing to an impact on these resources.

4.2.1.9 Recreation

The proposed Project does not include construction or expansion of any recreational facilities and would not result in increased demand or other effects to recreational facilities. The proposed Project would result in no impacts related to recreation, which precludes the proposed Project from cumulatively contributing to an impact on this resource.

4.2.1.10 Utilities

The proposed Project would include water connections for the fire detection and suppression systems at Dock 10/11; drainage connections and improvements, including the proposed oil-water separator; and electrical connections to operate new equipment for transfer of renewable diesel. No other construction or expansion of any existing utility facilities would be required. The proposed Project would not result in increased water supply, wastewater treatment, or solid waste management demands. For these reasons, the proposed Project would result in no impacts related to utilities, which precludes the proposed Project from cumulatively contributing to an impact on this resource.

4.2.1.11 Wildfire

The project site is located in an area that is industrialized, generally flat, and contains very limited vegetation, which is not considered at a significant risk of wildlife. The proposed Project would not impair emergency response plans, require the installation of infrastructure that could exacerbate wildfire risk, or expose people to significant risks. Therefore, the proposed Project would result in no impacts related to wildfire, which precludes the proposed Project from cumulatively contributing to an impact on this resource.

4.2.2 Cumulative Impacts for Affected Environmental Resource Areas

4.2.2.1 Air Quality

The geographic scope of the cumulative air quality analysis is the SJVAB. The proposed Project would contribute air emissions from construction and operational activities. As discussed in Section 3.1.1, the SJVAB an "extreme" nonattainment area for 8-hour O_3 under the NAAQS. Under the CAAQS, the SJVAB is presently in nonattainment for O_3, PM_{10}, and $PM_{2.5}$. Therefore, projects emitting O_3, PM_{10}, and $PM_{2.5}$, along with O_3 precursors such as NO_X, would contribute to non-attainment levels and subsequent adverse air quality effects. While the proposed Project-specific air emissions were found to be below SJVAPCD significance thresholds, because of the existing air quality violations in the basin, the proposed Project has the potential to contribute to cumulative impacts when considered in conjunction with other related projects resulting in such emissions.

4.2.2.1.1 Cumulative Impact Analysis

Criteria Air Pollutants. Construction and operational emissions are the source of impacts related to air quality. Each of the projects listed in Table 23 would occur within the SJVAB and include emissions from construction or operations. Therefore, air quality impacts from all of the projects in Table 23 would be additive and were considered in terms of their cumulative impacts. Projects listed in Table 23 have been or would be required to perform their own analyses of associated air quality impacts, including development of mitigation measures to address significant impacts, if necessary.

Several of the projects listed in Table 23 include or have included the construction and operation of industrial facilities within the Port, including Project 1 (Port of Stockton West Complex Development Plan: Marine Terminal Development), Project 2 (Port of Stockton West Complex Development Plan: Commercial and Industrial Park Development), Project 3 (Port of Stockton West Complex Development Plan: Infrastructure Improvements), Project 5 (Navy Drive Widening), Project 6 (Daggett Road Grade Separation), Project 7 (McCloy Avenue Extension), Project 8 (Targa Stockton Terminal), Project 9 (SATCO Marine Terminal), Project 10 (Nautilus Data Technology Data Storage Facility), Project 11 (San Francisco Bay to Stockton (John F. Baldwin and Stockton Ship Channels) Navigation Improvement), Project 16 (Contanda Port Road A Facility Expansion), Project 17 (Contanda Renewable Diesel Bulk Liquid Terminal Development), Project 18 (Eco-Energy Liquid Bulk Receiving Terminal), Project 19 (NuStar Ethanol Infrastructure Upgrades), Project 20 (NuStar Domestic Renewable Diesel), and Project 21 (Lehigh Southwest Stockton Terminal). Emissions from these projects would be generated from construction equipment and activities, as well as from stationary and mobile source operational emissions. Several of the project construction schedules, including Projects 2, 3, 10, and 16 through 21, would likely overlap with that of the proposed Project. Projects 1 through 3, 8 through 11, 13, and 16 through 21 include truck, rail, and/or ship movements that result in mobile source emissions, and several would result in emissions from on-terminal equipment. Emissions from these projects combined with the proposed Project would emit O_3, PM_{10}, and $PM_{2.5}$,

along with O_3 precursors such as NO_X, and contribute to non-attainment levels and subsequent adverse air quality effects.

Projects 18, 19, and 20. As discussed in Section 2.1.3, three of the projects in Table 23 are of specific interest to SJVAPCD in terms of considering cumulative impacts: Projects 18, 19, and 20. Projects 19 and 20 both include construction at the NuStar terminal, which may overlap with the proposed Project in terms of timing. Projects 18 and 20 include changes to truck and rail movements at the NuStar Terminal. While, as discussed in Section 2.1.3, these projects are each independent projects with separate utility, the proximity of the projects and the overlap in construction timing resulted in a request from SJVAPCD, in its capacity as a responsible agency, for the Port to quantify the combined cumulative emissions of these three projects and the proposed Project. The following paragraphs present this requested analysis.

The Eco-Energy Liquid Bulk Receiving Terminal Project (Project 18) consists of construction and operation of a 10-acre liquid bulk receiving terminal designed to receive unit trains only. Unit trains at the Eco-Energy terminal would replace a portion of the existing manifest trains supplying ethanol to the NuStar terminal. As part of the Eco-Energy Liquid Bulk Receiving Terminal Project, a pipeline would be built connecting the new Eco-Energy terminal to the NuStar terminal. Changes to NuStar's operations, including the potential impacts from replacing manifest trains with unit trains and an increase in truck trips, were fully assessed in the *Eco-Energy Liquid Bulk Receiving Terminal Project Final Environmental Impact Report* (Port 2019a), completed by the Port in November 2017 and certified in April 2019. As disclosed in the *Eco-Energy Liquid Bulk Receiving Terminal Project Final Environmental Impact Report*, the Eco-Energy Liquid Bulk Receiving Terminal Project would result in a net decrease in rail operations (from 272 manifest trains at the existing NuStar terminal to 60 unit trains associated with the Eco-Energy Liquid Bulk Receiving Terminal Project) and a net increase of 13,260 truck trips to the NuStar terminal. Permitting is in progress for the Eco-Energy Liquid Bulk Receiving Terminal Project. Operations are expected to commence within 1 year following construction.

NuStar requires a new on-terminal pipeline and tank connections to accommodate the new source of ethanol from the Eco-Energy terminal. This project, referred to as the NuStar Ethanol Infrastructure Upgrades Project (Project 19), does not require any discretionary action from the Port, but requires a permit from SJVAPCD.

In addition, NuStar is applying for permits from SJVAPCD to support a Domestic Renewable Diesel (Project 20). This project also does not require any discretionary action from the Port but requires a permit from SJVAPCD. The Domestic Renewable Diesel Project would enable NuStar to receive renewable diesel from a different customer and blend it on-terminal separate of the proposed Project (because the products are owned by separate companies, the renewable diesel must be kept separate and cannot be mixed). This service would replace an existing ULSD service. There would be

approximately 8,250 new truck trips per year as a result of the Domestic Renewable Diesel Project. All pumps are electric and there would be no additional workers. On-terminal construction would be required to support the change in product line.

Tables 24 and 25 present the results of combined construction and operational emissions modeling for Projects 18, 19, and 20 combined with the proposed Project. Modeling files are included in Appendix E.

Table 24
Projects 18, 19, 20, and the Proposed Project: Annual Construction Emissions without Mitigation (tons per year)

	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Eco-Energy Liquid Bulk Receiving Terminal Development (Project 18)						
2020 Construction	0.91	0.59	**11.1**	0.02	7.08	4.05
NuStar Ethanol Infrastructure Upgrades (Project 19)						
2020 Construction	0.39	0.22	1.51	0.00	1.81	0.23
NuStar Domestic Renewable Diesel (Project 20)						
2020 Construction	0.09	0.06	1.10	0.00	1.33	0.17
Proposed Project						
2020 Construction	0.19	0.12	2.13	0.00	1.85	0.25
Total Annual Construction Emissions: All Projects						
2020 Construction	1.58	1.00	15.85	0.03	12.07	4.70

Note:
Emissions may not add precisely due to rounding.

As shown in Table 24, construction emissions would primarily be from the Eco-Energy Liquid Bulk Receiving Terminal Development Project, which is much larger in scale because the project involves the development of a new terminal on a currently vacant site within the Port. Construction emissions were fully assessed in the *Eco-Energy Liquid Bulk Receiving Terminal Project Final Environmental Impact Report* and mitigation was included in the Mitigation Monitoring Reporting Program (MMRP) as part of the FEIR certification and approval process.

Table 25
Projects 18, 19, 20, and the Proposed Project: Annual Operational Emissions without Mitigation (tons per year)

	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Eco-Energy Liquid Bulk Receiving Terminal Development (Project 18)						
Line-Haul Locomotives	0.18	0.16	7.07	0.01	2.38	0.25
Switching Locomotives	-0.12	-0.11	-5.50	0	-0.74	-0.32
On-Road Mobile Vehicles	0.24	0.10	8.50	0.03	1.42	0.30
NuStar Ethanol Infrastructure Upgrades (Project 19)						
Tanks	--	--	--	--	--	0.86
Fugitive Components	--	--	--	--	--	0.13
Truck Loading Losses	--	--	--	--	--	0.38
NuStar Domestic Renewable Diesel (Project 20)						
Trucks	0.09	0.04	4.21	0.01	0.86	0.21
Rail	0.04	0.04	2.06	0.00	0.45	0.07
Proposed Project						
Trucks	0.04	0.02	2.13	0.01	0.43	0.10
Ships at Berth	0.20	0.19	4.25	0.75	0.43	0.20
Ships Transit	0.05	0.05	2.26	0.08	0.30	0.19
Tugboats	0.06	0.05	1.16	0.00	0.65	0.06
Employee Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Total Annual Operation Emissions: All Projects						
Proposed Project	0.40	0.30	9.8	0.8	1.80	0.60
Eco-Energy Terminal Development	0.29	0.16	10.7	0.04	3.07	0.24
NuStar Ethanol Infrastructure Upgrades	N/A	N/A	N/A	N/A	N/A	1.36
Domestic Renewable Diesel Project	0.13	0.09	6.27	0.01	1.31	0.28
Total	**0.78**	**0.56**	**26.76**	**0.89**	**6.19**	**2.44**

Note:
Emissions may not add precisely due to rounding.

As shown in Table 25, operational emissions are mainly the result of vessels and locomotives, which are generally regulated by the state and federal governments.

Health Risk. Because the NAAQS and CAAQS are health-based standards and air quality in the San Joaquin Valley routinely violates the state and federal standards, ambient air quality in the valley already puts sensitive receptors at risk. The San Joaquin Valley also has some of the highest particulate matter concentrations in the state. For example, health surveys reported in 2001 show a 24% higher prevalence of asthma in children in the San Joaquin Valley than in the rest of the state and a 19% higher prevalence for adults (ARB 2015). Similar to the discussion on criteria pollutants,

related projects in Table 23 resulting in new or expanded sources of air emissions would combine with emissions from the proposed Project and could potentially contribute to existing health risks in the region.

Unlike air quality standards that measure mass emissions within a region, an HRA considers the specific effects of criteria pollutants and air toxic on the closest sensitive receptors. As discussed in Section 3.1, as an individual project, construction and operation of the proposed Project would not expose sensitive receptors to substantial pollutant concentrations; therefore, a project-specific HRA was not completed. However, when combined with other nearby projects generating emissions, specifically DPM, from mobile sources on the same transportation corridors, the proposed Project's emissions may contribute to cumulative health risk. Projects 5, 8 through 11, and 16 through 21 in Table 23 would all occur in the same general area as the proposed Project and would generate new rail, truck, and/or vessel calls that may affect the same sensitive receptors.

Projects 18, 19, and 20. Similar to the analysis for criteria pollutants, at the request of SJVAPCD, a quantitative assessment was completed for Projects 18, 19, and 20 combined with the proposed Project (Tables 26 and 27). Using the Eco-Energy Liquid Bulk Receiving Terminal Development Project's HRA and an HRA for a project of similar scale and sources (*Contanda Renewable Diesel Bulk Liquid Terminal Development Project Final Environmental Impact Report* [Port 2019b]), cancer and non-cancer risks were estimated using scalable numbers for the proposed Project and Projects 19, 20, and the HRA completed as part of the Eco-Energy DEIR. While using this method allows the general cumulative risk to be estimated, the values presented in Tables 26 and 27 are not actual risk numbers and are conservative because they assume that sources from different projects affect the same receptors at the same time.

Table 26
Projects 18, 19, 20, and the Proposed Project: Estimated Residential Cancer Risk

	Estimated Residential Cancer Risk		
	Construction	**Operational**	**Total**
Proposed Project (Dock 10/11)	2.695E-06	2.39E-06	5.080E-06
Eco-Energy Liquid Bulk Receiving Terminal Development (Project 18)	N/A[a]	6.86E-06	6.86E-06
NuStar Ethanol Infrastructure Upgrades (Project 19)	2.003E-06	N/A[b]	2.003E-06
Domestic Renewable Diesel Project (Project 20)	1.428E-06	8.530E-07	2.281E-06
Total	**6.13E-06**	**1.01E-05**	**1.622E-05**

Notes:
The *Contanda Renewable Diesel Bulk Liquid Terminal Development Project Health Risk Assessment* (Port 2019b) was used to scale cancer risk.
These results are conservative because they assume that sources from different projects affect the same receptors at the same time.
a. Results are included in the operational risk column.
b. Per OEHHA, ethanol is not a toxic contaminant (OEHHA 2019).

Table 27
Projects 18, 19, 20, and the Proposed Project: Estimated Worker Cancer and Chronic Non-Cancer Risk

	Estimated Off-site Worker Cancer Risk			Estimated Chronic Non-Cancer Health Index		
	Construction	**Operational**	**Total**	**Construction**	**Operational**	**Total**
Proposed Project (Dock 10/11)	6.22E-07	1.74E-06	2.357E-06	0.003	0.001	0.004
Eco-Energy Liquid Bulk Receiving Terminal Development (Project 18)	N/A	N/A	N/A	N/A	N/A	0.002
NuStar Ethanol Infrastructure Upgrades (Project 19)	4.623E-07	0	4.623E-07	0.002	0	4.623E-07
Domestic Renewable Diesel Project (Project 20)	3.30E-07	6.20E-07	9.501E-07	0.002	0.000	0.002
Total	**1.41E-06**	**2.36E-06**	**3.769E-06**	**0.007**	**0.001**	**0.010**

Notes:
The *Contanda Renewable Diesel Bulk Liquid Terminal Development Project Health Risk Assessment* (Port 2019b) was used to scale cancer risk.
These results are conservative because they assume that sources from different projects affect the same receptors at the same time.
a. Per OEHHA, ethanol is not a toxic contaminant (OEHHA 2019).

4.2.2.1.2 Conclusion

While the proposed Project's emissions would not exceed thresholds, its implementation combined with other related past, present, or probable future projects, would result in substantial combined cumulative adverse effects related to air quality and health risk, and impacts would be considered cumulatively significant. This cumulative impact would primarily result from the combined O_3, (including O_3 precursors such as NO_X), PM_{10}, and $PM_{2.5}$ emissions from related projects, including Projects 1 through 3, 5 through 11, and 16 through 21, combined with those of the proposed Project. Cumulative health risks would primarily result from DPM emissions.

While some emissions contributing to cumulative risk are generated by on-terminal stationary sources in the project area, the majority of emissions from Projects 1 through 3, 5 through 11, and 16 through 21, and the proposed Project would originate from non-road construction equipment and mobile sources. Construction equipment is regulated by ARB through a comprehensive program aimed at accelerating the turnover of the oldest equipment to newer, cleaner models. Because construction is directly contracted by the project owner/operator, additional mitigation can be written into construction contracts. As discussed in Section 3.1.3, mobile sources, however, are often not directly controlled by the project owner/operator at the Port but contracted through third parties, making direct control through mitigation complicated. For example, rail movements are controlled almost exclusively by the two mainline locomotive companies (BNSF and UP). Vessels are often foreign flagged and/or part of a tramp fleet, where individual vessels may only call at an individual port once per year. While trucks may also be contracted by terminal operators, trucking companies and owner/operators are more numerous and operate within a more local market presenting more opportunities for choice. Therefore, mitigation is generally focused on construction equipment and trucks. Along with reducing GHG emissions, the proposed Project's implementation of MM-GHG-1, MM-GHG-3 and MM-GHG-4 would also help reduce air quality emissions by reducing combustion and incentivizing the use of clean trucks. However, because the area is in non-attainment and the effects of MM-GHG-1, MM-GHG-3 and MM-GHG-4 may be limited, impacts are considered cumulatively significant.

4.2.2.2 Biological Resources

The geographic scope of the cumulative biological resources analysis consists of the project site and areas in close proximity that may be affected by the proposed Project's construction or operations. Past, present, and reasonably foreseeable future development that could contribute to significant cumulative impacts on terrestrial resources are those projects that involve land disturbance, such as grading, paving, landscaping, and construction of infrastructure. Marine organisms could be affected by activities in the water, such as dredging, filling, wharf demolition and construction, vessel traffic, and runoff from pollutants.

4.2.2.2.1 Cumulative Impact Analysis

As discussed in Section 4.1, the San Joaquin River has been dredged regularly since the 1930s, and several projects in Table 23 include in-water components or changes to vessel activity within the San Joaquin River. However, as discussed in Section 3.2, there would be no impacts from the proposed Project on aquatic biological resources. The Port's docks are not within any nursery sites for special-status fish species, and the ship movements, which are a regular part of the existing conditions on the River, would not impede species migration within the San Joaquin River or other waters. Therefore, the proposed Project would not contribute to any cumulative impacts on aquatic resources.

The proposed Project includes construction of a pipeline to Dock 10/11, portions of which would traverse undeveloped but disturbed areas on the margins of industrial parcels. Habitat in the pipeline area may support special-status nesting birds, and therefore construction of the pipeline has the potential to disturb nesting. Of the projects listed in Table 23, Project 5 (Navy Drive Widening), Project 9 (SATCO Marine Terminal), and Project 18 (Eco-Energy Liquid Bulk Receiving Terminal Development) would occur within the immediate project area and would also include construction activities that have the potential to affect special-status nesting birds.

Through the SJMSCP, SJCOG is able to ensure that approved projects avoid impacts on nesting birds. Implementation of mitigation measure MM-BIO-1 would ensure that the proposed Project's impacts on special-status species remain less than significant by either obtaining coverage under the SJMSCP or conducting nesting bird surveys consistent with CDFW's standard requirements. For Projects 5, 9, and 18, like the proposed Project, mitigation measures were implemented to ensure that construction and operations of the projects would not result in significant impacts to terrestrial biological resources. Therefore, there would be no cumulative contribution on terrestrial biological resources.

4.2.2.2.1 Conclusion

Based on these analyses, it is concluded that the proposed Project combined with projects listed in Table 23 would not have cumulatively considerable impacts on biological resources.

4.2.2.3 Cultural and Historic Resources

The geographic scope of the cumulative cultural and historic resources analysis consists of the project site and the immediate vicinity at the Port. Projects on land that have the potential to modify or demolish structures that are more than 50 years old have the potential to contribute to cumulative impacts on historic architectural resources. Projects that include excavation that may disturb native fill may disturb, damage, or degrade listed, eligible, or otherwise unique or important archaeological resource.

4.2.2.3.1 Cumulative Impact Analysis

As discussed in Section 3.3, while alluvial processes have likely erased most early archaeological sites, the Sacramento-San Joaquin Delta has probably been occupied since the late Pleistocene/early Holocene, beginning around 11,000 years ago. The earliest documented sites in the region date to about 9,000 years ago and are thought to have been mobile communities focused on hunting and fishing. There is evidence of industrial and land development in the immediate vicinity of the project site since at least the early 1900s, which intensified through the mid to late twentieth century. Based on these conditions, archaeological and historical resources have the potential to be present in the Port.

As discussed in Section 3.3, the project site is an industrial site with no recorded historical resources. Improvements are proposed to Dock 10/11, but it is less than 50 years old and therefore not a potential historical resource. Therefore, there would be no project impacts on historical resources which precludes cumulative contributions.

The proposed Project includes excavation into native soils. If archaeological materials or human remains are present in previously undisturbed native sediments, they could potentially be disturbed during construction. Although much of the area has been previously disturbed, construction activities (i.e., excavation, dredging, and land filling) associated with present and future Port projects, including Project 5 (Navy Drive Widening), Project 9 (SATCO Marine Terminal), and Project 18 (Eco-Energy Liquid Bulk Receiving Terminal Development), would also include excavation into native soils and could also disturb archaeological resources or human remains.

The proposed Project requires implementing "provisions for historical or unique archaeological resources accidentally discovered during construction" (MM-CHR-1). At a minimum, any construction associated with the projects listed in Table 23 that include excavation would also proceed in adherence with these guidelines, in addition to federal, state, and local regulations designed to address cultural resource impacts potentially arising from construction.

4.2.2.3.2 Conclusion

Based on these analyses, it is concluded that the proposed Project and projects listed in Table 23 would not have cumulatively considerable impacts on cultural and historic resources.

4.2.2.4 Geology and Soils

Because of the project site's flat topography and lack of notable geological or soil conditions, the geographic scope of the cumulative geology and soils resources analysis is limited to the project site and immediate surroundings. Of the projects listed in Table 23, Projects Project 5 (Navy Drive Widening), Project 9 (SATCO Marine Terminal), Project 18 (Eco-Energy Liquid Bulk Receiving Terminal Development), Project 19 (NuStar Ethanol Infrastructure Upgrades), and Project 20 (NuStar Domestic

Renewable Diesel) would all occur within the same geographic scope as the proposed Project. The proposed Project would construct improvements that would be subject to ground shaking, as is common for the region. In consideration of design standards relating to seismic hazards, and plans addressing earthquake hazards, potential impacts associated with siting in a seismically active region would be less than significant. There would be no other impacts from the proposed Project related to geology or soils. Similar to the proposed Project, these projects would be constructed in adherence with applicable design standards relating to seismic hazards.

4.2.2.4.1 Conclusion

Based on these analyses, it is concluded that the proposed Project and projects listed in Table 23 would not have cumulatively considerable impacts related to geology and soils.

4.2.2.5 Greenhouse Gas Emissions

The geographic scope of the cumulative GHG emissions analysis in this DEIR is California, because the state has established target state-wide GHG reductions (please see discussions in Section 3.5).

4.2.2.5.1 Cumulative Impact Analysis

Global surface temperatures have trended higher over the past century, due to the generation of GHG emissions from human activities. Some observed changes include shrinking glaciers, thawing permafrost, and shifts in plant and animal ranges. Emissions of GHGs contributing to global climate change are attributable to human activities associated with manufacturing, utilities, energy extraction, transportation, agriculture, and residential uses. Therefore, the proposed project, all past projects, and all present and future related projects in Table 23 that maintain or increase mass GHG emissions contribute to global climate change.

Projects 18, 19, and 20. As discussed in Section 4.2.21.1, SJVAPCD has requested that the Port include a combined analysis of Project 18 (Eco-Energy Liquid Bulk Receiving Terminal), Project 19 (NuStar Ethanol Infrastructure Upgrades), and Project 20 (NuStar Domestic Renewable Diesel), and the proposed Project because these projects would all be operated in the same general location with overlapping construction schedules. The combined results are shown in Table 28.

Table 28
Annual Greenhouse Gas Emissions (metric tons per year)

	CO_2
Proposed Project	
Amortized Annual Construction	11
Trucks	1,052
Ships at Berth	1,031
Ships Transit	3,753
Tugboats	76
Employee Vehicles	0
Eco-Energy Liquid Bulk Receiving Terminal Development (Project 18)	
Amortized Annual Construction	84
Line-Haul Locomotives	837
Switching Locomotives	-274
Trucks	2,252
NuStar Ethanol Infrastructure Upgrades (Project 19)	
Amortized Annual Construction	9
NuStar Domestic Renewable Diesel (Project 20)	
Amortized Annual Construction	6
Trucks	2,181
Rail	470
Total Annual GHG Operation Emissions: All Projects	
Proposed Project (Dock 10/11)	5,924
Eco-Energy Terminal Development	2,889
NuStar Ethanol Infrastructure Upgrades	9
NuStar Domestic Renewable Diesel	2,657
Total	**11,479**

Notes:
Emissions may not add precisely due to rounding. Construction emissions were amortized over 30 years.
Total annual GHG emissions are the sum of amortized construction and annual operational emissions.

As shown, the projects in Table 28 would result in a net increase of GHG emissions.

4.2.2.5.2 Conclusion

While the proposed Project's emissions would not exceed thresholds, each of the projects listed in Table 23 would occur within California, and due to the nature of GHGs, impacts from these projects would be additive. The projects listed in Table 23 would be required to perform their own analysis of associated GHG impacts, including development of mitigation measures to address these impacts if required

Emissions would come largely from mobile source combustion. As discussed in Section 4.2.2.1, there would be limited mitigation options to reduce such emissions. Mitigation measures MM-GHG-1, MM-GHG-3, and MM-GHG-4 would be implemented as part of the proposed Project and would help reduce GHG emissions and criteria pollutant emissions by controlling unnecessary idling and promoting the use of newer, more efficient trucks. Implementation of MM-GHG-2 and MM-GHG-5 would help reduce waste and increase energy efficiency.

The proposed Project and the other renewable diesel projects, including Projects 17 and 20 in Table 23, meet the goals of California's LCFS and would ultimately help the state achieve GHG reduction goals. Renewable diesel burns more completely than biodiesel and petroleum diesel during the combustion process, resulting in reduced tailpipe emissions. The California Energy Commission reports that renewable diesel has 58 to 80% lower GHG emissions than petroleum diesel. Therefore, while there are GHG emissions associated with the proposed Project, the use of renewable diesel would ultimately help California meet the goals of the LCFS, and could lead to lower regional GHG emissions. However, as discussed in Section 2.2.1, because renewable diesel has a range of GHG reductions depending on source and because it is unknown at this point how much of renewable diesel would be used in comparison to other fuels meeting the LCFS, the net reduction in regional GHG emissions is unknown at this time.

In addition, the proposed Project as well as other reasonably foreseeable future projects, including those in Table 23, would be subject to future requirements imposed by ARB's 2017 Climate Change Scoping Plan Update (ARB 2017b). The Scoping Plan Update describes how California will reduce its GHG emissions by 40% below 1990 levels by 2030. However, until such requirements are implemented and mandated, it is assumed that cumulative GHG emissions would be significant and unavoidable.

4.2.2.6 Hazards and Hazardous Materials

The geographic scope of the cumulative hazards and hazardous materials analysis consists of the project site, soil and groundwater in the immediate area, and rail and roadways that would be affected in the event of an accidental release of hazardous materials during transport.

4.2.2.6.1 Cumulative Impact Assessment

The project site may contain contaminated soils or other materials that may be hazardous if disturbed during facility construction or operation. Construction and operation of the proposed Project would occur in adherence with applicable regulations or procedures pertaining to hazardous materials management. With adherence to these regulations and procedures, the proposed Project would not result in significant hazards or hazardous material impacts.

Several of the projects listed in Table 23, particularly the projects in close proximity to the proposed Project with proposed industrial uses, including Project 5 (Navy Drive Widening), Project 8 (Targa

Stockton Terminal), Project 9 (SATCO Marine Terminal), Project 18 (Eco-Energy Liquid Bulk Receiving Terminal Development), Project 19 (NuStar Ethanol Infrastructure Upgrades), and Project 20 (NuStar Domestic Renewable Diesel), may similarly occur on or near hazardous material sites or may include the use, transport, and disposal of hazardous materials. For these projects, potential impacts from hazardous materials on site would likely be localized, and any transport or disposal of materials would occur per federal, state, and local regulations. Because the likelihood of accidental upset during transport of hazardous materials is relatively low, it is unlikely that there would be simultaneous accident events from shipping, and cumulative effects are not anticipated.

4.2.2.6.2 Conclusion

Based on these analyses, it is concluded that the proposed Project and projects listed in Table 23 would not have cumulatively considerable impacts related to hazards and hazardous materials.

4.2.2.7 Noise

The geographic scope of the cumulative noise analysis includes the project site and surrounding industrial area, as well as sensitive receptors that may be affected by construction equipment and proposed facility operation.

4.2.2.7.1 Cumulative Impact Assessment

The nearest residences to the project site are located approximately 1,200 feet to the north of Dock 10/11 and 4,000 feet to the east of the terminal, and the closest school (Washington Elementary) is approximately 0.6 mile to the east. The nearest park is Boggs Tract Park, approximately 0.5 mile to the east. Noise levels generated by the proposed Project construction and operations would be within the conditionally acceptable range for residential uses. Consistent with the City's ordinance, construction would not occur between the hours of 10:00 PM and 7:00 AM. Heavy equipment vibration from construction would not exceed the FTA damage criteria, and proposed Project operations would not generate any new sources of vibration.

Construction noises from the projects listed in Table 23, including the projects likely to have overlapping construction schedules (Projects 2, 3, 10, and 16 through 21) and overlapping construction areas (Projects 18, 19, and 20) with the proposed Project, could result in short-term cumulative noise impacts from construction activities. However, Projects 2, 3, 10, 16, 17, 18, and 21 are located 1,000 to 4,000 feet from the project site and, based on the way noise attenuates, would likely affect different receptors than the proposed Project. Projects 19 and 20 would occur on the NuStar terminal and overlap with elements of the proposed Project's construction, and therefore could potentially contribute directly to noise levels. Projects 19 and 20 would not include any high impact construction and would not occur between the hours of 10:00 PM and 7:00 AM. In addition, numerous buildings and structures lie between the residential area and the terminal, which would shield construction noise.

Operational noise would combine with other projects listed in Table 23. However, the overall operational noise stemming from the projects in Table 23 would be intermittent during product deliveries or distribution and consistent with overall Port industrial conditions and land uses. Based on previous noise analyses, Port noise levels are within the City's acceptable ambient noise levels for the area. Because operations would be consistent with existing Port uses and would occur within areas zoned industrial, noise levels are not expected to cumulatively affect sensitive land uses.

4.2.2.7.2 Conclusion

Given the distance to the nearest residential area (4,000 feet to the east) and level of background noise, cumulative noise levels from construction or operation would not likely affect area receptors. Based on these analyses, it is concluded that the proposed Project and projects listed in Table 23 would not have cumulatively considerable impacts related to noise and vibration.

4.2.2.8 Traffic and Transportation

The geographic scope for cumulative impacts on transportation and traffic includes existing transportation resources in the area surrounding the project site, consisting of roads, highways, and rail lines.

4.2.2.8.1 Cumulative Impact Assessment

Development projects listed in Table 23, including Projects 1 through 3, 8 through 11, and 16 through 21, may have transportation impacts that would overlap with the study area for the proposed Project, and could contribute additional traffic within the general Stockton area. Any development projects would be reviewed for impacts related to transportation and traffic and would be required to address any potential impacts with mitigation. Projects 4 and 5 are congestion relief projects that provide wider roads into and through the Port, avoiding impacts on local road networks.

Because the number of construction workers is relatively low and public transportation access is limited at the site, the proposed Project is not expected to increase public transit use and impacts would be less than significant. All of the projects listed in Table 23 would occur in areas with similarly low levels of public transportation service and are therefore not anticipated to have high demand for public transportation services. Any development projects would be reviewed for impacts related to public transportation services and would be required to address any potential impacts with mitigation. Because the proposed Project does not include construction or operations that would affect alternative transportation plans, policies, or programs, there would be no impact on these resources, which precludes the proposed Project from cumulatively contributing impacts to these resources.

4.2.2.8.2 Conclusion

Based on these analyses, it is concluded that the proposed Project and projects listed in Table 23 would not have cumulatively considerable impacts related to traffic and transportation.

5 Other Required Analyses

5.1 Unavoidable Significant Impacts

As required by CEQA Guidelines Section 15126.2(b), an EIR must describe any significant impacts that cannot be avoided, including those impacts that can be mitigated but not reduced to a less-than-significant level. Sections 3 and 4 of this DEIR describe the potential environmental impacts of the proposed Project and recommend mitigation measures to reduce impacts, where feasible. As presented in Section 3.5, operation of the proposed Project would result in exceedances of a GHG threshold. This impact is considered significant and unavoidable.

5.2 Significant Irreversible Environmental Changes

Pursuant to Section 15126.2(c) of the CEQA Guidelines, an EIR must consider any significant irreversible environmental changes that would be caused by the proposed Project should it be implemented. Section 15126.2(c) of the CEQA Guidelines states the following:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The proposed Project would require the use of non-renewable resources, such as water, fossil fuels, and non-renewable construction materials. Resources that are committed irreversibly and irretrievably are those that would be used by a project on a long-term or permanent basis. Resources committed to the proposed Project include water, fossil fuels, and non-renewable construction materials. Fossil fuels and energy would be consumed during construction activities. Fossil fuels, in the form of diesel oil and gasoline, would be used to power construction equipment and vehicles. The use of these energy resources would be irretrievable and irreversible. Non-recoverable materials and energy would be used during construction activities; the amounts consumed would be accommodated by existing supplies. Although the increase in the amount of materials and energy used would be limited and readily accommodated, these resources would nevertheless be unavailable for other uses.

5.3 Growth-Inducing Impacts

The CEQA Guidelines require an EIR to discuss the ways in which a proposed Project could foster economic or population growth, or the construction of additional housing or facilities, either directly or indirectly, in the surrounding environment. This discussion includes an analysis of whether the proposed Project would remove obstacles to population growth or trigger the construction of new community services facilities that could cause significant environmental effects. Specifically, Section 15126.2(d) of the CEQA Guidelines states the following:

> Discuss the ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

5.3.1 Direct Impacts

A project would directly induce growth if it would directly foster economic or population growth or the construction of new housing in the surrounding environment. The proposed Project would result in the direct benefits related to providing a domestic source of renewable diesel to help California meet near-term GHG goals, as outlined in Section 2.2. The proposed Project would not result in direct economic growth outside of that analyzed as part of the proposed Project description and subsequent impact analyses. The proposed Project would not result in a population increase or in new housing.

5.3.2 Indirect Impacts

A project would indirectly induce growth if it would foster economic or population-expanding activities that would lead to further development by taxing existing facilities and eventually requiring the construction of new facilities. The proposed Project would not result in indirect economic growth outside of that analyzed as part of the proposed Project description and subsequent impact analyses. The proposed Project would not result in expanding populations, tax existing facilities, or require new facilities to be constructed.

6 Alternatives

CEQA requires that an EIR present a range of reasonable alternatives to the proposed Project. Alternatives were developed based on comments received during public scoping, as well as Port staff consideration. Through the alternatives analysis process, the proposed Project and one other alternative were found to meet most of the objectives. In addition, CEQA requires an EIR to consider the No Project Alternative.

The following two alternatives to the proposed Project were carried forward for impact analysis in this DEIR:

- Alternative 1: No Project Alternative
- Alternative 2: Reduced Project

6.1 Requirements to Analyze Alternatives

CEQA Guidelines Section 15126.6 specifically requires that an EIR present a range of reasonable alternatives to a proposed Project, or to the location of a project, that could feasibly attain most of the basic project objectives, but would avoid or substantially lessen any significant effects of a project. Pursuant to CEQA Guidelines Section 15126.6(e)(2), an EIR must also include an analysis of a No Project Alternative. The No Project Alternative analyzes what would be expected to occur if the proposed Project were not approved. CEQA Guidelines Section 15126.6 also requires an evaluation of the comparative merits of the alternatives. An EIR is not required to consider alternatives that are infeasible. Pursuant to CEQA Guidelines Section 15126.6 (f)(1), "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent)." Although these factors do not present a strict limit on the scope of reasonable alternatives to be considered, they help establish the context against which "the rule of reason" is measured when determining an appropriate range of alternatives sufficient to establish and foster meaningful public participation and informed decision-making.

The following sections describe the alternatives considered to reduce impacts. The alternatives analysis only addresses resource areas for which the proposed Project could cause potentially significant environmental impacts. The following resource areas were found to have no impact in the IS (Appendix D) and therefore are not considered in the analysis: aesthetics, agriculture and forestry resources, energy, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, utilities, and wildfire.

6.1.1 Alternative 1: No Project Alternative

The No Project Alternative analyzes what would be expected to occur if the proposed Project were not approved. Pursuant to CEQA Guidelines Section 15126.6(e)(2), the No Project Alternative shall "discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

Under this alternative, no new developments would be constructed at Dock 10/11; therefore, the NuStar facility would not receive renewable diesel by vessel but could receive renewable diesel by trucks, albeit at a lower level than under the proposed Project. The facility would be expected to continue to receive and ship ULSD under the No Project Alternative.

6.1.1.1 Air Quality

Air quality impacts resulting from implementation of the No Project Alternative have not been quantified; however, the No Project Alternative does not include any construction or new operations associated with use of Dock 10/11. It should be noted that, while impacts are not quantified, regional emissions may increase under the No Project Alternative over proposed Project conditions because the proposed Project allows for distribution of renewable diesel deliveries in Northern California. Therefore, impacts of the No Project Alternative on air quality would be considered less than significant.

6.1.1.2 Biological Resources

The No Project Alternative would have no impact on biological resources because there would be no construction or new operations associated with the No Project Alternative.

6.1.1.3 Cultural and Historic Resources

The No Project Alternative would have no impact on cultural and historic resources because there would be no construction or new operations associated with the No Project Alternative.

6.1.1.4 Geology and Soils

The No Project Alternative would have no impact on geology and soils because there would be no construction or new operations associated with the No Project Alternative.

6.1.1.5 GHG Emissions

GHG impacts resulting from implementation of the No Project Alternative have not been quantified; however, the No Project Alternative does not include any construction or new operations, so no new GHG emissions are anticipated. It should be noted that, while impacts are not quantified, regional emissions may increase under the No Project Alternative over proposed Project conditions because

the proposed Project allows for distribution of renewable diesel deliveries in Northern California. Therefore, impacts of the No Project Alternative on GHG would be considered less than significant.

6.1.1.6 Hazards and Hazardous Materials

The No Project Alternative would have no impact on hazards or hazardous materials because there would be no construction or new operations associated with the No Project Alternative.

6.1.1.7 Noise and Vibration

The No Project Alternative would have no impact on noise and vibration because there would be no construction or new operations associated with the No Project Alternative.

6.1.1.8 Transportation

The No Project Alternative would have no impact on transportation because there would be no construction or new operations associated with the No Project Alternative.

6.1.1.9 Tribal Cultural Resources

The No Project Alternative would have no impact on tribal cultural resources because there would be no construction or new operations associated with the No Project Alternative.

6.1.2 Alternative 2: Reduced Project Alternative

The Reduced Project Alternative includes full buildout of the project site, but with a reduced number of vessel calls. Under this alternative, a maximum of eight vessels would call at the terminal annually. Under the Reduced Project Alternative, throughput levels would not change as compared to the proposed Project, because the total diesel output storage would remain nearly the same and the renewable diesel would be replaced with ULSD, as shown in Table 30.

Table 30
Alternative 2: Reduced Project Throughput as Compared to the Proposed Project

	Reduced Project Alternative: Net ULSD and Renewable Diesel	Proposed Project: Net Renewable Diesel
Total Volume	784,000 barrels per year	784,000 barrels per year
Truck Calls	4,238	4,238
Vessel Calls	8	12

6.1.2.1 Air Quality

Because construction would remain the same as the proposed Project, construction emissions under Alternative 2 would not change. Operationally, reducing vessel trips would reduce SJVAPCD criteria pollutant emissions associated with Alternative 2, even when truck emissions associated with ULSD are included because as shown in Section 3.1.4.1, vessel emissions are far greater than truck emissions. Emissions would remain less than significant.

6.1.2.2 Biological Resources

Because construction would remain the same as the proposed Project, potential impacts to biological resources associated with construction under Alternative 2 would not change. Implementation of MM-BIO-1 would address potential impacts to special-status species potentially affected by the proposed Project, resulting in less-than-significant impacts. Similar to the proposed Project, there would be no impacts to biological resources associated with operations.

6.1.2.3 Cultural and Historic Resources

Because construction would remain the same as the proposed Project and operations would occur at a reduced level, potential impacts to cultural and historical resources from Alternative 2 as compared to baseline conditions would be similar to the proposed Project, and associated significance determinations would remain unchanged.

6.1.2.4 Geology and Soils

Because construction would remain the same as the proposed Project and operations would occur at a reduced level, potential impacts to geology and soils from Alternative 2 as compared to baseline conditions would be similar to the proposed Project, and associated significance determinations would remain unchanged.

6.1.2.5 GHG Emissions

Because construction would remain the same as the proposed Project, construction emissions under Alternative 2 would not change. Similar to the discussion in Section 6.1.2.1, reducing vessel trips would reduce SJVAPCD GHG emissions, even with the additional truck trips associated with ULSD. It is important to note that the proposed Project would meet a demand for regional renewable diesel consistent with state LCFS plans. As previously discussed, use of renewable diesel would likely reduce overall GHG emissions in the region, especially in the short term while more significant technologies, such as fuel cells, are developed, and more widespread use of electric vehicles is incentivized. Therefore, while project-specific GHG emissions from Alternative 2 would be expected to be less than significant, regional GHG emissions would not likely decrease in the immediate future.

6.1.2.6 Hazards and Hazardous Materials

Because construction would remain the same as the proposed Project and operations would have the same truck trips, potential impacts to hazards and hazardous materials from Alternative 2 as compared to baseline conditions would be similar to the proposed Project, and associated significance determinations would remain unchanged.

6.1.2.7 Noise and Vibration

Because construction would remain the same as the proposed Project, noise levels from construction would remain the same. Operations would continue to happen with a reduction in vessel trips, thereby reducing overall noise at Dock 10/11. Impacts would be slightly less than the proposed Project as compared to baseline conditions.

6.1.2.8 Transportation

Because construction would remain the same as the proposed Project, impacts on transportation from construction would be the same. While vessel numbers would be reduced, operational truck trips would continue to happen at similar levels as the proposed Project. Impacts would therefore be the same as the proposed Project as compared to baseline conditions.

6.1.2.9 Tribal Cultural Resources

Because construction would remain the same as the proposed Project and operations would occur at a reduced level, potential impacts to tribal cultural resources from Alternative 2 as compared to baseline conditions would be similar to the proposed Project, and associated significance determinations would remain unchanged.

6.2 Comparison of Alternatives

Table 31 provides a summary comparison of the potential impacts after implementation of mitigation measures resulting from the proposed Project and alternatives relative to the topics analyzed in this DEIR.

Table 31
Comparison of Potential Impacts from Proposed Project and Alternatives (with Incorporation of Mitigation)

Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: Reduced Project
Air Quality	Less-than-significant impact	Less-than-significant impact	Less-than-significant impact
Biological Resources	Less-than-significant impact	No impact	Less-than-significant impact
Cultural Resources	Less-than-significant impact	No impact	Less-than-significant impact

Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: Reduced Project
Geology and Soils	Less-than-significant impact	No impact	Less-than-significant impact
GHG Emissions	Less-than-significant impact	Less-than-significant impact	Less-than-significant impact
Hazards and Hazardous Materials	Less-than-significant impact	No impact	Less-than-significant impact
Noise	Less-than-significant impact	No impact	Less-than-significant impact
Transportation	Less-than-significant impact	No impact	Less-than-significant impact
Tribal Cultural Resources	Less-than-significant impact	No impact	Less-than-significant impact

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Appendix A
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List of Preparers

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Appendix B
Notice of Preparation

June 2019
NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

Notice of Preparation

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

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

Project Number: 160377-01.07

To: **All Agencies, Interested Parties, and Individuals**

Subject: **Notice of Preparation of a Focused Environmental Impact Report**

Notice is being given that the Port of Stockton will be preparing a Focused Environmental Impact Report for the following project:

NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project

We transmit this Notice of Preparation for review in accordance with the California Environmental Quality Act Guidelines, Article 7, Sections 15086 and 15087; and California Public Resources Code Section 21153. Please submit your comments, concerns, suggestions for mitigation measures and alternatives, and any other pertinent information that may enable us to prepare a comprehensive and meaningful Focused Environmental Impact Report for the project.

Please submit your comments to Jason Cashman, Port of Stockton Environmental and Regulatory Affairs Manager, by email to jcashman@stocktonport.com or by mail to the following address:

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

Comment letters must be postmarked by July 24, 2019. If you have any questions, please contact Mr. Cashman by email or postal mail (above) or by phone at 209-946-0246.

1 Project Overview

This Notice of Preparation (NOP) has been prepared to inform responsible and trustee agencies, public agencies, and the public that the Port of Stockton (Port), as the Lead Agency under the California Environmental Quality Act (CEQA), has independently determined that there are potential significant environmental impacts associated with the proposed NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project (hereafter referred to as the proposed project) and preparation of a Focused Environmental Impact Report (EIR) is required. The project site is located at 2941 Navy Drive and Dock 10/11 at the Port in Stockton, California (Figure 1).

1.1 Project Summary

The proposed project involves upgrading Dock 10/11 to MOTEMS standards to support a new vessel service for renewable diesel imports. In 2006, California adopted the Global Warming Solutions Act (also known as Assembly Bill [AB] 32), which aims to reduce greenhouse gas (GHG) emissions in California to 1990 levels by 2020. The California Air Resources Board (ARB) has developed several transportation-related measures to achieve state GHG reduction goals, including a clean fuels standard known as the Low Carbon Fuel Standard (LCFS). California's LCFS was adopted in 2009 (amended in 2018) and is a performance-based standard requiring petroleum refiners and other fuel providers to reduce the carbon-intensity of transportation fuels used in California by at least 20% by 2030. Renewable diesel, ethanol, and biodiesel all serve as alternative pathways that reduce the levels of GHG emissions, depending on their source and production, with renewable diesel having a 50% to 85% lower carbon intensity than standard diesel fuels.[1] The proposed project would further facilitate California's goal of increasing supplies of this low carbon fuel.

The proposed project consists of connecting an existing liquid bulk terminal to an existing dock at the Port in order to receive imported renewable diesel by vessel. Much like biodiesel, renewable diesel is made from non-petroleum resources such as natural fats, vegetable oils, and greases. However, unlike biodiesel, renewable diesel is processed similar to petroleum diesel, which makes it chemically the same as petroleum diesel. It burns more completely and therefore cleaner than biodiesel, and because it has the same chemical structure as petroleum diesel, renewable diesel can be used in engines that are designed to run on conventional diesel fuel without any blending.

NuStar Terminals Operations Partnership L.P. (NuStar) currently operates a tank farm at 2941 Navy Drive within the Port. NuStar's general ownership has been operating this terminal since 1984. The types of bulk petroleum products handled at the NuStar terminal include ethanol, gasoline, naphtha, diesel, renewable diesel, biofuels, and lubricants. NuStar currently receives products at its facility via

[1] Promotum, 2015. *California's Low Carbon Fuel Standard: Evaluation of the Potential to Meet and Exceed the Standards.* February 2, 2015. Available at: http://www.ucsusa.org/sites/default/files/attach/2015/02/California-LCFS-Study.pdf.

rail and truck. Under the proposed project, NuStar would add vessel service to import renewable diesel. To accommodate the vessel service, NuStar is proposing to upgrade Dock 10/11 to meet state MOTEMS, and install approximately 3,400 feet of underground 12-inch piping from the dock to its existing terminal. Improvements at the terminal would include installation of approximately 3,050 feet of new terminal piping, new pumps, truck rack improvements, and tying into the existing rail unloading system. No in-water work would be required.

MOTEMS are building standards (California Building Code, Chapter 31F: Marine Oil Terminals) that apply to all marine oil terminals in California. MOTEMS establish minimum engineering, inspection, and maintenance criteria for marine oil terminals to protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills.

1.2 Project Objectives

Pursuant to the CEQA Guidelines and 14 California Code of Regulations 15124, a "statement of the objectives sought by the proposed project" is to be provided as part of the project description in an EIR. The proposed project's goal is to upgrade an existing dock at the Port in order to receive renewable diesel by vessel, which will then be transferred to NuStar's existing terminal at the Port and distributed to support broader California LCFS goals for lower-emitting fuels.

To accomplish this goal, the following key project objectives must be accomplished:

- Upgrade the existing Dock 10/11 to meet MOTEMS consistent with state regulations in order to receive vessels
- Upgrade NuStar's existing facilities at the Port to enable receipt of renewable diesel arriving by vessel
- Increase availability of renewable diesel to assist California in meeting GHG abatement targets, decreasing reliance on imported fossil fuel

1.3 Environmental Setting

1.3.1 Regional Setting

The proposed project is located within the City of Stockton's (City's) urban core, which is characterized by a mix of heavy industrial uses with limited landscape features, older residential neighborhoods, neighborhood commercial shopping centers, and a variety of other commercial and industrial parcels. In the area surrounding the project site, the Port leases property for a variety of industrial uses, characterized by the presence of storage tanks, maritime terminals, cement and grain silos, railroad facilities, large storage buildings, and stockpiles of various commodities. The City's

2040 General Plan[2] designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General.

1.3.2 Project Setting

The NuStar terminal is located between Navy Drive and Stork Road, south of Washington Street. Existing rail facilities are located between the storage tanks at the terminal and Stork Road. The land use between Dock 10/11 and the NuStar terminal is industrial (approximately 3,000 feet separates the facility from the dock). The existing Dock 10/11 at the Port is a ballasted, concrete marginal wharf, approximately 800 feet long by 100 feet wide, supported on square reinforced concrete piles, and includes a crane rail. The deck has approximately 8 inches of asphalt topping and 2 to 4 feet of base material. A 13-foot-deep buttressed concrete berthing face runs along the entire length of the channel side of the wharf. Existing mooring hardware consists of bollards and cleats.

1.4 California Environmental Quality Act Baseline

Section 15125 of the CEQA Guidelines requires that an EIR include a description of the physical environmental conditions in the vicinity of the proposed project as they exist at the time the NOP is published, or if no NOP is published, at the time the environmental analysis is commenced, from both a local and regional perspective. These environmental conditions are referred to as the environmental setting. Further, Section 15125(a) of the CEQA Guidelines states that "the environmental setting normally constitutes the baseline physical conditions by which a Lead Agency determines whether an impact is significant." The CEQA baseline is the set of conditions that prevailed at the time this NOP is circulated.

NuStar currently operates a tank farm at 2941 Navy Drive that consists of 33 tanks and has a capacity of 878,000 barrels. The facility is currently served by rail and truck. There are a total of eight truck loading bays in the north and south truck racks and the rail operation area has three tracks with a combined 16 unloading locations. Because the proposed project only involves changes to the diesel product mix and operations at the facility, the level of ultra-low-sulfur diesel (ULSD) and renewable diesel in 2018 was considered as the baseline. In 2018, the facility received and transferred 3.147 million barrels of ULSD and had 17,001 truck calls.

1.5 Project Elements and Operations

Proposed project construction would consist of dock improvements, installation of a pipeline between the dock and the terminal, and terminal improvements (Figures 2 through 4). No in-water work would occur as part of the proposed project. Construction is anticipated to occur over a period of 8 months, with work occurring concurrently at the three locations. Staging of materials and construction

[2] City (City of Stockton), 2018. *Envision Stockton 2040 General Plan*. December 4, 2018. Available at: http://www.stocktongov.com/files/Adopted_Plan.pdf.

equipment would be coordinated with the Port to minimize disruptions to existing operations at the Port and would generally be limited to areas within NuStar's terminal and at Dock 10/11.

Under proposed project operations, the terminal would receive renewable diesel primarily by vessel. Up to 12 marine vessels would bring up to 1,728,000 barrels of renewable diesel to the dock per year. The renewable diesel would be transferred from the vessels via pipeline to NuStar's terminal. Transfer operations would be carried out from an onshore transfer connection manifold. The transfer manifold would include manual manifold valves used to control cargo flow during transfer operations, as well as emergency motorized block valves that would serve both as MOTEMS emergency shutdown and shore isolation valves. The maximum amount of cargo per vessel would be 144,000 barrels, with a typical offload rate of 8,000 barrels per hour. The total pumping time per vessel would be 17.5 hours.

Product from vessels would be stored in tanks until it is ready for distribution to the Northern California market. Product would typically be stored in the tanks for an average of 1 month. When delivering to the local market, NuStar would pump renewable diesel from dedicated storage tanks through a pipeline connected to the existing on-site truck racks. Empty trucks would enter the terminal through the truck gates and be loaded with product at the truck racks. During product transfers, a minimum of one terminal operator would be present 24 hours a day, seven days a week, to oversee operations. Outside of product transfer periods, the site would be staffed for security and facility maintenance by up to two employees working 12-hour shifts, Monday through Friday. Employee offices would be in the existing support building.

As discussed above, the proposed project would result in a change in diesel product mix at the terminals, where a portion of the existing levels of ULSD would be replaced with renewable diesel, and total renewable diesel products would increase. This change in product mix would result in a net increase in vessel and truck calls, which could result in potentially significant environmental impacts. The proposed project throughput as compared to existing levels is presented in Table 1.

Table 1
Proposed Project Throughput Compared to Existing Levels

	Baseline: Existing ULSD	Proposed Project: ULSD and Renewable Diesel	Net Difference
Total Volume	3,147,000 barrels per year	3,931,000 barrels per year	784,000 barrels per year
Truck Calls	17,011	21,249	4,238
Vessel Calls	0	12	12

2 Proposed California Environmental Quality Act Analysis

2.1 Alternatives

According to Section 15126.6 of the CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the proposed project. The purpose of the proposed project is to provide a facility to store and transfer renewable diesel. The following alternatives are currently being considered for further analysis in the EIR.

2.1.1 No Project Alternative

The No Project Alternative, which is required by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved. Under this alternative, no new developments would be constructed at Dock 10/11; therefore, there would be no change to operations.

2.1.2 Reduced Project Alternative

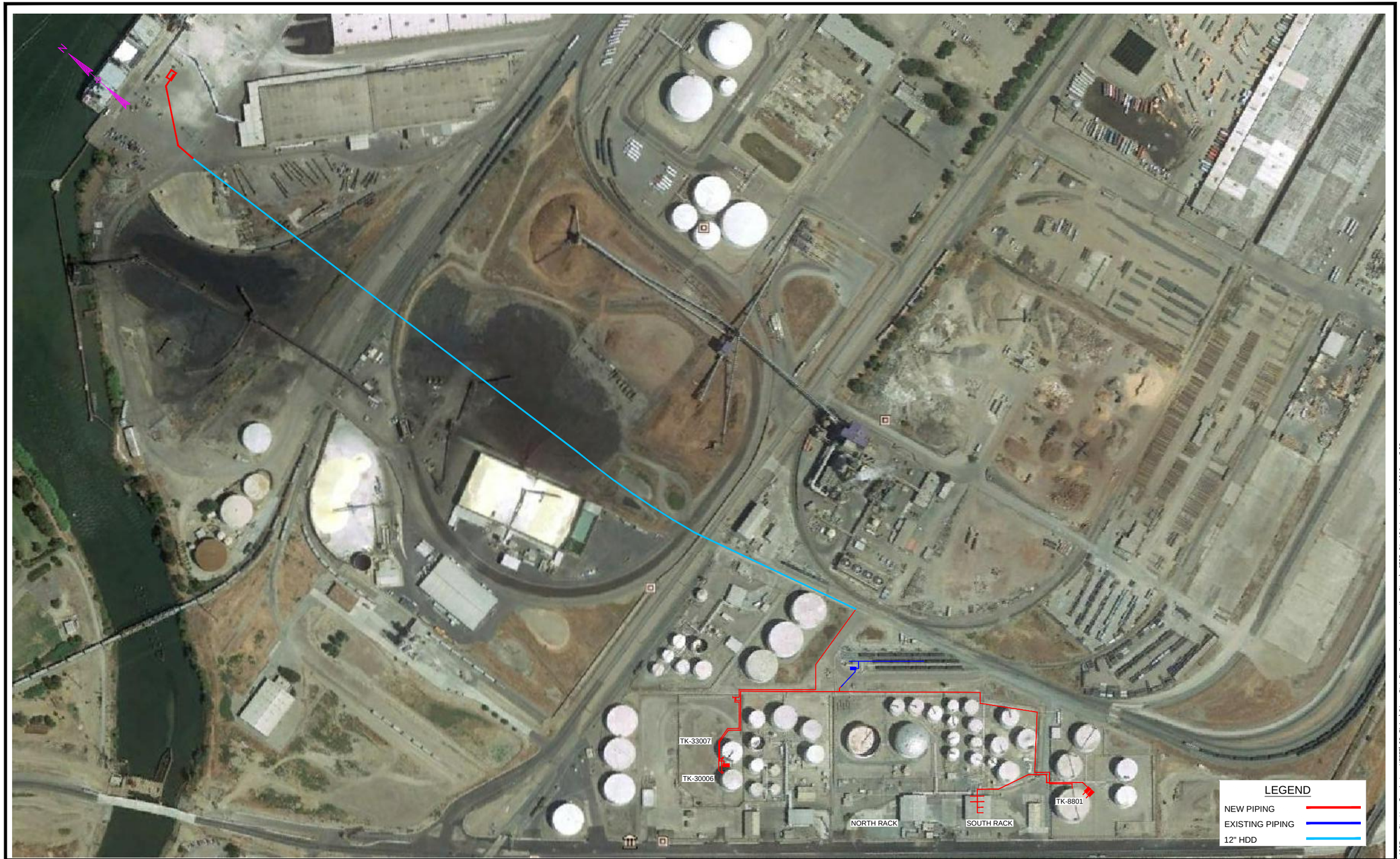
The Reduced Project Alternative includes full buildout of the project site, but with a reduced number of vessel calls and therefore reduced operations. Under this alternative, a maximum of 8 vessels would call at the terminal annually.

2.2 Anticipated Project Approvals and Permits

The approvals or permits that could be required for the proposed project are anticipated to include, but not be limited to, the following actions by the identified agencies:

- Stockton Building Department: approval of mechanical, electrical, demolition, and building permits
- Stockton Fire Department: approval of fire protection system
- Coverage under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
- California State Lands Commission MOTEMS approval
- National Pollutant Discharge Elimination System Construction Stormwater General Permit: required for any project involving greater than 1 acre of grading

Figures



NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

REFERENCE DRAWINGS:

NO.	REVISION	BY	DATE	APR
A	ISSUE FOR REVIEW	KLV	1/23/19	JV JR

NuStar Energy L.P.
19003 IH-10 WEST
San Antonio, Texas 78257
Tel: (210) 918-2000
1-800-866-9060

PROJECT LOCATION:	STOCKTON, CA	
DRAWN BY: KLV	DATE: 6/22/18	
CHECKED:	DATE:	
APPROVED:	DATE:	
SCALE: NTS		

STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10

ORIGINAL PROJECT NO. WC_

DRAWING NO. STOT-21-104 REV. A

L:\Projects\2019\DD-1907 - Stockton Terminal - NESTE\05_Piping\21 - Plot Plans - Equipment Location Plans\ STOT-21-104.dwg Jun 12, 2019 - 3:05pm

Figure 1

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

REFERENCE DRAWINGS:

NO.	REVISION	BY	DATE	APR	
A	ISSUE FOR REVIEW	KLV	1/23/19	JV	JR

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STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10

ORIGINAL PROJECT NO. WC_

DRAWING NO. STOT-21-104 REV. A

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Figure 2

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

REFERENCE DRAWINGS:

NO.	REVISION	BY	DATE	APR
A	ISSUE FOR REVIEW	KLV	1/23/19	JV JR

NuStar Energy L.P.

19003 IH-10 WEST
San Antonio, Texas 78257
Tel: (210) 918-2000
1-800-866-9060

PROJECT LOCATION:	STOCKTON, CA
DRAWN BY: KLV	DATE: 6/22/18
CHECKED:	DATE:
APPROVED:	DATE:
SCALE: NTS	

STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10

ORIGINAL PROJECT NO. WC_

DRAWING NO. STOT-21-104 REV. A

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Figure 3

NOTES:
1) CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

REFERENCE DRAWINGS:

NO.	REVISION	BY	DATE	APR
A	ISSUE FOR REVIEW	KLV	01/23/19	JV JR

NuStar Energy L.P.
19003 IH-10 WEST
San Antonio, Texas 78257
Tel: (210) 918-2000
1-800-866-9060

PROJECT LOCATION:	STOCKTON, CA
DRAWN BY: KLV	DATE: 6/22/18
CHECKED:	DATE:
APPROVED:	DATE:
SCALE: NTS	

STOCKTON TERMINAL #1
PLOT PLAN
RENEWABLE DIESEL DOCK 10

ORIGINAL PROJECT NO. WC_

DRAWING NO. STOT-21-104 REV. A

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Figure 4

Appendix C
Comments Received on the Notice of Preparation

Public Involvement

This section provides a summary of public outreach. The Port considers public participation an integral part of the environmental process, and public involvement and outreach was a chief component of the DEIR development. Public participation ensures that there is two-way communication between the public and decision makers and that public concerns and input are considered in the final decision. The process of public participation assumes that the public have the right to know about the activities of public agencies and to participate in those activities if they so choose. It also assumes that agencies can benefit from public input and thereby make better decisions.

Notice of Preparation

Public Comment

The following two comment letters were received during the public comment periods for the Notices of Preparation:

- Central Valley Regional Water Quality Control Board
- California Native American Heritage Commission

Copies of comment letters received are included in the following pages. All comments were considered in preparation of the DEIR.

California Water Boards

Gavin Newsom
Governor

Jared Blumenfeld
Secretary for
Environmental Protection

Central Valley Regional Water Quality Control Board

11 July 2019

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

CERTIFIED MAIL
7017 2620 0001 1359 1168

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, NUSTAR MARINE OIL TERMINAL ENGINEERING AND MAINTENANCE STANDARDS DEVELOPMENT AND VESSEL SERVICES PROJECT, SCH#2019060229, SAN JOAQUIN COUNTY

Pursuant to the State Clearinghouse's 25 June 2019 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the NuStar Marine Oil Terminal Engineering and Maintenance Standards Development and Vessel Services 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 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_201805.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 Activities (Construction General Permit), Construction General Permit Order No. 2009-009-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

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.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

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

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/

Waste Discharge Requirements – Discharges to Land

Pursuant to the State Board's Onsite Wastewater Treatment Systems Policy, the regulation of the septic system may be regulated under the local agency's management program.

For more information on waste discharges to land, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_land/index.shtml

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program.

There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/regulatory_information/for_growers/coalition_groups/ or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.
2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State

administrative fees (for example, annual fees for farm sizes from 11-100 acres are currently $1,277 + $8.53/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order.

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4812 or Jordan.Hensley@waterboards.ca.gov.

Jordan Hensley
Environmental Scientist

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

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

July 1, 2019

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

RE: SCH# 2019060229 NuStar Marine Oil Terminal Engineering and Maintenance Standards Development and Vessel Service Project, San Joaquin County

Dear Mr. Cashman:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   a. A brief description of the project.
   b. The lead agency contact information.
   c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   a. Alternatives to the project.
   b. Recommended mitigation measures.
   c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my

email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,

for Katy Sanchez
Associate Environmental Planner

cc: State Clearinghouse

Appendix D
Initial Study

December 2019
State Clearinghouse Number: 2019060229

ANCHOR QEA

NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project Initial Study

Prepared for the Port of Stockton

December 2019
State Clearinghouse Number: 2019060229

NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project Initial Study

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

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

Project Number: 160377-01.07

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ABBREVIATIONS

BMP	best management practice
Cal Water	California Water Service Company
CEQA	California Environmental Quality Act
City	City of Stockton
DEIR	Draft Environmental Impact Report
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GHG	greenhouse gases
MGD	million gallons per day
MOTEMS	Marine Oil Terminal Engineering and Maintenance Standards
MRZ	Mineral Resource Zone
NPDES	National Pollutant Discharge Elimination System
PG&E	Pacific Gas and Electric Company
Port	Port of Stockton
SB	Senate Bill
SPCC	Spill Prevention Control and Countermeasure Plan

1 Environmental Checklist

1.	**Project Title:**	NuStar Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project
2.	**Lead Agency Name and Address:**	Port of Stockton 2201 West Washington Street Stockton, California 95203
3.	**Contact Person and Phone Number:**	Jason Cashman 209-946-0246
4.	**Project Location:**	The proposed Project is located within the Port of Stockton's East Complex at 2941 Navy Drive, Stockton, California.
5.	**Project Sponsor's Name and Address**	NuStar Terminals Operations Partnership L.P. 2941 Navy Drive Stockton, California 95206
6.	**General Plan Designation:**	Port or Industrial, General
7.	**Zoning:**	Port (PT)
8.	**Description of Project:**	NuStar Terminals Operations Partnership L.P. proposes to connect its existing liquid bulk terminal to the Port of Stockton's Dock 10/11 to receive renewable diesel by vessel and update and renew the commercial terms in the lease consistent with the proposed Project. NuStar or a predecessor has been operating this terminal since 1984. The types of bulk petroleum products handled at the NuStar terminal include ethanol, gasoline, naphtha, diesel, renewable diesel, biofuels, and lubricants. NuStar currently receives products at its facility via pipeline, rail, and truck. Under the proposed Project, NuStar would add delivery by vessel to increase renewable diesel transported to its terminal facility at the Port. To accommodate the vessel service, NuStar is proposing to upgrade Dock 10/11 to meet state MOTEMS, and to install approximately 3,400 feet of underground 12-inch piping from the dock to its existing terminal. Improvements at the terminal would include installation of approximately 3,050 feet of new terminal piping, new pumps, truck rack improvements, and piping to provide the ability to tie into the existing rail unloading system in the future, if needed. No in-water work would occur as part of the proposed Project.
9.	**Surrounding Land Uses and Setting:**	Industrial port uses to the north, east, and south and the San Joaquin River (and Stockton Deep Water Ship Channel) to the north.
10.	**Other Public Agencies Whose Approval is Required:**	City of Stockton, San Joaquin Council of Governments, California State Lands Commission, San Joaquin Valley Air Pollution Control District, and Central Valley Regional Water Quality Control Board

11.	**Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**	Yes, the Port sent letters notifying the Buena Vista Rancheria of Miwok (Me-Wuk) Indians and the Wilton Rancheria of the project in July 2019. A response was received via email on August 22, 2019, from the Wilton Rancheria. The Tribe requested that if archaeological resources are encountered, work should stop in the area of discovery, and the Tribe should be notified. This request has been incorporated into the Draft Environmental Impact Report. The Port will continue to consult with the Buena Vista Rancheria of Miwok Indians and the Wilton Rancheria.

1.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is potentially significant as indicated by the checklist.

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

1.2 Determination

On the basis of this initial evaluation:

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

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

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

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

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

1.2.1 Aesthetics

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

1.2.1.1 Affected Environment

Regional Setting. The NuStar Renewable Diesel Bulk Liquid Service and Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Development and Vessel Service Project (the proposed Project) is located within the City of Stockton's (City's) urban core, which is characterized by a mix of heavy industrial uses with limited landscape features, older residential neighborhoods, neighborhood commercial shopping centers, and a variety of other commercial and industrial parcels. In the area surrounding the project site, the Port leases property for a variety of industrial uses, characterized by the presence of storage tanks, maritime terminals, cement and grain silos, railroad facilities, large storage buildings, and stockpiles of various commodities. The City's *Envision Stockton 2040 General Plan* (2040 General Plan; City 2018a) designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General. Local regional land uses that affect the visual character include residential infill (the closest residential areas are located 1,200 feet to the north of the project site), industrial/commercial facilities (north, west, and east of the project site), and BNSF Railway rail lines and right of way (south of the project site).

Study Area Setting. The NuStar terminal is located between Navy Drive and Stork Road, south of Washington Street. Existing rail facilities are located between the storage tanks at the terminal and Stork Road. The land use between Dock 10/11 and the NuStar terminal is industrial (approximately 3,000 feet separates the facility from the dock). The existing Dock 10/11 is a ballasted, concrete

marginal wharf, approximately 800 feet long by 100 feet wide, supported on square reinforced concrete piles, and includes a crane rail. The deck has approximately 8 inches of asphalt topping and 2 to 4 feet of base material. A 13-foot-deep buttressed concrete berthing face runs along the entire length of the channel side of the wharf. Existing mooring hardware consists of bollards and cleats. The site is largely devoid of vegetation. Sparse areas of ruderal grasses and shrubs occur at the margins of the San Joaquin River, in the vicinity of Dock 10/11.

Photograph 1
Dock 10/11, looking east

Project Viewshed. Views of the project site are largely obscured on all sides by industrial developments, rail lines, and railcars. The site is visible from Navy Drive, West Washington Street, Port Road A, South Stork Road, and Port Road D. The nearest residential area to the Dock 10/11 and NuStar terminal portions of the project area are respectively located across the San Joaquin River and in the Boggs Tract neighborhood to the east of the site. The project site (the NuStar terminal, proposed pipeline route, and Dock 10/11) is not visible from either of these two residential areas.

1.2.1.2 Impact Evaluation

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

No Impact. The existing visual character in the study area is not considered scenic; therefore, there would be no impact to scenic vistas, and this issue will not be addressed further in the Draft Environmental Impact Report (DEIR).

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

No Impact. The proposed Project would not affect any rock outcroppings or historic buildings. There are no designated state scenic highways within the project area, and the proposed Project is consistent with the visual character of the study area (industrial port uses). Therefore, there would be no impact to scenic resources, and this issue will not be addressed further in the DEIR.

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

No Impact. The visual character of the study area would not be changed by the proposed Project. The most prominent permanent visual change resulting from the proposed Project would be the upgrade to Dock 10/11 and installation of new terminal piping, pumps, truck rack improvements at the terminal. Although these features could be partially visible from adjacent parcels and roadways, they would be consistent with the existing visual character of the site and its surroundings, which includes other similarly sized tanks, elevated pipelines, and other industrial features. Short-term construction activities would be obscured from view by on-site and adjoining developments. Truck or other vehicle traffic generated by construction would not alter the visual character of the site and surroundings, due to its location within an industrialized area.

Facility operations would not alter the visual character of the project site or its surroundings. The proposed Project would result in an increase in trucks and ship calls, but would be aesthetically similar and consistent with those of existing conditions within the industrialized Port area. Based on the conditions described above, there would be no impact to the existing visual character or quality

of the site and its surroundings from the proposed Project, and this issue will not be addressed further in the DEIR.

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

No Impact. Any lighting required for facility construction or operation would be directed only onto the project site, would be the minimum necessary for safety purposes, and would not be visible from any residential areas or other sensitive visual receptors. No new sources of glare would be constructed. Therefore, the proposed Project would result in no impact to daytime or nighttime views in the study area from new sources of light or glare, and this issue will not be addressed further in the DEIR.

1.2.2 Agricultural/Forestry Resources

	Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c.	Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	☒
d.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

1.2.2.1 Affected Environment

The City's 2040 General Plan designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General (City 2018a). Neither the project site nor the immediate surrounding areas currently support agricultural use or forestry resources. There are no timberland zoned properties within San Joaquin County as of 2001 (Stockton Port District 2012); the nearest forest area is the Stanislaus Forest, which is more than 50 miles away. All property surrounding the project site has been developed or planned for industrial or urban land uses. The project area is zoned for non-agricultural uses, which precludes the lease area from qualifying for Williamson Act contracts.

1.2.2.2 Impact Evaluation

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

No Impact. The proposed Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. No farmland exists in the project area. The project area and surrounding areas are zoned as Port or Industrial, General, and are not subject to a Williamson Act contract. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. The proposed Project would not conflict with or change any zoning or use of forest land, timberland, or timberland zoned Timberland Production. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. The proposed Project would not result in the conversion of forest land or timberland to non-forest use. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. No forest or farmlands exist in the vicinity of the project area. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.3 Air Quality

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

The proposed Project includes construction activities and operational increases in trucks and vessel calls and would therefore result in increased emissions of criteria air pollutants relative to baseline conditions. Emissions associated with construction and operations have the potential to exceed applicable thresholds, conflict with an applicable air quality plan, or expose sensitive receptors to substantial pollutant concentrations. Therefore, the DEIR will include a full analysis of the proposed Project's potential air quality impacts.

1.2.4 Biological Resources

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

The project area is largely developed and devoid of potential habitat for special-status species. However, because trees and undeveloped (but disturbed) portions of the project area may provide habitat to special-status species, the DEIR will evaluate the potential for the proposed Project to impact biological resources, including special-status species, habitats, communities, or wetlands; or conflict with biological resource goals and policies from the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.

1.2.5 Cultural Resources

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

The proposed Project includes ground disturbance up to 50 feet below the surface along the portions of the pipeline where directional drilling will occur (approximately 2,700 feet). Native sediments may contain intact archaeological resources. Therefore, the DEIR will evaluate whether the proposed Project would cause a substantial adverse change in the significance of an archaeological or historical resource or disturb human remains.

1.2.6 Energy

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

1.2.6.1 Affected Environment

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

In order to comply with SB SX1-2 and SB 350 standards, the Port of Stockton (Port) has developed and implemented a *Renewable Portfolio Standard Procurement Plan* (Port 2016). In the plan's most recent iteration, the Port determined the most efficient and cost-effective approach to meeting these standards is through continued purchase of sufficient state-approved renewable energy products from the active California market. For the compliance period from 2021 through 2030, the Port will determine and implement the most cost-effective options for complying with newly codified laws (Port 2016).

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

The existing NuStar facility obtains energy from local providers, including gas and electricity from the Pacific Gas and Electric Company (PG&E).

1.2.6.2 Impact Evaluation

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

No Impact. Proposed Project construction would involve equipment that consumes fossil fuels; however, the proposed Project would not require any unusual or excessive construction equipment or practices compared to projects of similar type and size. In addition, the proposed Project would comply with standard best management practices (BMPs) such as equipment idling restrictions and maintaining equipment according to manufacturers' specifications. As such, construction of the proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy.

The proposed Project includes a minor expansion of existing operations but would not increase NuStar's storage capacity at the terminal or result in the storage of any products not currently allowed under its existing lease. Operations within the facility itself would be largely unchanged, and changes to the facility's energy demands would be negligible. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. NuStar would employ standard BMPs during construction, and facility operations would occur in compliance with federal, state, and local regulations pertaining to emissions and efficiency. These measures would ensure that consumption of fossil fuels associated occur in compliance with existing plans and regulations.

Continued implementation of the Port's *Renewable Portfolio Standard Procurement Plan* (Port 2016) would ensure that the proposed Project does not conflict with state regulations pertaining to renewable energy. As noted, the Port currently operates in compliance with 2020 standards and plans will be developed to ensure compliance with 2030 standards. The Port will continue to offer its tenants financial incentives for the installation of high-efficiency equipment or systems consistent with local policies for energy efficiency. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.7 Geology/Soils

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

The project area is located within a seismically active region where adverse effects from seismic activity or site-specific vulnerability to seismic-related hazards may pose a risk of loss, injury, or death. Therefore, the DEIR will evaluate the potential for the proposed Project to cause substantial adverse effects associated with rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and landslides. The potential for impacts associated with geology and soils will be fully analyzed in the DEIR.

1.2.8 Greenhouse Gas Emissions

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

Greenhouse gas (GHG) emissions would be released from combustion sources associated with the proposed Project during both construction and operation. Therefore, the DEIR will fully evaluate the potential for the proposed Project to generate GHG emissions that could have a significant impact on the environment. The DEIR will also analyze compliance with applicable state, regional, and local GHG reduction plans.

1.2.9 Hazards and Hazardous Materials

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☒	☐	☐	☐
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?	☒	☐	☐	☐
f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☐
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☒	☐	☐	☐

Because the proposed Project would receive, store, and distribute renewable diesel arriving by vessel, there is potential for hazards and hazardous materials-related impacts on the environment. Therefore, the DEIR will evaluate whether the proposed Project would create a significant hazard to the public or environment through the routine transport of hazardous materials. The potential for impacts associated with hazards and hazardous materials will be fully analyzed in the DEIR.

1.2.10 Hydrology/Water Quality

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

1.2.10.1 Affected Environment

Surface and Stormwater. The truck loading and parking area of the Stockton terminal is surfaced in non-permeable surfaces such as concrete and asphalt. Other non-permeable surfaces throughout the site include tanks and support buildings. The remainder of the site is surfaced in low- to moderately permeable compacted dirt or compacted dirt with gravel. Stormwater is conveyed and collected via a system of on-site storm drains and ponds (Photograph 2). Several facility tanks also contain secondary containment dikes sized to contain spills and accommodate stormwater from a 25-year 24-hour rainfall event (Photograph 3). Secondary containment is sufficiently impervious to contain product long enough to prevent a spill from entering navigable waters (Technical Response Planning 2018).

Photograph 2
NuStar facility storm drain and pond system

Photograph 3
Tanks and containment berm at the NuStar facility

Discharge of clean stormwater from the NuStar facility to the Port's stormwater system formerly occurred under a general permit requiring stormwater testing (Technical Response Planning 2018). After several years of testing clean, the NuStar facility is no longer required to perform stormwater testing, and controls prior to discharge are limited to visual inspection for sheens or other signs of contamination. Stormwater from the on-site ponds is discharged and ultimately conveyed to the Port's stormwater retention basin west of Navy Drive (NuStar 2019). During years when the retention basin reaches a high level, stormwater is pumped to the San Joaquin River (Stockton Port District 2006). If stormwater collected at the NuStar facility has visible contamination, contaminated water is removed by a certified waste hauler (Technical Response Planning 2018).

The existing Dock 10/11 is a marginal wharf surfaced in impermeable concrete. In the vicinity of the vessel berthing location, a southeast extending storm drainpipe conveys some stormwater collected

from the dock. Stormwater from the pipe is ultimately conveyed via a system of pipes, trenches, and channels to the Port's stormwater retention basin west of Navy Drive.

The new pipeline would be installed beneath a developed area within the Port that includes both areas with limited permeability (compacted dirt, asphalt, and concrete surfaces) and disturbed areas with permeable earthen or vegetated surfaces (largely ruderal grasses and shrubs). Drainage in the vicinity of the proposed pipeline alignment is provided by the existing Port stormwater system, which includes a series of grated inlets, pipes, ditches, and other conveyance features that ultimately convey stormwater to a stormwater retention basin across Navy Drive from the Stockton facility.

Flood Hazards. San Joaquin County maintains Flood Insurance Rate Maps (FIRMs) as required by the Federal Emergency Management Agency (FEMA). These FIRMs indicate the potential of flooding for various locations. The Project area is located in a Zone X Other Flood Area, which indicates an area with 0.2% annual chance of flood or an area with 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from a 1% annual chance flood (FEMA 2009).

Upstream dam failures could cause flooding in the project area, which is within the dam inundation zone of the New Malones, San Luis, Lake McClure, Camanche, and New Hogan dams (SJCOES 2003). The estimated time of arrival of floodwaters from a dam failure at Camanche Dam, the closest dam to Stockton, would be over 7 hours after the dam failure event (City 2018a). SB 92 (2017) requires emergency action plans for all dams, except those classified as "low hazard."

The project area is protected by a levee system along the San Joaquin River and Burns Cutoff. Levee failure has a relatively small probability of occurrence. The Port is responsible for the levee system and has established an annual levee monitoring and inspection program intended to determine whether reinforcement of the structural integrity of the perimeter levee is required (Stockton Port District 2012). According to FEMA review, levees in the project area and throughout most of the City provide 100-year flood protection; however, no levees meet the state's 200-year flood protection requirement in the *Central Valley Flood Protection Plan* (City 2018a). General Action SAF-2.2.B directs the City to formulate, review, periodically update, and make available to the public emergency management plans for the safe evacuation of people from areas subject to inundation from levee and dam failure. There is no tsunami inundation hazard in Stockton, although the Stockton Deep Water Ship Channel and canals lined by levees may be susceptible to seiches (City 2018a).

Groundwater. The project area occurs within the San Joaquin Valley Groundwater Basin, which is a subsection of the greater Central Valley basin. Groundwater in the area is recharged by local precipitation and through percolation from the surrounding surface waters. Groundwater overdraft

conditions have existed in the San Joaquin County Basin since the 1920s, although elevations have recovered and stayed relatively constant since 1999 (Stockton Port District 2012).

1.2.10.2 Impact Evaluation

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

No Impact. Very limited excavation or surface improvement would be required to construct improvements at the NuStar terminal and at Dock 10/11, and these activities would occur in existing developed or disturbed areas. Pipeline installation would require some trenching and directional drilling, which would disturb soils in both developed and already disturbed areas of the Port. The proposed Project would adhere to the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit to avoid significant water quality impacts during construction.

Tanks 8801, 30006, and 33007 would be pumped down, decommissioned, and isolated for cleaning. Any remaining product in the tanks would be removed using a vacuum truck or other pumping means and offloaded into another NuStar tank. Tank interiors would be washed down and rinse water would be transported and disposed of at an approved disposal facility.

In terms of operations, the NuStar facility would continue to operate with active and passive spill control measures, including secondary containment and regular system inspections. NuStar maintains and implements a Spill Prevention Control and Countermeasure (SPCC) Plan for the facility that details design measures, inspections, maintenance, and spill containment and response measures (Technical Response Planning 2018). These spill control measures would remain in place under proposed Project operating conditions.

Proposed improvements at Dock 10/11 would reduce the potential for water quality impacts during proposed Project operations. MOTEMS improvements are designed protect public health, safety and the environment, and govern the upgrade and design of terminals to ensure better resistance to earthquakes and reduce the potential of oil spills. Stormwater from Dock 10/11 would continue to be conveyed to the larger Port drainage system via the existing storm drainpipe. The proposed transfer manifold would convey water to a nearby vaulted oil-water separator in order to prevent water quality impacts prior to discharge to the larger Port drainage system. The 12-inch pipeline would be tested hydrostatically. All NuStar underground piping is equipped with a protective coating and included in the impressed current cathodic protection system (Technical Response Planning 2018).

Based on the analyses presented above, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. Installation of new infrastructure improvements is anticipated to have no appreciable effect on groundwater recharge. Dock 10/11 is entirely surfaced in impermeable concrete surfaces and proposed improvements would not affect these conditions. Proposed improvements at the NuStar facility, including pumps, piping, and rack improvements, would be constructed on impermeable concrete or asphalt surfaces, or on low-permeability compacted dirt surfaces. Any increase in impermeable surfaces would be minor because of the small footprint of these improvements, and stormwater would continue to be conveyed to the existing facility pond system or to the stormwater retention basin west of Navy Drive where groundwater recharge would continue to occur. The proposed pipeline would be buried throughout its alignment and would not affect groundwater recharge. Therefore, the proposed Project would have no impact on groundwater supplies, and this issue will not be addressed further in the DEIR.

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

No Impact. The proposed improvements at the NuStar facility and Dock 10/11 would not affect drainage patterns or systems in these areas. The proposed pipeline would be buried and would not result in any drainage changes.

At the NuStar facility, stormwater would continue to be conveyed to the existing stormwater ponds for discharge to the larger Port stormwater system as needed. Existing containment berms would remain in place and would be unaffected by the project. Any increase in impervious surfaces from installation of new pipes, piping, and rack improvements would be negligible and would not result in stormwater runoff that would exceed the capacity of existing systems. The proposed Project would adhere to the requirements of the NPDES Construction Stormwater General Permit to avoid significant water quality impacts during construction, including but not limited to impacts from erosion. Pipeline testing during installation would occur at a location determined with the Port where water would infiltrate into the ground or evaporate in a manner that would not cause erosion.

At Dock 10/11, proposed improvements would be constructed on existing impervious surfaces and there would be no effect on surface runoff. Runoff in this area would continue to be conveyed to the

larger Port drainage system via the southeast extending storm drainpipe, with minor alterations including installation of an oil-water separator and an underground transfer manifold which would improve stormwater conveyance and treatment. Any alterations to the existing drainage infrastructure and patterns on site would be designed in compliance with the 2009 *Port of Stockton Storm Water Development Standards Plan* (Port 2009).

Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. The project area is within the dam inundation zone for several dams, and levee systems protect the project site from inundation. There is a low probability for failure of existing dams and levees, and existing inspection and response plans are in place to address these hazards. The proposed Project would not exacerbate risks related to flood hazards, and MOTEMS improvements would minimize the potential for release of pollutants under the proposed Project. The facility would continue to maintain and implement its SPCC plan. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. As previously described, the proposed Project would not result in any water quality or groundwater impacts. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.11 Land Use/Planning

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

1.2.11.1 Affected Environment

The City's 2040 General Plan designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General (City of Stockton 2018). There is no housing within or adjacent to the project site.

1.2.11.2 Impact Evaluation

A: Would the project physically divide an established community?

No Impact. The project site is zoned for industrial uses and does not include any residences, hospitals, schools, convalescent facilities, or other features that would constitute an established community. The proposed Project is an industrial use, which is consistent with the current zoning. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. Development and expanded operation of the project site as a bulk liquid terminal, storage, and transfer facility is consistent with its existing zoning and use. Accordingly, the proposed Project would be consistent with applicable land use plans and policies. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.12 Mineral Resources

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

1.2.12.1 Affected Environment

Important extractive resources in San Joaquin County include sand, gravel, natural gas, peat soil, placer gold, and silver. Extraction of these minerals is focused in the southwestern portion of San Joaquin County in the vicinity of the San Joaquin River (Stockton Port District 2013). The project area is classified as a Mineral Resource Zone-1 (MRZ-1; Smith and Clinkenbeard 2012), which indicates that no significant mineral deposits are present or it is judged that little likelihood exists for their presence. The project site does not contain any known mineral resources, including any rock, sand, or gravel resources.

1.2.12.2 Impact Evaluation

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

No Impact. Due to the proposed Project's location in an MRZ-1, continued development of the area would not limit access to any known mineral resources. As a result, the proposed Project would neither interfere with any existing extraction operations nor reduce the availability of any known mineral resources. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. The project area does not include a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.13 Noise

Would the project result in:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b.	Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c.	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐

Construction and operational activities for the proposed Project would require the use of numerous pieces of noise-generating equipment and equipment that could cause vibration. These activities would temporarily increase ambient noise levels and vibration levels on an intermittent basis. Therefore, the DEIR will fully evaluate the potential impacts from noise and vibration associated with the proposed Project.

1.2.14 Population/Housing

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

1.2.14.1 Affected Environment

The City's 2040 General Plan designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General (City 2018). There is no housing within the Project area.

The project site is near the Port's West Complex, and significant growth of the Port's West Complex is anticipated, as analyzed in the *Port of Stockton West Complex Development Plan Final Environmental Impact Report* (Port 2004). Growth at the Port's West Complex is expected to increase direct employment opportunities; however, this increase in employment is not expected to result in a significant need for additional housing in the area because of the large number of workers that already reside within and the relatively high rate of unemployment for the Stockton-Lodi Metropolitan Statistical Area (10.1% for 2017) compared to the state of California (7.7% for 2017) and the United States (6.6% for 2017; Port 2004; American Census Bureau 2017).

1.2.14.2 Impact Evaluation

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

No Impact. No new homes would be constructed as part of the proposed Project. The proposed Project would not induce population growth. Therefore, the proposed Project would have no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. There are no housing units in the project area. The closest residential areas are located 1,200 feet to the north of the Dock 10/11 portion of the project site or 4,000 feet east of the terminal. The proposed Project would have no effect on existing residential areas, and the site's zoning precludes the potential for future housing developments. Therefore, the proposed Project would have no impact, and this issue will not be addressed further in the DEIR.

1.2.15 Public Services

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

1.2.15.1 Affected Environment

Fire Protection. The City's Fire Department provides fire protection to the City and contiguous areas, including the project area. The department has 12 fire stations, and each fire station has one fire engine. The response time goal for the department is to provide service within 4 minutes of notification 90% of the time. Generally, service can be provided in this timeframe to areas within 1.5 miles of a fire station (Stockton Port District 2015). The fire stations that serve the project area are Fire Stations 2 and 6 at 110 West Sonora Street and 1501 Picardy Drive respectively. Fire Stations 2 and 6 are approximately 2 miles and 1.5 miles away from the project area, respectively.

Police Protection. The Port maintains an independent sworn police force to provide Port security. In addition, the City's Police Department provides police protection services throughout the City limits (56 square miles). The Port police force patrols on a 24-hour basis and is currently served by 13 staff. A minimum of three officers are on duty during a given 24-hour period, with one officer in charge of communications and two on patrol. The Port police currently have plans to increase their police force by three sworn officers. The Port patrol maintains mutual aid agreements with the City Police Department, the San Joaquin Sheriff's Department, and the California Highway Patrol in the event that backup services are needed. The current City Police Department officer to citizen ratio is about 1 to 693, with an emergency response time between 3 and 5 minutes depending on time of day, location, and the number of requests for services (Stockton Port District 2015).

Schools. The Stockton Unified School District includes seven trustee areas served by four high schools, six middle schools, 32 elementary schools, and several other miscellaneous schools. Several institutions of higher education are located within the Stockton area, including the University of the Pacific; California State University, Stanislaus's Stockton campus; San Joaquin Delta College;

Humphrey's College and School of Law; and an assortment of vocational training schools (Stockton Port District 2015). Washington Elementary School, which is closest to the project site, is located approximately 0.6 mile to the east.

Parks. The City's 2040 General Plan designates the project site for industrial use, and the zoning classification of the project site and surrounding parcels is Port or Industrial, General (City 2018a). The nearest parks to the Project area are Boggs Tract Park and Louis Park, located approximately 0.9 mile to the east and 0.7 mile to the northwest, respectively.

1.2.15.2 Impact Evaluation

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

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

1.2.16 Recreation

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

1.2.16.1 Affected Environment

The City operates and maintains a total of 66 parks that range in size from 2 to 64 acres (City 2019a). Recreational activities can also be found on the waterways in the region, which include the Sacramento-San Joaquin Delta; natural rivers and creeks; and manmade canals, channels, sloughs, and ditches. There are limited park resources within the immediate Project area, likely due to the industrial zoning. Nearby parks include Boggs Tract Park and Louis Park, located approximately 0.9 mile to the east and 0.7 miles to the northwest, respectively. In addition, the San Joaquin River to the north of the project area is used for recreational boating purposes (Stockton Port District 2013).

1.2.16.2 Impact Evaluation

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

No Impact. Neither construction nor operation of the proposed Project would increase the use of existing neighborhood and regional parks or other recreational facilities. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. The proposed Project does not include construction or expansion of any recreational facilities and would not result in increased demand or other effects to recreational facilities. Therefore, the proposed Project would result in no impact to recreation, and this issue will not be addressed further in the DEIR.

1.2.17 Transportation

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

The proposed Project would result in new vessel trips and increased truck trips as compared to baseline conditions. Therefore, the DEIR will fully evaluate the proposed Project's potential impacts on transportation resources.

1.2.18 Tribal Cultural Resources

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

The proposed Project includes ground disturbance up to 50 feet below the surface along the portions of the pipeline where directional drilling will occur (approximately 2,700 feet). Native sediments may contain intact archaeological resources that are also tribal cultural resources. Therefore, the DEIR will evaluate the proposed Project's potential impacts on tribal cultural resources.

1.2.19 Utilities/Service Systems

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

1.2.19.1 Affected Environment

Stormwater Drainage. The existing stormwater drainage system at the existing NuStar facility includes a system of on-site storm drains, ponds, and secondary containment systems. Clean stormwater is discharged to the Port's stormwater drainage system, and stormwater with visual signs of contamination is removed by a certified waste hauler. Stormwater from Dock 10/11 is conveyed via an existing storm drainpipe to the Port's stormwater drainage system, which ultimately conveys stormwater to the retention basin adjacent to Navy Drive. Drainage in the vicinity of the proposed pipeline alignment is provided by the existing Port stormwater system, which includes a series of grated inlets, pipes, ditches and other conveyance features that also convey stormwater to the retention basin.

Water Supply. Water service providers in the Stockton metropolitan area include the City of Stockton Municipal Utilities Department and the California Water Service Company (Cal Water; City 2018a). Approximately 25% of the City's water supply originates from groundwater wells, with

the remaining water supply from treated surface water supplied by the Stockton East Water District (City 2019b). The Delta Water Supply Project was recently completed to provide Stockton with a reliable water supply to meet both current and future water needs (City 2019b). Cal Water provides domestic water in the area. Non-potable water obtained directly from the San Joaquin River is used for most non-domestic Port development needs.

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

Solid Waste. Solid waste within the City (and Port) is transported and disposed of primarily in the privately owned Forward Landfill and San Joaquin County-owned Foothill Sanitary Landfill and North County Landfill and Recycling. The most recently reported landfill capacity and acceptable waste types for these facilities are listed in Table 1.

Table 1
Project Vicinity Landfills

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

Note:
Source: CalRecycle 2019.

Electrical and Gas Services. PG&E services the project area with overhead electrical distribution lines and underground gas transmission lines.

1.2.19.2 Impact Evaluation

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

No Impact. The proposed Project would require new connections and minor improvements to existing utility systems. At Dock 10/11, this includes water connections for the fire detection and suppression systems; drainage connections and improvements, including the proposed oil-water separator; and electrical connections to operate new equipment for transfer of renewable diesel. The NuStar facility would also require new connections to existing utilities for operation of new tanks, pumps, and the truck rack and loading arm improvements. Except for electrical service upgrades, none of these utility connections or minor improvements would require the construction or expansion of existing utility facilities. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. As previously described, new water connections may be required for operation of the Dock 10/11 and NuStar facility improvements. Proposed Project construction and operations are not anticipated to generate significant water demand. Therefore, the proposed Project would have no impact pertaining to water supply entitlements, and this issue will not be addressed further in the DEIR.

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

No Impact. As previously described, wastewater treatment changes would be limited to the proposed oil-water separator at Dock 10/11. Clean stormwater from the NuStar facility, Dock 10/11, and in the area of the proposed pipeline would continue to be conveyed to the existing Port retention basin adjacent to Navy Drive, where stormwater is tested before discharge into the San Joaquin River. The installation of new terminal piping, new pumps, and truck rack improvements on existing developed or disturbed areas at the NuStar facility would have little appreciable effect on runoff, and the existing Port retention basin has adequate capacity to accommodate this change. Stormwater from the NuStar facility with visible contamination will continue to be removed by a certified waste hauler, and the proposed operational changes are not anticipated to generate additional contamination as the facility will continue to operate under its existing SPCC plan. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

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

No Impact. The proposed Project would require excavation and disposal of existing surface materials for grading and surface preparation. The amount of solid waste generated by the operation of the proposed Project would be negligible and limited to nonhazardous waste generated by personnel on site and through facility maintenance. The landfills in the area have adequate capacity to meet the region's need and are authorized to accept waste materials that may be generated during construction of the proposed Project. Therefore, there would be no impact related to landfill capacities, and this issue will not be addressed further in the DEIR.

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

No Impact. The proposed Project would be constructed within the parameters of applicable federal, state, and local solid waste regulations. As described, area landfills are authorized to accept the types of waste potentially generated by proposed Project construction and operation. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.20 Wildfire

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

1.2.20.1 Affected Environment

According to the Fire Hazard Severity Zone Maps, the project area, as well as other communities within San Joaquin County, is not located within one of the zones that present a moderate to very high fire hazard severity risk, and therefore is generally considered to have lower wildfire risk (Cal Fire 2019).

The NuStar facility commonly handles flammable materials as part of their operations. As previously described, there are emergency response plans already in place and fire response services already adequately serving the facility.

1.2.20.2 Impact Evaluation

A: Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

B: Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels, and fuel moisture contents) and topography. For instance, steep slopes can contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult (Estes et al. 2017). Fuels such as grass are highly flammable (Estes et al. 2017). The project site is located in an area that is industrialized, generally flat, and contains very limited vegetation, which is not considered at a significant risk of wildfire. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

C: Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less than Significant Impact. The proposed Project involves upgrading NuStar's existing facility at the Port to enable receipt of renewable diesel arriving by vessel. While diesel is flammable, all diesel handling would occur according to regulations and according to facility specific operational plans. Finally, there are fire response services already adequately serving the facility. Therefore, the impact to fire risk by the installation or maintenance of associated infrastructure would be less than significant.

D: Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The proposed Project would not result in downstream flooding or landslides as a result of changes in runoff, post-fire slope instability, or drainage. Undiked areas are designed to flow into one of three retention ponds, or capable of being released off site by manually opening valves that are normally closed except when discharging or pumped from the stormwater retention ponds. Stormwater can be discharged from the site in accordance with the facility's *Stormwater Best Management Practices Plan* (Technical Response Planning 2018). Upon development of the site, stormwater would continue to flow into these ponds. Furthermore, because the site is essentially flat and located in an existing urbanized area of the City, downstream landslides would not occur nor expose people or structures to significant risks.

As described in Section 1.2.9, the proposed Project is located within a Zone X Other Flood Area, which indicates an area with 0.2% annual chance of flood or an area with 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas

protected by levees from a 1% annual chance flood (FEMA 2009). The project area is protected by a levee system along the San Joaquin River and Burns Cutoff. Levee failure has a relatively small probability of occurrence. The proposed Project would not alter these conditions. Therefore, there would be no impact, and this issue will not be addressed further in the DEIR.

1.2.21 Mandatory Findings of Significance

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

As described in preceding sections, the proposed Project could have the potential to result in potentially significant impacts on the environment. Therefore, the DEIR will evaluate whether the proposed Project has the potential to substantially degrade the quality of the environment, both at a project level and cumulatively. The proposed Project could result in adverse impacts on human beings through environmental impacts, either directly or indirectly. Therefore, the DEIR will evaluate whether the proposed Project would cause direct or indirect adverse effects on human beings and will include a full analysis of Mandatory Findings of Significance.

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Appendix E
Air Quality and Greenhouse Gas Report

Appendix E. Air Quality and Greenhouse Gas Emissions Methodology

A detailed description of the proposed Project is presented in the Draft Environmental Impact Report (DEIR). In summary, the proposed Project would connect an existing NuStar liquid bulk terminal to Dock 10/11 at the Port of Stockton (Port) in order to receive renewable diesel (RD) by vessel. The types of bulk petroleum products handled at the NuStar terminal include ethanol, gasoline, naphtha, diesel, RD, biofuels, and lubricants. NuStar currently receives products at its facility via rail and truck. Under the proposed Project, NuStar would add vessel delivery to increase RD transported to its terminal facility at the Port. The proposed Project would neither increase NuStar's storage capacity at the terminal nor result in the storage of any products not currently allowed under its existing lease at the Port.

This document describes the methodology and key assumptions used to calculate air quality and greenhouse gas (GHG) emissions for the proposed Project and the cumulative impacts analyses. Construction calculation tables for the proposed Project are presented in Appendix E1. Operation calculation tables for the proposed Project are presented in Appendix E2. Construction and operation calculation tables for the cumulatively relevant projects (i.e., Eco-Energy Liquid Bulk Receiving Terminal Project, NuStar Ethanol Infrastructure Upgrades Project, and NuStar Domestic Renewable Diesel Project), assessed as part of the cumulative analysis, are presented in Appendix E3. Cancer risk for the proposed Project and the cumulatively relevant projects is also presented in Appendix E3. CalEEMod output is presented in Appendix E4. The methodologies used for emissions calculations associated with construction, operation, and health risk are presented below.

Project Assessment

Construction Emissions

Construction emissions would result from diesel-fueled construction equipment, on-road trucks, and worker vehicles, all of which emit criteria pollutants and GHGs. Construction emissions for the proposed Project, were calculated using CalEEMod software, version 2016.3.2, which is approved by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for construction projects (CAPCOA 2016). The construction schedule and equipment utilization, which form the basis for the emission calculations, are summarized in Appendix E4 as part of the CalEEMod output.

Operational Emissions

Operation emissions associated with the proposed Project would result from ocean-going vessels (OGVs), tugboats used to assist OGVs, truck transport, rail transport, and worker vehicles. Because activity associated with rail transport and worker vehicles would not change because of the proposed Project, emissions associated with these sources were not quantified. In addition, it was determined that evaporative emissions associated with RD would be negligible due to RD's low vapor pressure.

Low vapor pressure indicates a low potential for the material to form a vapor and results in a low vapor concentration. Vapor pressure of RD is approximately 0.087 kilopascal (kPa) at room temperature, which is much lower than conventional diesel or gasoline. For comparison, conventional diesel fuel has a vapor

pressure of approximately 0.27 kPa and gasoline has a vapor pressure of 29 to 100 kPa (Neste 2018; Citgo 2018a, 2018b). Furthermore, the U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (ARB) agree that evaporative losses from conventional diesel are negligible due to the low volatility of diesel fuel (USEPA 1996; USEPA 2014; ARB 2019). In addition, SJVAPCD, in its *Compliance Assistance Bulletin*, states that "Tanks used to store diesel are exempt from Enhanced Vapor Recovery" due to low volatility of diesel fuels (SJVAPCD 2013). Because the vapor pressure of RD is lower than that of conventional diesel, expected evaporation would also be lower. Therefore, based on the above, RD is not expected to result in appreciable emissions from evaporative emissions; therefore, fugitive emissions due to handling or storage of RD were not quantified.

All operational emissions were quantified within SJVAPCD and adjoining air basins, under Bay Area Air Quality Management District (BAAQMD) and Sacramento Metropolitan Air Quality Management District (SMAQMD) jurisdiction. The following discusses the calculation methodology for each operational emission source.

Ocean Going Vessels

The proposed Project would result in 12 new annual ship calls in 2021. OGV activity, anticipated hoteling time, rated vessel speed, engine rating, and engine model year for the anticipated Panamax size vessels were provided by NuStar (Appendix E2). Vessel speed and transit distances associated with each OGV transit zone (i.e., the harbor, the San Joaquin River, the San Francisco Bay, and the ocean) are also presented in Appendix E2. Engine transit, maneuvering, and hoteling loads at berth were obtained from similar vessels in California ports (Appendix E2; POLB 2017). Emission factors for OGV propulsion engines, auxiliary engines, and auxiliary boilers were obtained from emission inventories at other ports for similar vessels (POLB 2014).

OGV emissions at berth and in each transit zone were quantified by multiplying OGV activity, the engine energy demand, and the emission factor. Criteria pollutant emissions were quantified for OGV activity at berth, in the harbor, in the San Joaquin River, and in the San Francisco Bay. GHG emissions were quantified for OGV activity at the berth and during transit to the California state boundary, calculated to be 340 nautical miles from the San Francisco Bay.

Tugboats

Two tugboats would assist each OGV during maneuvering in the harbor and during river transit from Rough and Ready Island to the berth. Tugboat calculations reflect typical tugboats operating at the Port. Information regarding tugboat engines and model years was obtained from past Port environmental impact reports and from tugboat details for Brusco tugboats operating at the Port. Appendix E2 presents tugboat engine characteristics, activity, and energy demand used in the calculations. Tugboat emission factors reflect USEPA standards and are based on the tugboat engine model year and tier as identified in Appendix E2. Tugboat engine load factors were obtained from ARB (ARB 2011). Tugboat emissions were

quantified by multiplying the emission factors by the tugboat engine energy demand, which is based on activity, engine characteristics, and engine load factors.

On-Road Trucks

The proposed Project would result in an increase of 4,238 annual truck loads in 2021. Truck activity and transit distances for both the proposed Project were provided by NuStar and are presented in Appendix E2. Truck on-site idling time was assumed to be 20 minutes per truck call. Emission factors for on-road trucks were obtained from ARB's EMFAC 2017 database. Emissions were calculated by multiplying truck activity by the emission factors.

Terminal Workers

The proposed Project would not change the existing number of workers.

Fugitive Emissions

The proposed Project would not result in fugitive emissions, as discussed in the beginning of this methodology discussion.

Health Risk

The Office of Environmental Health Hazard Assessment (OEHHA) recommends that in instances of unusual situations, such as when a nearby receptor is located above the emission release point (e.g., on a hillside or in a multistory apartment building), an analysis of acute impacts may be warranted (OEHHA 2015). In accordance with OEHHA guidelines, no unusual situations were identified for the proposed Project or the cumulatively relevant projects that would warrant an acute health hazard analysis. Therefore, impacts with respect to the acute hazard index were not quantified.

Cumulative Assessment

As discussed in the DEIR, three of the projects analyzed in the cumulative analysis are of specific interest to SJVAPCD in terms of considering cumulative impacts: Eco-Energy Liquid Bulk Receiving Terminal Project; NuStar Ethanol Infrastructure Upgrades Project; and NuStar Domestic Renewable Diesel Project. The NuStar Ethanol Infrastructure Upgrades Project and NuStar Domestic Renewable Diesel Project both include construction at the NuStar terminal, which may overlap with the Proposed Project in terms of timing. The Eco-Energy Liquid Bulk Receiving Terminal Project and NuStar Domestic Renewable Diesel Project include changes to truck and rail movements at the NuStar terminal. While, as discussed in the DEIR, these projects are each independent projects with separate utility, the proximity of the projects and the overlap in construction timing resulted in a request from SJVAPCD in their capacity as a responsible agency for the Port to quantify the combined cumulative emissions of these three projects and the proposed Project. The following discussion presents the assumptions used in the quantitative cumulative analysis.

Construction Emissions

Construction emissions would result from diesel-fueled construction equipment, on-road trucks, and worker vehicles, all of which emit criteria pollutants and GHGs. Construction emissions for the NuStar

Ethanol Infrastructure Upgrades Project and NuStar Domestic Renewable Diesel Project were calculated using CalEEMod software, version 2016.3.2, which is approved by SJVAPCD for construction projects (CAPCOA 2016). The construction schedule and equipment utilization, which form the basis for the emission calculations, are summarized in Appendix E4 as part of the CalEEMod output. Construction emissions associated with Eco-Energy Liquid Bulk Receiving Terminal Project were obtained from the Eco-Energy EIR (Eco-Energy 2017).

Operational Emissions

For the cumulatively relevant Eco-Energy Liquid Bulk Receiving Terminal Project, emissions would result from on-road trucks, rail transport, worker vehicles, and product offloading. For the cumulatively relevant NuStar Ethanol Infrastructure Upgrades Project, emissions would result from fugitive losses associated with ethanol storage tanks, components (i.e., pumps, valves, fittings), and truck hose connection/disconnection. For the cumulatively relevant NuStar Domestic Renewable Diesel Project, emissions would result from on-road trucks and rail transport. All operational emissions were quantified within the SJVAPCD and within adjoining air basins, under BAAQMD and SMAQMD jurisdiction. The following discusses the calculation methodology for each operational emission source.

On-Road Trucks

The Eco-Energy Liquid Bulk Receiving Terminal Project would result in an increase of 13,260 annual truck loads; emissions were obtained from the Eco-Energy EIR (Eco-Energy 2017).[1] The NuStar Ethanol Infrastructure Upgrades Project would not result in new truck trips.[2] The NuStar Domestic Renewable Diesel Project would result in an increase of 8,250 annual truck loads. Truck activity and transit distances for the NuStar Domestic Renewable Diesel Project were provided by NuStar and are presented in Appendix E3. Truck on-site idling time was assumed to be 20 minutes per truck call. Emission factors for on-road trucks were obtained from ARB's EMFAC 2017 database. Emissions were calculated by multiplying truck activity by the emission factors.

Rail

The Eco-Energy Liquid Bulk Receiving Terminal Project would result in a decrease of rail trips. The NuStar Domestic Renewable Diesel Project would result in an increase of 2,475 annual rail cars. Rail activity would include operation of line-haul and switcher trains. Line-haul trains typically provide interstate freight transportation for containers, liquid material, or bulk material. Switcher trains are typically used to assemble/disassemble line-haul trains and provide short transport to near-dock rail yards.

Line-haul locomotive emissions were calculated based on locomotive fuel use and locomotive emission factors. Fuel use was determined based on the number and weight of filled rail cars needed to transport RD, the number and weight of locomotives needed to transport the required rail cars, rail transit distance, and a fuel consumption factor reported by ARB for line-haul locomotives (ARB 2016). Line-haul locomotive

[1] Eco-Energy increase: 32,500 annual truck loads anticipated for the Eco-Energy project minus the 19,240 annual truck loads, the Eco-Energy baseline.

[2] The NuStar Ethanol Infrastructure Upgrades Project would not result in operational truck trips, only in construction activities. All truck operational trips were accounted for as part of the Eco-Energy Liquid Bulk Receiving Terminal Project.

emission factors for each engine tier were obtained by calculating an average of the USEPA line-haul emission factors (ARB 2017a) weighted by ARB's line-haul engine tier distribution for analysis year 2020 (ARB 2017b).

Switcher locomotive emissions were calculated based on locomotive fuel use and locomotive emission factors. Fuel use was calculated based on the number of switcher locomotives required for a switch, an average number of switching events, and average switching time based on past Port documents and confirmed by NuStar (ERM 2019). Switcher locomotive emission factors reflect USEPA short-haul distance locomotive emission factors for each engine tier (ARB 2017c), weighted by the switcher engine distribution of the Central California Traction Company (CCT), the switcher operator at the Port (CCT 2018).

Worker Vehicles

The Eco-Energy Liquid Bulk Receiving Terminal Project would require four additional workers; worker emissions were quantified in the Eco-Energy EIR. The NuStar Ethanol Infrastructure Upgrades Project and NuStar Domestic Renewable Diesel Project would not change the number of workers.

Fugitive Emissions

Fugitive emissions associated with the Eco-Energy Liquid Bulk Receiving Terminal Project would result from product offloading and were quantified in the Eco-Energy EIR. The NuStar Domestic Renewable Diesel Project would not result in fugitive emissions.

The NuStar Ethanol Infrastructure Upgrades Project would result in fugitive organic emissions associated with storage tanks, component losses and truck connect/disconnect losses. Storage tank emissions were obtained from NuStar's tank permits and new permit applications to the SJVAPCD (NuStar 2018). Because gasoline storage would result in greater emissions than ethanol storage and because NuStar wished to retain the flexibility of using tanks for gasoline, all tanks, per SJVAPCD, were conservatively modeled as gasoline tanks.

Fugitive emissions from losses associated with pumps, valves, and flanges (i.e., components) were quantified based on component counts, provided by NuStar, and USEPA emission factors for equipment leak emission quantification (USEPA 1995). Fugitive emissions from truck hose connect and disconnect events were quantified based on the annual number of truck trips, number of connect/disconnect events per truck, and SJVAPCD emission factors (NuStar 2018; ERM 2019a).

Health Risk

Health impacts were assessed for the proposed Project and for cumulatively relevant projects (Eco-Energy Liquid Bulk Receiving Terminal Project; NuStar Ethanol Infrastructure Upgrades Project; and NuStar Domestic Renewable Diesel Project). For the proposed Project and NuStar Domestic Renewable Diesel Project, cancer risk and chronic non-cancer impacts associated with both construction and operation were evaluated. For the NuStar Ethanol Infrastructure Upgrades Project, cancer risk and chronic non-cancer impacts associated with construction activities were evaluated; because ethanol is not considered a toxic air contaminant, impacts associated with operation of the NuStar Ethanol Infrastructure Upgrades Project

would not have quantifiable health impacts. Health impacts associated with the Eco-Energy Liquid Bulk Receiving Terminal Project were obtained from the Eco-Energy EIR (Eco-Energy 2017).

Cancer risks for the maximum exposed residential receptor, the maximum exposed off-site worker receptor, and chronic non-cancer impacts for the proposed Project and cumulatively relevant NuStar Ethanol Infrastructure Upgrades Project and NuStar Domestic Renewable Diesel Project were evaluated by scaling the impacts from a former project at the Port, with similar source and receptor configurations (Port 2019b), by the diesel particulate matter emissions for the proposed Project, NuStar Ethanol Infrastructure Upgrades Project, and NuStar Domestic Renewable Diesel Project, respectively. Calculation tables and assumptions are identified in Appendix E3.

OEHHA recommends that, in instances of unusual situations, such as when a nearby receptor is located above the emission release point (e.g., on a hillside or in a multistory apartment building), an analysis of acute impacts may be warranted (OEHHA 2015). In accordance with OEHHA guidelines, no unusual situations were identified for the proposed Project or the cumulatively relevant projects that would warrant an acute health hazard analysis. Therefore, impacts with respect to the acute hazard index were not quantified.

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Appendix E. Air Quality
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Appendix E4. CalEEMod Output

Table E1.1

Proposed Project - Annual Construction Emissions Without Mitigation

	PM10	PM2.5	NOX	SOX	CO	VOC
	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)
2020 Construction	0.2	0.1	2.1	0.0	1.8	0.3
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E1.2

Proposed Project - Average Day Onsite Construction Emissions Without Mitigation

	PM10	PM2.5	NOX	SOX	CO	VOC
	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)
2020 Construction	1.2	1.1	23.1	0.0	18.0	2.4
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						
Number of Construction Days:						

Year	Days
2020	175

Table E1.3

Proposed Project - Annual GHG Emissions Without Mitigation

	CO2	CH4	N2O	CO2e
Source Category	(mty)	(mty)	(mty)	(mty)
Construction				
Construction Equipment 2020	337	0	0	338
Amortized Annual Construction	11	0	0	11
Notes:				
Emissions might not add precisely due to rounding.				
Construction emissions were amortized over 30 years.				
Total annual GHG emissions are the sum of amortized construction and annual operational emissions.				

Table E2.1

Proposed Project - Annual Operational Emissions (ton/yr)

Source Category	PM10	PM2.5	NOX	SOX	CO	VOC
2021 Project						
Trucks	0.04	0.02	2.13	0.01	0.43	0.10
Ships at Berth	0.20	0.19	4.25	0.75	0.43	0.20
Ships Transit	0.05	0.05	2.26	0.08	0.30	0.19
Tugboats	0.06	0.05	1.16	0.00	0.65	0.06
Employee Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
2021 Project Total	0.36	0.31	9.79	0.84	1.81	0.55
CEQA Impacts						
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No

Notes:
Emissions might not add precisely due to rounding.

Table E2.2

Proposed Project - Average Daily Operational Emissions, On-Site (lb/day)

Source Category	PM10	PM2.5	NOX	SOX	CO	VOC
2021 Project						
Trucks	0.00	0.00	0.80	0.00	0.70	0.13
Ships at Berth	1.11	1.03	23.28	4.13	2.38	1.08
Tugboats at Berth	0.04	0.03	0.75	0.00	0.43	0.04
2021 Project Total	1.16	1.07	24.83	4.13	3.51	1.25
CEQA Impacts						
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No

Notes:
Emissions might not add precisely due to rounding.
Truck emissions include truck transit on-site and truck idling on-site.

Table E2.3

Proposed Project - Annual GHG Emissions (mty)

Source Category	CO2	CH4	N2O	CO2e
2020 Construction	337	0	0	338
Amortized Annual Construction	11	0	0	11
2021 Project Operation				
Trucks	1,052	0	0	1,103
Ships at Berth	1,031	0	0	1,056
Ships Transit	3,753	0	0	3,812
Tugboats	76	0	0	78
Employee Vehicles	0	0	0	0
Total	5,924	0	0	6,059

Notes:
Emissions might not add precisely due to rounding.
Construction emissions were amortized over 30 years.
Total annual GHG emissions are the sum of amortized construction and annual operational emissions.

Table E2.4

Proposed Project - Annual Operational Emissions in BAAQMD (ton/yr)

Source Category	PM10	PM2.5	NOX	VOC
2021 Project				
Ship Transit	0	0	5	0
Truck Transit	0	0	1	0
CEQA Impacts				
BAAQMD Significance Threshold	15	10	10	10
Significant?	No	No	No	No
Notes:				
Emissions might not add precisely due to rounding.				
Truck transit split between BAAQMD and SMAPCD.				

Table E2.5

Proposed Project - Daily Operational Emissions in BAAQMD (lb/day)

Source Category	PM10	PM2.5	NOX	VOC
2021 Project				
Ship Transit	0.7	0.6	29.1	2.5
Truck Transit	0.1	0.1	5.2	0.0
CEQA Impacts				
BAAQMD Significance Threshold	82	54	54	54
Significant?	No	No	No	No
Notes:				
Emissions might not add precisely due to rounding.				
Truck transit split between BAAQMD and SMAPCD.				

Table E2.6

Proposed Project - Annual Operational Emissions in SMAPCD (ton/yr)

Source Category	PM10	PM2.5
2021 Project		
Ship Transit	0.00	0.00
Truck Transit	0.02	0.01
CEQA Impacts		
SMAPCD Significance Threshold	14.6	15
Significant?	No	No
Notes:		
Emissions might not add precisely due to rounding.		
Truck transit split between BAAQMD and SMAPCD.		
No ship transit in SMAPCD.		

Table E2.7

Proposed Project - Daily Operational Emissions in SMAPCD (lb/day)

Source Category	PM10	PM2.5	NOX	VOC
2021 Project				
Ship Transit	0.00	0.00	0.00	0.00
Truck Transit	0.11	0.05	5.16	0.01
CEQA Impacts				
SMAPCD Significance Threshold	80	82	65	65
Significant?	No	No	No	No
Notes:				
Emissions might not add precisely due to rounding.				
Truck transit split between BAAQMD and SMAPCD.				
No ship transit in SMAPCD.				

Table E2.8
Proposed Project - Throughput

	Total Volume (bbl/yr) [1]	Product	Annual Trucks	Annual Ship Calls
Increment 2021	784,000	Renewable diesel	4,238	12

Source: Confirmed by Chad Edinger (NuStar) in e-mail to Katie Chamberlin on 5/14/19.

Table E2.9
Proposed Project - Vessel Activity

		Vessel Characteristics			Activity				Average Auxiliary Loads (kW)		
Vessel Type	Engine/Source Type	Engine Rating (kW)	Model Year	Max Rated Speed (knots)	Berth Time (hr/call)	Annual Calls	Annual Transits (1-way)	Fuel Sulfur	Berth	Maneuvering	Transit
Tanker - Panamax	Propulsion	11000	2011	14.5	24	12	24	0.001			
Tanker - Panamax	Auxiliary Engine				24	12	24	0.001	623	763	561
Tanker - Panamax	Auxiliary Boiler				24	12	24	0.001	3421	351	167

Source:
Vessel and engine characteristics provided by NuStar: E-mail From: Culp, Sheary <Sheary.Culp@nustarenergy.com>. Sent: Monday, April 22, 2019 10:34 PM.To: Katie Chamberlin <kchamberlin@anchorqea.com>; Lena DeSantis <lmdesantis@anchorqea.com>.
Engine rating provided by NuStar: Dock 10-11 OGV and Tug Emissions_ERM 051519.xlsx
Activity provided by Anchor: E-mail From: Lena DeSantis <lmdesantis@anchorqea.com>. Sent: Thursday, May 23, 2019 9:52 AM.To: Lora Granovsky.

Berth time provided by NuStar in e-mail: From: Edinger, Chad <Chad.Edinger@nustarenergy.com>. Sent: Thursday, March 14, 2019 1:12 PM. To: Katie Chamberlin <kchamberlin@anchorqea.com>; Lena DeSantis <lmdesantis@anchorqea.com>. Subject: Stockton Dock 10/11 Inputs; and in Dock 10-11 OGV and Tug Emissions_ERM 051519.xlsx.
Future years: Assumed no change to fleet mix, per NuStar.

Table E2.10
Proposed Project - OGV Average Aux Engine & Aux Boiler Loads

		Average Loads (kW)		
Vessel Type	Engine Type	Transit	Maneuvering	Berth
Tanker - Panamax	Auxiliary Engine	561	763	623
Tanker - Panamax	Auxiliary Boiler	167	351	3421

Source:
POLB 2017 Emissions Inventory, Tables 3.5 and 3.8.
http://www.polb.com/civica/filebank/blobdload.asp?BlobID=14652

Table E2.11
Proposed Project - OGV Maximum Rated Vessel Speed

Category	Speed (knots)
Tanker - Panamax	14.5

Source:
Vessel maximum rated speed provided by NuStar: E-mail From: Culp, Sheary <Sheary.Culp@nustarenergy.com>. Sent: Monday, April 22, 2019 10:34 PM.To: Katie Chamberlin <kchamberlin@anchorqea.com>; Lena DeSantis <lmdesantis@anchorqea.com>.

Table E2.12
OGV Propulsion/Boiler Engine Emission Factors for 0.1% S MGO Fuel (g/kW-hr)

Engine	IMO Tier		Model Year	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Slow Speed Diesel	Tier 0		≤1999	0.26	0.24	0.26	17	0.39	1.4	0.6	0.6318	589	0.012	0.029
Medium Speed Diesel	Tier 0		≤1999	0.26	0.24	0.26	13.2	0.43	1.1	0.5	0.5265	649	0.01	0.029
Slow Speed Diesel	Tier I		2000-2010	0.26	0.24	0.26	16	0.39	1.4	0.6	0.6318	589	0.012	0.029
Medium Speed Diesel	Tier I		2000-2010	0.26	0.24	0.26	12.2	0.43	1.1	0.5	0.5265	649	0.01	0.029
Slow Speed Diesel	Tier II		2011-2015	0.26	0.24	0.26	14.4	0.39	1.4	0.6	0.6318	589	0.012	0.029
Medium Speed Diesel	Tier II		2011-2015	0.26	0.24	0.26	10.5	0.43	1.1	0.5	0.5265	649	0.01	0.029
Slow Speed Diesel	Tier III		≥2016	0.26	0.24	0.26	3.4	0.39	1.4	0.6	0.6318	589	0.012	0.029
Medium Speed Diesel	Tier III		≥2016	0.26	0.24	0.26	2.6	0.43	1.1	0.5	0.5265	649	0.01	0.029
Gas Turbine	na		all	0.01	0.01	0	5.7	0.61	0.2	0.1	0.1053	922	0.002	0.075
Steam Ship	na		all	0.14	0.13	0	2	0.61	0.2	0.1	0.1053	922	0.002	0.075

Notes:
Slow speed diesel: engine speed < 150 rpm; assumed as default for propulsion engines
Tier 0 used for propulsion engines based on Mississippi Voyager model year 1998. Information provided by Contanda.
Medium speed diesel: engine speed > 150 rpm (500 rpm typical).
Source:
POLB 2014 Emissions Inventory, Table 2.13.

Table E2.13
OGV Auxiliary Engine Emission Factors for 0.1% MGO Fuel (g/kW-hr)

Engine	IMO Tier	Model Year		PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
High Speed Diesel	Tier 0	≤1999		0.26	0.24	0.26	10.9	0.46	0.9	0.4	0.4212	656	0.008	0.029
Medium Speed Diesel	Tier 0	≤1999		0.26	0.24	0.26	13.8	0.46	1.1	0.4	0.4212	686	0.008	0.029
High Speed Diesel	Tier I	2000-2010		0.26	0.24	0.26	9.8	0.46	0.9	0.4	0.4212	656	0.008	0.029
Medium Speed Diesel	Tier I	2000-2010		0.26	0.24	0.26	12.2	0.46	1.1	0.4	0.4212	686	0.008	0.029
High Speed Diesel	Tier II	2011-2015		0.26	0.24	0.26	7.7	0.46	0.9	0.4	0.4212	656	0.008	0.029
Medium Speed Diesel	Tier II	2011-2015		0.26	0.24	0.26	10.5	0.46	1.1	0.4	0.4212	686	0.008	0.029
High Speed Diesel	Tier III	≥2016		0.26	0.24	0.26	2	0.46	0.9	0.4	0.4212	656	0.008	0.029
Medium Speed Diesel	Tier III	≥2016		0.26	0.24	0.26	2.6	0.46	1.1	0.4	0.4212	686	0.008	0.029

Notes:
Calculations assume that auxiliary and propulsion engines are the same model year.
Source:
POLB 2014 Emissions Inventory, Table 2.14.

Table E2.14
Average Load Propulsion Engine - Propeller Law

LF = (AS/MS)3
Where:
LF = load factor, percent
AS = actual speed, knots
MS = maximum speed, knots

Table E2.15
OGV Low Load Adjustment Factors - Propulsion Engines

	Load	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
docking load	0.02	7.29	7.29	7.29	4.63	3.3	9.68	21.18	21.18	3.28	21.18	4.63
transit load	0.03	4.33	4.33	4.33	2.92	2.45	6.46	11.68	11.68	2.44	11.68	2.92
transit load	0.04	3.09	3.09	3.09	2.21	2.02	4.86	7.71	7.71	2.01	7.71	2.21
transit load	0.05	2.44	2.44	2.44	1.83	1.77	3.89	5.61	5.61	1.76	5.61	1.83
transit load	0.06	2.04	2.04	2.04	1.6	1.6	3.25	4.35	4.35	1.59	4.35	1.6
transit load	0.07	1.79	1.79	1.79	1.45	1.47	2.79	3.52	3.52	1.47	3.52	1.45
transit load	0.08	1.61	1.61	1.61	1.35	1.38	2.45	2.95	2.95	1.38	2.95	1.35
transit load	0.09	1.48	1.48	1.48	1.27	1.31	2.18	2.52	2.52	1.31	2.52	1.27
transit load	0.1	1.38	1.38	1.38	1.22	1.26	1.96	2.2	2.2	1.25	2.2	1.22
transit load	0.11	1.3	1.3	1.3	1.17	1.21	1.79	1.96	1.96	1.21	1.96	1.17
transit load	0.12	1.24	1.24	1.24	1.14	1.17	1.64	1.76	1.76	1.17	1.76	1.14
transit load	0.13	1.19	1.19	1.19	1.11	1.14	1.52	1.6	1.6	1.14	1.6	1.11
transit load	0.14	1.15	1.15	1.15	1.08	1.11	1.41	1.47	1.47	1.11	1.47	1.08
transit load	0.15	1.11	1.11	1.11	1.06	1.08	1.32	1.36	1.36	1.08	1.36	1.06
transit load	0.16	1.08	1.08	1.08	1.05	1.06	1.24	1.26	1.26	1.06	1.26	1.05
transit load	0.17	1.06	1.06	1.06	1.03	1.05	1.17	1.18	1.18	1.04	1.18	1.03
transit load	0.18	1.04	1.04	1.04	1.02	1.03	1.11	1.11	1.11	1.03	1.11	1.02
transit load	0.19	1.02	1.02	1.02	1.01	1.1	1.05	1.05	1.05	1.01	1.05	1.01
transit load	0.2	1	1	1	1	1	1	1	1	1	1	1

Source: POLB 2016 Emissions Inventory, Table 2.4.

Table E2.16
Proposed Project - River/Harbor Information

	Port Harbor to Berth (maneuvering)	San Joaquin River - Stockton to SJVAPCD Boundary	San Joaquin River - SJVAPCD Boundary through SF Bay (BAAQMD transit)	Ocean - SF Bay to State Boundary	Total Project
Distance (nautical miles/1-way trip)	2.75	13	37	340	393
Allowed OGV Speed (knots)	2	8	6	13.5	

Source:
Provided by Anchor: E-mail From: Lena DeSantis <lmdesantis@anchorqea.com>. Sent: Monday, June 3, 2019 7:18 PM.To: Lora Granovsky.

Table E2.17
Proposed Project - Harbor Craft Data

		HC Characteristics						HC Engine Activity per HC		OGV Activity	Annual HC Energy Demand	Unmitigated Emission Factors											
HC Classification	Engine Type	Engine Count per HC	HC Average MY	HC Average HP	HC Average kW	Load Factor	HC Count per OGV	Berth (hr/call)	Maneuvering (hr/one-way trip)	Average Annual OGV Transits (one-way trips/yr)	Berth (hr/call) (kW-hr/yr)	Maneuvering (kW-hr/yr)	Engine Tier	PM10 (g/kW-hr)	PM2.5 (g/kW-hr)	DPM (g/kW-hr)	NOX (g/kW-hr)	SOX (g/kW-hr)	CO (g/kW-hr)	VOC (g/kW-hr)	CO2 (g/kW-hr)	CH4 (g/kW-hr)	N2O (g/kW-hr)
Assist Tugboat	Propulsion	2	1956	1800	1342.782	0.5	2	0.6666667	2.75	24	10742.256	88623.612	Tier 2	0.5	0.445	0.5	9.33375	0.0074	5	0.517286	652	0.009825	0.031
	Auxiliary	2	1956	235	175.30765	0.31	2	0.6666667	2.75	24	3478.103776	14347.178	Tier 2	0.2	0.178	0.2	6.84	0.0074	5	0.37908	652	0.0072	0.031

Notes and Source:
Tugboats are used to assist OGVs during river transit/maneuvering.
Tugboat engine characteristics are from Sacramento Channel Deepening or EcoEnergy Air Quality Appendix.pdf and from Brusco tugboats details on Port of Stockton website. Representative tugboat:
https://www.marinetraffic.com/en/ais/details/ships/shipid:434027/mmsi:367007980/imo:5111359/vessel:ANGIE_M_BRUSCO
Applicable engine Tier is identified based on the EPA requirements for new engines and ARB harbor craft compliance schedule and average model Example:
2004 MY engine (Tier 1 per EPA standards) would have to be replaced at the end of 2017, based on ARB's compliance schedule. At that time, the engine will need to be replaced with the relevant Tier engine applicable at the time (Tier 4).
Emission Factors:
EPA emission standards, which are reported as NOx+THC, were convered by Nox and HC assuming 95% and 5% are Nox and HC, respectively, per Carl Moyer Program guidelines.
SOx emission factor is based on 15 ppm fuel sulfur content.
CO2 and N20 emission factors are from IVL: Methodology for Calculating Emissions from Ships: Update on Emission Factors, 2004, also summarized in POLA 2009 Emissions Inventory, Appendix B. CH4 is 2% of HC, per IVL study.

Table E2.18
Proposed Project - HC Activity: Time Required to Assist Vessel

	Berth (hr/call)	Maneuvering (hr/one-way trip)
Propulsion engine	0.33	1.38
Auxiliary engine	0.33	1.38

Notes:
It is assumed that tugboats pick up the vessel at the Rough and Ready Island and transit up to 2 miles, one-way.
Source: Communication with Lena DeSantis e-mail 11/29/18.

Table E2.19
Harbor Craft Emission Factors - EPA Standards (g/kW-hr)

Engine Displacement	(kW)	EPA Tier	MY	NMHC+NOx	PM10	PM2.5	DPM	NOx	SOX	CO	HC	VOC	CO2	CH4	N2O
Category 1															
		Tier 1	2004		0.4	0.36	0.4	9.8	0.007	5	0.38	0.39	652	0.01	0.03
<0.9	37-75	Tier 2	2005	7.5	0.4	0.36	0.4	7.125	0.007	5	0.38	0.39	652	0.01	0.03
0.9 < displ < 1.2	75-130	Tier 2	2004	7.2	0.3	0.27	0.3	6.84	0.007	5	0.36	0.38	652	0.01	0.03
1.2 < displ < 2.5	130-560	Tier 2	2004	7.2	0.2	0.18	0.2	6.84	0.007	5	0.36	0.38	652	0.01	0.03
2.5 < displ < 5	>560	Tier 2	2007	7.2	0.2	0.18	0.2	6.84	0.007	5	0.36	0.38	652	0.01	0.03
<0.9	<19	Tier 3	2009	7.5	0.4	0.36	0.4	7.125	0.007	5	0.38	0.39	652	0.01	0.03
<0.9	19-75	Tier 3	2009	7.5	0.3	0.27	0.3	7.125	0.007	5	0.38	0.39	652	0.01	0.03
<0.9	75-3700	Tier 3	2012	5.4	0.14	0.12	0.14	5.13	0.007	5	0.27	0.28	652	0.01	0.03
0.9 < displ < 1.2	100-175	Tier 3	2013	5.4	0.12	0.11	0.12	5.13	0.007	5	0.27	0.28	652	0.01	0.03
1.2 < displ < 2.5	175-750	Tier 3	2014	5.6	0.11	0.10	0.11	5.32	0.007	5	0.28	0.29	652	0.01	0.03
2.5 < displ < 5	>750	Tier 3	2013	5.6	0.11	0.10	0.11	5.32	0.007	5	0.28	0.29	652	0.01	0.03
3.5 ≤ D < 7		Tier 3	2012	5.8	0.11	0.10	0.11	5.51	0.007	5	0.29	0.31	652	0.01	0.03
	>3700	Tier 4	2014		0.12	0.11	0.12	1.8	0.007	5	0.19	0.20	652	0.00	0.03
	2000-3700	Tier 4	2014		0.04	0.04	0.04	1.8	0.007	5	0.19	0.20	652	0.00	0.03
	1400-2000	Tier 4	2016		0.04	0.04	0.04	1.8	0.007	5	0.19	0.20	652	0.00	0.03
	600-1400	Tier 4	2017		0.04	0.04	0.04	1.8	0.007	5	0.19	0.20	652	0.00	0.03
Category 2															
>2.5	>37	Tier 1	2004		0.4	0.36	0.4	17	0.007	8.5	0.95	1.00	652	0.02	0.03
5.0 ≤ D < 15	all	Tier 2	2007	7.8	0.27	0.24	0.27	7.41	0.007	5	0.39	0.41	652	0.01	0.03
15 ≤ D < 20	< 3300 kW	Tier 2	2007	8.7	0.5	0.45	0.5	8.265	0.007	5	0.44	0.46	652	0.01	0.03
15 ≤ D < 20	≥ 3300 kW	Tier 2	2007	9.8	0.5	0.45	0.5	9.31	0.007	5	0.49	0.52	652	0.01	0.03
20 ≤ D < 25	all	Tier 2	2007	9.8	0.5	0.45	0.5	9.31	0.007	5	0.49	0.52	652	0.01	0.03
25 ≤ D < 30	all	Tier 2	2007	11	0.5	0.45	0.5	10.45	0.007	5	0.55	0.58	652	0.01	0.03
7 ≤ D < 15	<2000	Tier 3	2013	6.2	0.14	0.12	0.14	5.89	0.007	5	0.31	0.33	652	0.01	0.03
7 ≤ D < 15	2000-3700	Tier 3	2013	7.8	0.14	0.12	0.14	7.41	0.007	5	0.39	0.41	652	0.01	0.03
15 ≤ D < 20	<2000	Tier 3	2014	7	0.34	0.30	0.34	6.65	0.007	5	0.35	0.37	652	0.01	0.03
20 ≤ D < 25	<2000	Tier 3	2014	9.8	0.27	0.24	0.27	9.31	0.007	5	0.49	0.52	652	0.01	0.03
25 ≤ D < 30	<2000	Tier 3	2014	11	0.27	0.24	0.27	10.45	0.007	5	0.55	0.58	652	0.01	0.03
all	2000-3700	Tier 4	2014		0.04	0.04	0.04	1.8	0.007	5	0.19	0.20	652	0.00	0.03
<15	>3700	Tier 4	2014		0.12	0.11	0.12	1.8	0.007	5	0.19	0.20	652	0.00	0.03
15 ≤ D < 30	>3700	Tier 4	2014		0.25	0.22	0.25	1.8	0.007	5	0.19	0.20	652	0.00	0.03
all	>3700	Tier 4	2016		0.06	0.05	0.06	1.8	0.007	5	0.19	0.20	652	0.00	0.03
all	1400-2000	Tier 4	2016		0.04	0.04	0.04	1.8	0.007	5	0.19	0.20	652	0.00	0.03
all	600-1400	Tier 4	2017		0.04	0.04	0.04	1.8	0.007	5	0.19	0.20	652	0.00	0.03

Source:
Federal Marine Compression-Ignition Engines - Exhaust Emission Standards Reference Guide, http://epa.gov/OMS/standards/nonroad/marineci.htm
Amendments to the Regulations to Reduce Emissions From Diesel Engines on Commercial Harbor Craft Operated Within California Waters and 24 Nautical Miles of the California Baseline. ARB 2011. Table 9, Compliance Dates for Engines on Crew and Supply Vessels Nationwide.
http://www.arb.ca.gov/regact/2010/chc10/frochc931185.pdf
EPA Tier 2 and Tier 3 emission standards are reported as NOx+THC. 5% is HC per Carl Moyer Program guidelines.
SOx emission factor is based on 15 ppm fuel sulfur content.

CO2 and N20 emission factors are from IVL: Methodology for Calculating Emissions from Ships: Update on Emission Factors, 2004, also summarized in POLA 2009 Emissions Inventory, Appendix B. CH4 is 2% of HC, per IVL study.

Table E2.20
SOx Emission Factor

Harbor Craft	0.0074 g/hp-hr	
Dredging Equipment	use OFFROAD BSCF and convert to g SOx /hp-hr	
SOx (gms/hp-hr) = (S content in X/1,000,000) x (MW SO2/ MW S) x BSF =		
Where:		
X = S content in parts per million (ppm)		15 ppm
S MW = Molecular Weight		32
SO2 MW = Molecular Weight		64
BSFC for harbor craft = Brake Specific Fuel Consumption (per CARB 2007 Harbor Craft Methodology)		184 (g/hp-hr)

Table E2.21
Habor Craft Load Factor

Type	Main Engine	Auxiliary Engine
Tugboat	0.5	0.31

Source:
2011 CARB Commercial Harbor Craft Emission Inventory.
Access dabatase available at:
https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles. Last accessed 5/31/18.

Table E2.22
Proposed Project - Truck Activity and Emissions

	Activity				Emissions (lb/yr)									
Year	Annual Truck Trips (1-way)	Distance Traveled (mi/1-way)	Distance Traveled (mi/1-way) in CA	Idling Time (hr/call)	PM10	PM2.5	NOX	SOX	CO	VOC	CO2	CH4	N2O	CO2e
	8476													
2021 Transit On-Site		0.25			0.61	0.31	27.82	0.08	4.04	1.09	8559.64	0.05	1.35	8977.80
2021 Transit Off-Site		35	66		85.64	43.96	3895.05	11.32	565.27	152.65	2259745.73	13.37	355.20	2370138.69
2021 Idling During Transit					0.02	0.02	68.39	0.11	43.29	4.04	11499.86	0.19	1.81	12064.16
2021 On-Site Idling				0.33	0.80	0.74	263.53	0.42	251.73	44.88	39448.65	0.00	0.00	39448.65
2021 On-Site Total					1.42	1.05	291.35	0.50	255.77	45.97	48008.29	0.05	1.35	48426.44
2021 Total					87.07	45.04	4254.79	11.93	864.34	202.66	2319253.89	13.61	358.35	2430629.29

Notes:
Activity based on NuStar_NOP_060519.docx.
Transit distance provided by NuStar: Email. From: Cheri Velzy <Cheri.Velzy@erm.com>; Sent: Friday, July 12, 2019 11:21 AM; To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>; Subject: RE: NuStar RD rail assumptions
Idling time onsite assumed as 20 minutes per call.

Table E2.23
Proposed Project - Truck Transit Distance

	Distance in SJVAPCD (1-way miles)	Distance to Destination (1-way miles)	Direction
Sacramento	30	55	N
Elk Grove	30	43	N
East Bay Area	30	60	W
Discovery Bay	19	20	W
Lathrop	11	11	S
Brentwood	18	26	W
Oakley	30	45	WS
Lodi	20		N
Sonora	35	66	E
Manteca	19		S
Salida			
Antioch	17	36	W
Concord	17	50	W
Tracy	21		S
Dublin	28	50	SW
San Ramon	28	55	SW
Livermore	28	43	SW
Martinez	17	56	W
Fairfield	25	56	NW
Modesto	25	35	S
Hayward	28	60	SW
Pleasanton	28	50	SW
Fremont	25	34	S
Maximum	35	66	

Source:
Email. From: Cheri Velzy <Cheri.Velzy@erm.com>; Sent: Friday, July 12, 2019 11:21 AM; To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>; Subject: RE: NuStar RD rail

Table E2.24
Proposed Project - 2021 Transit Exhaust Emission Factors - Trucks
EMFAC Output
EMFAC2017 (v1.0.2) Emission Rates
Region Type: Air Basin
Region: SAN JOAQUIN VALLEY
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	289.4621	46368.2441	2199.9117	0.2334121	1.642041148	0	0

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	0	0	0	0.2657219	1.869338852	0	0

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	TOG_RUNLOSS	TOG_RESTLOSS	TOG_DIURN	CO_RUNEX	CO_IDLEX	CO_STREX	NOx_RUNEX
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	0	0	0	0.8643122	17.60855052	0	5.9556241

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_IDLEX	NOx_STREX	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	27.81511	1.08797086	1832.3049	4677.2259	0	0.010841389	0.0762686

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CH4_STREX	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	0	0.03319895	0.0093329	0	0.03600001	0.061740018	0.0317628

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM2_5_IDLEX	PM2_5_STREX	PM2_5_PMTW	PM2_5_PMBW	SOx_RUNEX	SOx_IDLEX	SOx_STREX
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	0.008929	0	0.009	0.02646	0.017310708	0.044188111	0

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	N2O_RUNEX	N2O_IDLEX	N2O_STREX
SAN JOAQUIN VALLEY	2021	T7 other po	Aggregated	Aggregated	DSL	0.288013	0.73519478	0

Table E2.25
Proposed Project - Onsite Idling Emission Factors

CY	EMFAC2007 Vehicle Category	Fuel_Type	air_basin	season	HC (g/hr-veh)	CO (g/hr-veh)	NOX (g/hr-veh)	PM10 (g/hr-veh)	PM2.5 (g/hr-veh)	CO2 (g/hr-veh)	CO2 (with Pavley+LCFS) (g/hr-veh)	TOG (g/hr-veh)	ROG (g/hr-veh)	Sox (g/hr-veh)
2021	HHDT	D	SJV	a	5.6897636	40.41538	42.3087167	0.1290414	0.1187181	7037.087318	6333.378586	8.2029322	7.2055167	0.067137103

Source: CARB EMFAC2011 idling emission rates document. https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles. Last accessed 11/8/18.

Table E2.26
Global Warming Potentials (GWP)

CO2	CH4	N2O
1	21	310

Source: The Climate Registry, General Protocols, v. 2.0, Table B.2. March 2013.

Table E3.1

Domestic Renewable Diesel Project - Annual Construction Emissions Without Mitigation

	PM10 (ton/yr)	PM2.5 (ton/yr)	NOX (ton/yr)	SOX (ton/yr)	CO (ton/yr)	VOC (ton/yr)
2020 Construction	0.1	0.1	1.1	0.0	1.3	0.2
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.2

Domestic Renewable Diesel Project - Average Day Onsite Construction Emissions Without Mitigation

	PM10 (lb/day)	PM2.5 (lb/day)	NOX (lb/day)	SOX (lb/day)	CO (lb/day)	VOC (lb/day)
2020 Construction	0.87160305	0.840763359	16.5374046	0.02824427	18.28244275	2.30977099
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.3

Domestic Renewable Diesel Project - Annual Construction GHG Emissions Without Mitigation

Source Category	CO2 (mty)	CH4 (mty)	N2O (mty)	CO2e (mty)
Construction Equipment 2020	186.18	0.04	0.00	187.07
Amortized Annual Construction	6.21	0.00	0.00	6.24
Notes:				
Emissions might not add precisely due to rounding.				
Construction emissions were amortized over 30 years.				

Table E3.4

Ethanol Infrastructure Project - Annual Construction Emissions Without Mitigation

	PM10 (ton/yr)	PM2.5 (ton/yr)	NOX (ton/yr)	SOX (ton/yr)	CO (ton/yr)	VOC (ton/yr)
2020 Construction	0.39	0.22	1.51	0.00	1.81	0.23
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.5

Ethanol Infrastructure Project - Average Day Onsite Construction Emissions Without Mitigation

	PM10 (lb/day)	PM2.5 (lb/day)	NOX (lb/day)	SOX (lb/day)	CO (lb/day)	VOC (lb/day)
2020 Construction	3.65	2.27	16.32	0.03	17.81	2.27
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.6

Ethanol Infrastructure Project - Annual Construction GHG Emissions Without Mitigation

Source Category	CO2 (mty)	CH4 (mty)	N2O (mty)	CO2e (mty)
Construction Equipment 2020	257	0	0	258
Amortized Annual Construction	9	0	0	9
Notes:				
Emissions might not add precisely due to rounding.				
Construction emissions were amortized over 30 years.				

Table E3.7

EcoEnergy Project - Annual Construction Emissions Without Mitigation

	PM10 (ton/yr)	**PM2.5** (ton/yr)	**NOX** (ton/yr)	**SOX** (ton/yr)	**CO** (ton/yr)	**VOC** (ton/yr)
Construction 2020	0.91	0.59	11.1	0.02	7.08	4.05
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	Yes	No	No	No
Souce: EcoEnergy Project FEIR, Table 3.1-9						

Table E3.8

EcoEnergy Project - Annual Construction GHG Emissions Without Mitigation

	CO2 (mty)	**CH4** (mty)	**N2O** (mty)	**CO2e** (mty)
Construction 2020	1676.0	0.3	0.0	1684.0
Source: EcoEnergy Project DEIR, Appendix - CalEEMod.				

Table E3.9

Total Cumulative Annual Construction Emissions Without Mitigation - All Projects

	PM10 (ton/yr)	PM2.5 (ton/yr)	NOX (ton/yr)	SOX (ton/yr)	CO (ton/yr)	VOC (ton/yr)
2019 Construction	0.1	0.0	0.1	0.0	0.1	0.0
2020 Construction	1.5	0.9	15.8	0.0	12.0	4.7
Significance Threshold	15	15	10	27	100	10
Significant?	No	No	Yes	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.10

Total Cumulative Average Day Onsite Construction Emissions Without Mitigation - All Projects

	PM10 (lb/day)	PM2.5 (lb/day)	NOX (lb/day)	SOX (lb/day)	CO (lb/day)	VOC (lb/day)
2019 Construction	2.66	1.26	1.84	0.00	2.11	0.17
2020 Construction	6.69	4.93	66.85	0.07	65.88	8.18
Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.11

Total Cumulative Annual GHG Construction Emissions Without Mitigation - All Projects

Source Category	CO2 (mty)	CH4 (mty)	N2O (mty)	CO2e (mty)
Proposed Project (Dock 10/11)	337	0	0	338
Domestic Renewable Diesel Project	186	0	0	187
Ethanol Infrastructure Project	256	0	0	257
Eco Energy Project	1676	0	0	1684
Amortized Annual Construction	82	0	0	110
Notes:				
Emissions might not add precisely due to rounding.				
Construction emissions were amortized over 30 years.				
Total annual GHG emissions are the sum of amortized construction and annual operational emissions.				

Table E3.12

Domestic Renewable Diesel Project - Annual Operational Emissions

Source Category	PM10 (ton/yr)	PM2.5 (ton/yr)	NOX (ton/yr)	SOX (ton/yr)	CO (ton/yr)	VOC (ton/yr)
Trucks	0.09	0.04	4.21	0.01	0.86	0.21
Rail	0.04	0.04	2.06	0.00	0.45	0.07
2020 Total	0.13	0.09	6.27	0.01	1.31	0.28
CEQA Impacts						
SJVAPCD Significance Threshold	15	15	10	27	100	10
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.13

Domestic Renewable Diesel Project - Average Daily Operational Emissions, On-Site

Source Category	PM10 (lb/day)	PM2.5 (lb/day)	NOX (lb/day)	SOX (lb/day)	CO (lb/day)	VOC (lb/day)
Trucks	0.01	0.01	1.56	0.00	1.36	0.25
Rail	0.00	0.00	0.00	0.00	0.00	0.00
2020 Total	0.01	0.01	1.56	0.00	1.36	0.25
CEQA Impacts						
SJVAPCD Significance Threshold	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Notes:						
Emissions might not add precisely due to rounding.						

Table E3.14

Domestic Renewable Diesel Project - Annual GHG Emissions

Source Category	CO2e (mty)
2020 Construction	187
Amortized Annual Construction	6
2020 Project Operation	
Trucks	2181
Rail	470
Total	2657
Notes:	
Emissions might not add precisely due to rounding. Construction emissions were amortized over 30 years.	
Total annual GHG emissions are the sum of amortized construction and annual operational emissions.	

Table E3.15

Ethanol Infrastructure Project - Fugitive VOC Emissions

	Incremental VOC Emissions	
Source	(lb/day)	(ton/yr)
Tanks	4.70	0.86
Fugitive Components	0.70	0.13
Truck Loading Losses	2.06	0.38
Total	7.46	1.36

Notes:
Tanks: 3301, 3302, 80001, 80002.
Fugitive components: valves, pumps, flanges associated with tanks and truck loading racks.

Truck loading losses: hose connect and disconnect losses.

Table E3.16

EcoEnergy Project - Annual Operational Emissions

Source Category	**PM10** (ton/yr)	**PM2.5** (ton/yr)	**NOX** (ton/yr)	**SOX** (ton/yr)	**CO** (ton/yr)	**VOC** (ton/yr)
Project Minus Baseline	0.29	0.16	10.7	0.04	3.07	0.24
CEQA Impacts						
SJVAPCD Significance Threshold	15	15	10	27	100	10
Significant?	No	No	Yes	No	No	No

Notes:
Emissions might not add precisely due to rounding.
Source: EcoEnergy Project DEIR, Table 3.1-10.

Table E3.17

EcoEnergy Project - Annual GHG Emissions

Source Category	**CO2e** (mty)
2020 Construction	1684
Amortized Construction	84
Line-Haul Locomotives	837
Switching Locomotives	-274
On-Road Mobile Vehicles	2252
Total	2899

Notes:
Source: EcoEnergy Project DEIR, Table 3.3-2.
Construction emissions were amortized over 20 years.

Total annual GHG emissions are the sum of amortized construction and annual operational emissions.

Table E3.18

Cumulative Summary of Cancer Risk for all Projects

			Residential Cancer Risk			Offsite Worker Cancer Risk			Chronic NonCancer HI			Source
	Annual Construction DPM (ton/yr)	Annual Operational DPM (ton/yr)	Construction	Operational	Total	Construction	Operational	Total	Construction	Operational	Total	
Proposed Project (Dock 10/11)	0.11	0.36	2.695E-06	2.39E-06	5.080E-06	6.22E-07	1.74E-06	2.357E-06	0.003	0.001	0.004	
Domestic Renewable Diesel Project	0.06	0.13	1.428E-06	8.530E-07	2.281E-06	3.30E-07	6.20E-07	9.501E-07	0.002	0.000	0.002	
Ethanol Infrastructure Project	0.08	0	2.003E-06	[1]	2.003E-06	4.623E-07	0.00E+00	4.623E-07	0.002	[1]	0.002	
Eco Energy Project			na	6.86E-06	6.860E-06	na	na	na	na	na	0.002	Cancer risk and HI (EcoEnergy Project DEIR, Table 3.1-12)
Total			6.13E-06	1.01E-05	**1.622E-05**	1.41E-06	2.36E-06	**3.769E-06**	**0.007**	**0.001**	**0.010**	
SJVAPCD Significance Threshold					2.00E-05			2.00E-05			1	
Significant?					**No**			**No**			**No**	
Contanda Rocket			Residential Cancer Risk			Offsite Worker Cancer Risk			Residential Chronic NonCancer HI			
	Annual Construction DPM (ton/yr)	Annual Operational DPM (ton/yr)	Construction	Operational	Total	Construction	Operational	Total	Construction	Operational	Total	
2020	0.2802	1.047541871	6.9716E-06	6.9726E-06	1.39442E-05	1.6091E-06	5.07149E-06		0.00784	0.00193	0.00977	Contanda Rocket DEIR

Notes:

na - not available

[1] Ethanol is not a toxic contaminant. https://oehha.ca.gov/air/air-toxics-hot-spots

Contanda Rocket HRA was used to scale cancer risk.

Conservative because assumes all PM10 is DPM.

Conservative because assumes that sources from different projects affect the same receptors at the same time.

Table E3.19

Domestic Renewable Diesel Project - Annual Operational Emissions in BAAQMD (ton/yr)

Source Category	PM10	PM2.5	NOX	VOC
Truck Transit	0.0	0.0	1.9	0.0
Rail Transit	0	0	0	0
CEQA Impacts				
BAAQMD Significance Threshold	15	10	10	10
Significant?	No	No	No	No

Notes:

Emissions might not add precisely due to rounding.

Truck transit split between BAAQMD and SMAPCD.

No rail transit in BAAQMD.

Table E3.20

Domestic Renewable Diesel Project - Daily Operational Emissions in BAAQMD (lb/day)

Source Category	PM10	PM2.5	NOX	VOC
Truck Transit	0.21	0.11	10.22	0.03
Rail Transit	0.0	0.0	0.0	0.0
CEQA Impacts				
BAAQMD Significance Threshold	82	54	54	54
Significant?	No	No	No	No

Notes:

Emissions might not add precisely due to rounding.

Truck transit split between BAAQMD and SMAPCD.

No rail transit in BAAQMD.

Table E3.21

Domestic Renewable Diesel Project - Annual Operational Emissions in SMAPCD (ton/yr)

Source Category	PM10	PM2.5
Truck Transit	0.04	0.02
Rail Transit	0.02	0.02
CEQA Impacts		
SMAPCD Significance Threshold	14.6	15
Significant?	No	No
Notes:		
Emissions might not add precisely due to rounding.		
Truck transit split between BAAQMD and SMAPCD.		

Table E3.22

Domestic Renewable Diesel Project - Daily Operational Emissions in SMAPCD (lb/day)

Source Category	PM10	PM2.5	NOX	VOC
Truck Transit	0.2	0.1	10.2	0.0
Rail Transit	0.1	0.1	10.8	0.2
CEQA Impacts				
SMAPCD Significance Threshold	80	82	65	65
Significant?	No	No	No	No
Notes:				
Emissions might not add precisely due to rounding.				
Truck transit split between BAAQMD and SMAPCD.				

Table E3.23

Domestic Renewable Diesel Project - Facility Throughput

	Product	Annual Trucks	Annual Rail Cars
Increment 2020	Renewable di	8250	2475
Notes:			
Information provided by NuStar.			

Table E3.24

Domestic Renewable Diesel Project - Truck Activity and Emissions

	Activity						Emissions (lb/yr)						In California			
	Barrels/yr	Number of Trucks/yr	Annual Truck Trips (1-way)	Distance Traveled (mi/1-way) in SJAPCD	Distance Traveled (mi/1-way) in CA	Idling Time (hr/call)	PM10	PM2.5	NOX	SOX	CO	VOC	CO2	CH4	N2O	CO2e
	1650000	8250	16500													
2020 Transit On-Site				0.25			1.20	0.62	55.14	0.16	8.15	2.28	16941	0.11	2.66	17769
2020 Transit Off-Site				35	66		167.89	86.72	7719.89	22.41	1140.71	318.83	4472499	27.93	703.01	4691020
2020 Idling During Transit							0.05	0.04	136.89	0.21	81.86	7.86	22641	0.37	3.56	23752
2020 On-Site Idling						0.33	1.56	1.44	513.00	0.81	490.05	87.37	76794	0.00	0.00	76794
2020 On-Site Total							2.76	2.06	568.14	0.97	498.19	89.65	93735	0.11	2.66	94563
2020 Total							170.70	88.82	8424.93	23.60	1720.77	416.34	4588875	28.40	709.24	4809335

Notes:

Activity based on NuStar_NOP_060519.docx.

Transit distance provided by NuStar: Email. From: Cheri Velzy <Cheri.Velzy@erm.com>; Sent: Friday, July 12, 2019 11:21 AM; To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>; Subject: RE: NuStar RD rail assumptions

Idling time onsite assumed as 20 minutes per call.

Table E3.25

Domestic Renewable Diesel Project - Truck Transit Distance

	Distance in SJVAPCD (1-way miles)	Distance to Destination (1-way miles)	Direction
Sacramento	30	55	N
Elk Grove	30	43	N
East Bay Area	30	60	W
Discovery Bay	19	20	W
Lathrop	11	11	S
Brentwood	18	26	W
Oakley	30	45	WS
Lodi	20		N
Sonora	35	66	E
Manteca	19		S
Salida			
Antioch	17	36	W
Concord	17	50	W
Tracy	21		S
Dublin	28	50	SW
San Ramon	28	55	SW
Livermore	28	43	SW
Martinez	17	56	W
Fairfield	25	56	NW
Modesto	25	35	S
Hayward	28	60	SW
Pleasanton	28	50	SW
Fremont	25	34	S
Maximum	35	66	

Source: Email. From: Cheri Velzy <Cheri.Velzy@erm.com>; Sent: Friday, July 12, 2019 11:21 AM; To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>; Subject: RE: NuStar RD rail assumptions

Table E3.26

Domestic Renewable Diesel Project - 2020 Transit Exhaust Emission Factors (g/mi) - Trucks

EMFAC Output
EMFAC2017 (v1.0.2) Emission Rates
Region Type: Air Basin
Region: SAN JOAQUIN VALLEY
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK
SAN JOAQUIN VALLEY	2020	T7 other port	Aggregated	Aggregated	DSL	277.118657	44538.93807	2106.1018	0.2504304	1.642471	0	0

Region	Calendar Year	Vehicle Category	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_RESTLOSS	TOG_DIURN
SAN JOAQUIN VALLEY	2020	T7 other port	0	0	0	0.28509591	1.869828194	0	0	0	0	0

Region	Calendar Year	Vehicle Category	CO_RUNEX	CO_IDLEX	CO_STREX	NOx_RUNEX	NOx_IDLEX	NOx_STREX	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX
SAN JOAQUIN VALLEY	2020	T7 other port	0.89597672	17.1039243	0	6.06362304	28.60111315	1.0359672	1862.9253	4730.3439	0	0.0116318

Region	Calendar Year	Vehicle Category	CH4_IDLEX	CH4_STREX	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX	PM2_5_IDLEX	PM2_5_STREX
SAN JOAQUIN VALLEY	2020	T7 other port	0.07628852	0	0.034132822	0.00960115	0	0.036	0.06174	0.0326563	0.0091858	0

Region	Calendar Year	Vehicle Category	PM2_5_PMTW	PM2_5_PMBW	SOx_RUNEX	SOx_IDLEX	SOx_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX
SAN JOAQUIN VALLEY	2020	T7 other port	0.009	0.02646001	0.017599995	0.04468994	0	0.2928259	0.7435442	0

Table E3.27

Domestic Renewable Diesel Project - Onsite Idling Emission Factors - Trucks

CY	EMFAC2007 Vehicle Category	Fuel_Type	air_basin	season	HC (g/hr-veh)	CO (g/hr-veh)	NOX (g/hr-veh)	PM10 (g/hr-veh)	PM2.5 (g/hr-veh)	CO2 (g/hr-veh)	CO2 (with Pavley+LCFS) (g/hr-veh)	TOG (g/hr-veh)	ROG (g/hr-veh)	Sox (g/hr-veh)
2021	HHDT	D	SJV	a	5.689763637	40.4153782	42.30871669	0.1290414	0.1187181	7037.0873	6333.37859	8.2029322	7.20551667	0.0671371

Sources: CARB EMFAC2011 idling emission rates document. https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles. Last accessed 11/8/18.

Table E3.28

Domestic Renewable Diesel Project - Combined Rail Emissions

	Average Day Emissions (lb/day)						**Annual Emissions (ton/yr)**						
	PM10	**PM2.5**	**NOX**	**SOX**	**CO**	**VOC**	**PM10**	**PM2.5**	**NOX**	**SOX**	**CO**	**VOC**	**CO2e**
Switching	0.17950538	0.174120219	5.07442567	0.00569812	1.367237271	0.28922562	0.032759732	0.0317769	0.9260827	0.0010399	0.2495208	0.0527837	113.0641134
Line Haul													
In SJVAPCD	0.05503863	0.053387468	6.19208401	0.00381206	1.080831078	0.09736557	0.010044549	0.0097432	1.1300553	0.0006957	0.19725167	0.0177692	75.64025647
In Sacramento Metro	0.09571935	0.092847771	10.7688418	0.00662968	1.879706223	0.16933142	0.017468782	0.0169447	1.9653136	0.0012099	0.34304639	0.030903	131.5482721
In California													404.5109368
Total													
In SJVAPCD	0.23454401	0.227507687	11.2665097	0.00951018	2.448068349	0.38659119	0.042804281	0.0415202	2.056138	0.0017356	0.44677247	0.0705529	188.7043699
In Sacramento Metro	0.09571935	0.092847771	10.7688418	0.00662968	1.879706223	0.16933142	0.017468782	0.0169447	1.9653136	0.0012099	0.34304639	0.030903	131.5482721
In California													517.5750502

Table E3.29

Domestic Renewable Diesel Project - Switching Fuel Usage Determination

Parameter	Value	Units	Reference
Rail cars per year - Project Increment	2475	rail cars per year	Project Description
Rail cars per train	16	rail cars per train	Phone communication with Cheri Velzy (ERM) on 7/12/19, 11:20am.
Manifest trains per year - Project Increment	154.6875	trains per year	Calculated
Number of locomotives required per switch	2	per train	Based on past Port documents and confirmed by ERM (phone communication with Cheri Velzy (ERM) on 7/16/19).
Port of Stockton and SJV switching events, manifest rail	2	per train	Based on past Port documents and confirmed by ERM (phone communication with Cheri Velzy (ERM) on 7/16/19).
Switching time	2	hour/train	Based on past Port documents and confirmed by ERM (phone communication with Cheri Velzy (ERM) on 7/16/19).
Fuel used per hour per locomotive	8.11973684	gal/hr/locomotive	Calculated based on CCT switcher fleet and CARB's Toxic Air Contaminant Emissions Inventory and Air Dispersion Modeling Report for the Stockton Rail Yard, California
Fuel used	64.9578947	gal/train	Calculated

Table E3.30

Domestic Renewable Diesel Project - 2020 Average Switching Emissions

Pollutant	Switching Locomotive Emission Factor (g/gal)	Average Daily Emissions (lb/day)	Annual Emissions Emissions (ton/yr)
NOx	83.6	5.1	0.9
PM10	3.0	0.2	0.0
PM2.5	2.9	0.2	0.0
VOC	4.8	0.3	0.1
CO	22.5	1.4	0.2
SOx	0.1	0.0	0.0
CO2e	10208	620	113

CO2e annual emissions are presented in short tons of CO2e per year.
Source: Reflects switching fleet provided by Central California raction Company (CCT) and emission factors from CARB 2017 Short Line / Class III Documentation. Last accessed 10/2/2018: https://www.arb.ca.gov/msei/ordiesel.htm
PM2.5 is 97% of PM10
HC emission factor convered to VOC = 1.053 * HC

Table E3.31

SO2 Emission Factor - Switchers

SO2 (g/gal)=	0.093888	
(fuel density) * (MW SO2/ MW S) * (S content of fuel) * (conversion factor)		
Where:		
Fuel density	3200	g/gal
the fraction of fuel sulfur converted to S	0.978	
S content of fuel in parts per million (ppı	15	ppm
S MW = Molecular Weight	32	
SO2 MW = Molecular Weight	64	

Table E3.32

CO2 Emission Factor - Switchers

CO2 (g/gal)=	10208	
(fuel density) * (MW CO2/ MW C) * (C content of fuel)		
Where:		
Fuel density	3200	g/gal
the fraction of fuel sulfur converted to C	0.87	
C MW = Molecular Weight	12	
CO2 MW = Molecular Weight	44	

Table E3.33

Domestic Renewable Diesel Project - Switcher Emissions

CCT Switchers[1]			Switcher Emission Factors (g/gal)			
	Engine Tier	Tier Distribution	PM10	HC	NOx	CO
4 SW 1500s	Tier 0	57%	4.864	7.296	130.72	19.456
3 Brookville Genset locomotives Tier IV	Tier 4	43%	0.416	0.832	20.8	26.624

Notes:

1. CCT Switchers.pdf. Switching operations provided by Central California Traction Company (CCT).

CCT operates 7 locomotives (4 SW 1500s and 3 Brookville Genset locomotives Tier IV), per CCT website (last accessed 10/2/2018) http://www.cctrailroad.com/

Domestic Renewable Diesel Project - Switchers Emission Factors (g/gal)

	PM10	HC	NOx	CO
2020	2.96	4.53	83.61	22.53

Power Distribution in Switcher Mode[1]

Notch Position		Idle	DB	1	2	3	4	5	6	7	8			
Time in Notch	Power (hp)[2]	44.2%	0.0%	5.0%	25.0%	2.3%	21.5%	1.5%	0.6%	0.0%	0.0%	Power in Duty Cycle (hp)	Fuel Use in Duty Cycle (gal/hr)	Composite Fuel Use in Duty Cycle (gal/hr))
4 SW 1500s	1500	663	0	75	375	35	323	23	9	0	0	150	10	8
3 Brookville Genset locomotives Tier IV	1200	530	0	60	300	28	258	18	7	0	0	120	6	

Notes:

1. Time in notch based on CARB's Toxic Air Contaminant Emissions Inventory and Air Dispersion Modeling Report for the Stockton Rail Yard, California. January 2007.

Available: https://ww2.arb.ca.gov/resources/documents/railyard-health-risk-assessments-and-mitigation-measures. Accessed: 7/2019.

2. SW1500 Locomotives.pdf. Available: https://www.brookvillecorp.com/BROOKVILLE-Ships-CoGens-to-CCT-04.10.2015.asp?news=News-Corporate.asp. Accessed: 7/2019.

2. BrookvilleTier-4_CCTp.df. (http://www.gatx.com/wps/wcm/connect/GATX/GATX_SITE/Home/Rail+North+America/Products/Equipment+Types/Locomotives/SW1500/)

Table E3.34

Domestic Renewable Diesel Project - 2020 Average Line-Haul Emissions

						In SJVAPCD		In Sacramento Metro		In California	
		Empty Train		Filled Train		Total		Total		Total	
Pollutant	Line-Haul Locomotive Emission Factor (g/gal)	Average Daily Emissions (lb/day)	Annual Emissions (ton/yr)	Average Daily Emissions (lb/day)	Annual Emissions (ton/yr)	Total Average Day Line-Haul Emissions (lb/day)	Total Annual Line-Haul Emissions (ton/yr)	Total Average Day Line-Haul Emissions (lb/day)	Total Annual Line Haul Emissions (ton/yr)	Total Average Day Line-Haul Emissions (lb/day)	Total Annual Line-Haul Emissions (ton/yr)
NOx	81.23	1.65	0.30	4.54	0.83	6.19	1.13	10.77	1.97		
PM10	1.36	0.03	0.01	0.03	0.01	0.06	0.01	0.10	0.02		
PM2.5	1.31	0.03	0.00	0.03	0.00	0.05	0.01	0.09	0.02		
VOC	2.40	0.05	0.01	0.05	0.01	0.10	0.02	0.17	0.03		
CO	26.62	0.54	0.10	0.54	0.10	1.08	0.20	1.88	0.34		
SOx	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00		
CO2e	10,208.00	207.23	37.82	207.23	37.82	414.47	75.64	720.81	131.55	2216.50	404.51

Notes:

CO2e annual emissions are presented in short tons of CO2e per year.

Aggregated at County/Air Basin/State. Last accessed 10/2/2018: https://www.arb.ca.gov/msei/ordiesel.htm

PM2.5 is 97% of PM10

HC emission factor convered to VOC = 1.053 * HC

Table E3.35

Domestic Renewable Diesel Project - Line- Haul Fuel Usage

Parameter	Value	Units	Reference
Additional RD to be Transported	69,300,000	gallons/yr	1,650,000 barrels per year
RD Volume in Tank Car	28,000	gal/car	https://www.gbrx.com/manufacturing/north-america-rail/tank-cars/284k-tank-crude-oil-general-purpose/
Additional Number of Tank Cars	2,475	cars/year	Project Description
Density of RD	6.43	lbs/gal	Specific density for Renewable Diesel
Number of Rail Cars per Train	100	rail cars/train	EcoEnergy Project EIR, Appendix C.
Net Aggregated Fuel Consumption Index (Gross Weight - Locomotive Weight) (Line Hauling)	868	ton-miles/gal	Calculated from: California Air Resources Board (ARB). 2017. "2016 Line Haul Locomotive Model & Update". October. Available at: https://www.arb.ca.gov/msei/ordiesel.htm
Locomotives			
Number of locomotives per train	2	locomotives/train	
Weight of locomotive	208	ton/locomotive	General Electric ET44C4
Miles traveled	23	miles/1-way	Provided by ERM and confirmed via telephone communication with Cheri Velzy (ERM) on 7/12/19 and 7/16/19.
Fuel consumption	273	gal/yr (1-way trip)	
Empty Rail Cars			
Weight of empty tank car	47	tons/car	https://www.gbrx.com/manufacturing/north-america-rail/tank-cars/284k-tank-crude-oil-general-purpose/
Weight of empty tank cars per year	116,573	tons/year	
Miles traveled	23	miles/1-way	Provided by ERM and confirmed via telephone communication with Cheri Velzy (ERM) on 7/12/19 and 7/16/19.
Fuel consumption	3,088	gal/yr (1-way trip)	
Product Transported			
Weight of product transported per year	222,659	tons/yr	
Miles traveled	23	miles/1-way	Provided by ERM and confirmed via telephone communication with Cheri Velzy (ERM) on 7/12/19 and 7/16/19.
Fuel consumption	5,899	gal/yr (1-way trip)	

Table E3.36

Domestic Renewable Diesel Project - Fuel Consumption Index Calculation

Parameter	Value	Units
Roseville to Fresno: positive grade	0.0058	
Roseville to Fresno: negative grade	-0.0048	
GTM/gal	832	GTM/gal
Fresno to Roseville: positive grade	0.0048	
Fresno to Roseville: negative grade	-0.0058	
Fuel productivity (CARB equation)	904	GTM/gal
Composite Fuel Consumption Index	868	ton-mile/gal
Reference: California Air Resources Board (ARB). 2017. "2016 Line H		

Table E3.37

Domestic Renewable Diesel Project - SO2 Emission Factor - Line Haul

SO2 (g/gal)=	0.09	
(fuel density) * (MW SO2/ MW S) * (S content of fuel) * (conversion factor)		
Where:		
Fuel density	3,200	g/gal
the fraction of fuel sulfur converted	97.8%	
S content of fuel in parts per million	15	ppm
S MW = Molecular Weight	32	
SO2 MW = Molecular Weight	64	

Table E3.38

Domestic Renewable Diesel Project - Rail Transit Distance

	Distance (1-way miles)	Distance in SJVAPCD (1-way miles)	Distance in Sacramento Metro (1-way miles)	Total Distance to CA Boundary (1-way miles)	Direction
Port to Galt	23	23			N
Galt to Roseville rail yard	40		40		N
Roseville to CA boundary	100			123	NE

Source:
Google Earth

Table E3.39

Domestic Renewable Diesel Project - CO2 Emission Factor - Line Haul

CO2 (g/gal)=	10,208.00
(fuel density) * (MW CO2/ MW C) * (C content of fuel)	
Where:	
Fuel density	3,200 g/gal
the fraction of fuel sulfur converted to CO2	87%
C MW = Molecular Weight	12
CO2 MW = Molecular Weight	44

Table E3.40

Line Haul Engine - U.S. EPA Emission Factors (g/gal)

	PM10	HC	NOx	CO	Tier Distribution 2020
Pre-Tier	6.66	9.98	270.4	26.62	0%
Tier 0	6.66	9.98	178.88	26.62	0%
Tier 0+	4.16	6.24	149.76	26.62	1%
Tier 1	6.66	9.78	139.36	26.62	0%
Tier 1+	4.16	6.03	139.36	26.62	2%
Tier 2	3.74	5.41	102.96	26.62	0%
Tier 2+	1.66	2.7	102.96	26.62	36%
Tier 3	1.66	2.7	102.96	26.62	33%
Tier 4	0.31	0.83	20.8	26.62	28%

Source:

CARB. 2017 Line Haul / Class I Documentation. Last accessed 10/2/2018: https://www.arb.ca.gov/msei/ordiesel.htm

Tier distribution calculated by applying CARB Tier distribution for analysis year. CARB. 2017 Emissions Inventory Aggregated at County/Air Basin/State. Last accessed 10/2/2018: https://www.arb.ca.gov/msei/ordiesel.htm

Table E3.41

Domestic Renewable Diesel Project - Line Haul Emission Factors (g/gal)

	PM10	HC	NOx	CO
2020	1.36	2.28	81.23	26.62

Table E3.42

Line Haul Locomotives Tier Distribution

	Pre-Tier	Tier 0	Tier 0+	Tier 1	Tier 1+	Tier 2	Tier 2+	Tier 3	Tier 4
2019	0%	0%	2%	0%	2%	5%	38%	32%	21%
2020	0%	0%	1%	0%	2%	0%	36%	33%	28%
2021	0%	0%	1%	0%	1%	0%	31%	33%	34%
2022	0%	0%	0%	0%	1%	0%	24%	34%	40%
2023	0%	0%	0%	0%	1%	0%	19%	34%	46%
2024	0%	0%	0%	0%	1%	0%	13%	32%	53%
2025	0%	0%	0%	0%	0%	0%	8%	31%	60%
2026	0%	0%	0%	0%	0%	0%	3%	30%	67%
2027	0%	0%	0%	0%	0%	0%	3%	24%	73%
2028	0%	0%	0%	0%	0%	0%	2%	18%	80%
2029	0%	0%	0%	0%	0%	0%	2%	13%	86%
2030	0%	0%	0%	0%	0%	0%	1%	8%	91%
2031	0%	0%	0%	0%	0%	0%	1%	2%	97%
2032	0%	0%	0%	0%	0%	0%	0%	2%	97%
2033	0%	0%	0%	0%	0%	0%	0%	2%	98%
2034	0%	0%	0%	0%	0%	0%	0%	2%	98%
2035	0%	0%	0%	0%	0%	0%	0%	1%	99%
2036	0%	0%	0%	0%	0%	0%	0%	1%	99%
2037	0%	0%	0%	0%	0%	0%	0%	0%	100%
2038	0%	0%	0%	0%	0%	0%	0%	0%	100%
2039	0%	0%	0%	0%	0%	0%	0%	0%	100%
2040	0%	0%	0%	0%	0%	0%	0%	0%	100%

Source:

CARB. 2017 Emissions Inventory Aggregated at County/Air Basin/State. Last accessed 10/2/2018: https://www.arb.ca.gov/msei/ordiesel.htm

Table E3.43

Ethanol Infrastructure Project - Tank Emissions

Tank	VOC Baseline (lb/yr) [1]	VOC Ethanol Project (lb/yr) [2]	Product	VOC Increment (lb/yr)	VOC Increment (ton/yr)	VOC Increment (lb/day)
3301	829	1431	gasoline RVP	602.1	0.3	1.6
3302	173	1923	gasoline RVP	1749.9	0.9	4.8
80001	484	808	ethanol, cons	323.7	0.2	0.9
80002	1777	817	ethanol, cons	-960.1	-0.5	-2.6
Total				1715.6	0.9	4.7

Notes:

[1] Baseline VOC emissions: SJVAPCD Permit Application March 22, 2018 - NuStar Facility N-829 Permit Application_Ethanol Unit Train_no appendices.pdf, Table 15, Baseline Actual Emissions for Storage Tanks.

[2] SJVAPCD_NuStar PE2 Tanks Reports N-1181193.pdf

[3] Tanks 80001 and 80002 (ethanol tanks) were modeled as gasoline tanks in the air permit application. The reason for this is that gasoline results in greater emissions than ethanol and NuStar wanted to retain the flexibility of using these tanks for gasoline.

Table E3.44

Ethanol Infrastructure Project - Fugitive Component Emissions

Permit Unit	SJVAPCD Source No.	Component Type	Emission Factor (kg/hr/component)	Daily Emission Factor (lb/day/component)	Number of Components	Incremental Average Daily VOC Emission (lb/day)	Incremental Annual VOC Emissions (lb/yr)	Incremental Daily Total by Permit Unit (lb/day)	Incremental Annual Total by Permit Unit (lb/yr)	Annual (ton/yr)
North Truck Rack	N-829-1	Pumps	0.00	0.03	1	0.03	10.43	0.16	58.25	0.03
North Truck Rack	N-829-1	Valves	0.00	0.00	36	0.08	29.90			
North Truck Rack	N-829-1	Fittings	0.00	0.00	116	0.05	17.92			
South Truck Rack	N-829-2	Pumps	0.00	0.03	3	0.09	31.29	0.16	58.77	0.03
South Truck Rack	N-829-2	Valves	0.00	0.00	21	0.05	17.44			
South Truck Rack	N-829-2	Fittings	0.00	0.00	65	0.03	10.04			
Tank 80001	N-829-28	Valves	0.00	0.00	30	0.07	24.91	0.09	34.34	0.02
Tank 80001	N-829-28	Fittings	0.00	0.00	61	0.03	9.42			
Tank 80002	N-829-29	Valves	0.00	0.00	30	0.07	24.91	0.09	34.34	0.02
Tank 80002	N-829-29	Fittings	0.00	0.00	61	0.03	9.42			
Tank 3301	N-829-16	Valves	0.00	0.00	30	0.07	24.91	0.09	34.34	0.02
Tank 3301	N-829-16	Fittings	0.00	0.00	61	0.03	9.42			
Tank 3302	N-829-21	Valves	0.00	0.00	30	0.07	24.91	0.09	34.34	0.02
Tank 3302	N-829-21	Fittings	0.00	0.00	61	0.03	9.42			
Total								0.70		0.13

Source:
Ethanol - Fugitive Emissions 082919.xlsx
Email From: Cheri Velzy <Cheri.Velzy@erm.com>, Sent: Thursday, August 29, 2019 2:13 PM, To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>,
Subject: RE: Draft SJVAPCD Permit Application, Fugitive Emissions, and TANKS output files - Unit Train Project
Emission factors from: 1995 EPA Protocol for Equipment Leak Emission Estimates EPA-453/R-95-017, Table 2-3.

Table E3.45

Ethanol Infrastructure Project - Disconnect Emissions from Ethanol Truck Loading

	Baseline	Analysis Year	Source
	2016	2019	
Number of Annual Truck Trips (1-way tri	46710	60210	NuStar Facility N-829 Permit Application_Ethanol Unit Train_no appendices.pdf
Number of Disconnect Events per Truck	8	8	E-mail From: Cheri Velzy <Cheri.Velzy@erm.com>, Sent: Wednesday, August 28, 2019 12:46 PM,To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>, Subject: Draft SJVAPCD Permit Application, Fugitive Emissions, and TANKS output files - Unit Train Project.
Emission Factor (ml/disconnect event)	8	8	E-mail From: Cheri Velzy <Cheri.Velzy@erm.com>, Sent: Wednesday, August 28, 2019 12:46 PM,To: Lora Granovsky <lora.granovsky@ilancoenvironmental.com>, Subject: Draft SJVAPCD Permit Application, Fugitive Emissions, and TANKS output files - Unit Train Project.

	Ethanol Loss (ml/yr)	Ethanol Density (g/ml)	Ethanol Emissions (lb/day)	Ethanol Emissions (ton/yr)
2016	1494720	0.79	7.12	1.30
2019	1926720	0.79	9.18	1.68
CEQA Increment	432000		2.06	0.38

Stockton NuStar Construction

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	155.00	1000sqft	3.56	155,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	2			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Trips and VMT - Provided by applicant.

Architectural Coating - Tank coating.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	140.00
tblConstructionPhase	NumDays	230.00	120.00
tblConstructionPhase	NumDays	8.00	40.00
tblOffRoadEquipment	HorsePower	89.00	110.00
tblOffRoadEquipment	HorsePower	89.00	110.00
tblOffRoadEquipment	HorsePower	97.00	100.00
tblOffRoadEquipment	HorsePower	46.00	25.00
tblOffRoadEquipment	HorsePower	46.00	25.00
tblOffRoadEquipment	HorsePower	89.00	110.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	12.00
tblTripsAndVMT	HaulingTripNumber	0.00	30.00
tblTripsAndVMT	VendorTripLength	7.30	7.50
tblTripsAndVMT	VendorTripLength	7.30	135.00

tblTripsAndVMT	VendorTripLength	7.30	7.50
tblTripsAndVMT	VendorTripNumber	25.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	25.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2520	2.1268	1.8467	3.8600e-003	0.0774	0.1083	0.1857	0.0207	0.1016	0.1223	0.0000	336.7947	336.7947	0.0680	0.0000	338.4939
Maximum	**0.2520**	**2.1268**	**1.8467**	**3.8600e-003**	**0.0774**	**0.1083**	**0.1857**	**0.0207**	**0.1016**	**0.1223**	**0.0000**	**336.7947**	**336.7947**	**0.0680**	**0.0000**	**338.4939**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2520	2.1267	1.8467	3.8600e-003	0.0774	0.1083	0.1857	0.0207	0.1016	0.1223	0.0000	336.7944	336.7944	0.0680	0.0000	338.4936
Maximum	**0.2520**	**2.1267**	**1.8467**	**3.8600e-003**	**0.0774**	**0.1083**	**0.1857**	**0.0207**	**0.1016**	**0.1223**	**0.0000**	**336.7944**	**336.7944**	**0.0680**	**0.0000**	**338.4936**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	1.0481	1.0481
2	**4-1-2020**	**6-30-2020**	0.9873	0.9873
3	**7-1-2020**	**9-30-2020**	0.3473	0.3473
		Highest	1.0481	1.0481

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Energy	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	535.2000	535.2000	0.0202	6.3900e-003	537.6092
Mobile	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Waste						0.0000	0.0000		0.0000	0.0000	39.0149	0.0000	39.0149	2.3057	0.0000	96.6577
Water						0.0000	0.0000		0.0000	0.0000	11.3716	56.4224	67.7940	1.1705	0.0281	105.4326
Total	**0.8167**	**1.0912**	**1.0362**	**5.1700e-003**	**0.2589**	**0.0147**	**0.2736**	**0.0696**	**0.0145**	**0.0842**	**50.3864**	**992.3288**	**1,042.7153**	**3.5229**	**0.0345**	**1,141.0675**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Energy	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	535.2000	535.2000	0.0202	6.3900e-003	537.6092
Mobile	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Waste						0.0000	0.0000		0.0000	0.0000	39.0149	0.0000	39.0149	2.3057	0.0000	96.6577
Water						0.0000	0.0000		0.0000	0.0000	11.3716	56.4224	67.7940	1.1705	0.0281	105.4326
Total	**0.8167**	**1.0912**	**1.0362**	**5.1700e-003**	**0.2589**	**0.0147**	**0.2736**	**0.0696**	**0.0145**	**0.0842**	**50.3864**	**992.3288**	**1,042.7153**	**3.5229**	**0.0345**	**1,141.0675**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction1	Building Construction	1/1/2020	7/14/2020	5	140	
2	Grading	Grading	1/22/2020	3/17/2020	5	40	
3	Building Construction2	Building Construction	3/18/2020	9/1/2020	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction1	Cranes	2	4.00	231	0.29
Building Construction1	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction1	Forklifts	1	4.00	110	0.20
Building Construction1	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction1	Welders	1	8.00	25	0.45
Grading	Cranes	2	4.00	231	0.29
Grading	Forklifts	2	8.00	110	0.20
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Tractors/Loaders/Backhoes	1	8.00	100	0.37
Building Construction2	Cranes	1	4.00	231	0.29
Building Construction2	Forklifts	1	4.00	110	0.20
Building Construction2	Skid Steer Loaders	1	8.00	65	0.37
Building Construction2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction2	Welders	3	8.00	25	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction1	8	65.00	2.00	12.00	10.80	7.50	30.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	30.00	10.80	135.00	50.00	LD_Mix	HDT_Mix	HHDT
Building Construction2	7	65.00	2.00	0.00	10.80	7.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1219	1.1696	0.9703	1.6600e-003		0.0645	0.0645		0.0607	0.0607	0.0000	143.3896	143.3896	0.0351	0.0000	144.2681
Total	**0.1219**	**1.1696**	**0.9703**	**1.6600e-003**		**0.0645**	**0.0645**		**0.0607**	**0.0607**	**0.0000**	**143.3896**	**143.3896**	**0.0351**	**0.0000**	**144.2681**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.2000e-003	3.3000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6469	0.6469	3.0000e-005	0.0000	0.6476
Vendor	5.6000e-004	0.0172	3.2700e-003	4.0000e-005	9.5000e-004	1.0000e-004	1.0500e-003	2.8000e-004	9.0000e-005	3.7000e-004	0.0000	3.8589	3.8589	3.0000e-004	0.0000	3.8664
Worker	0.0192	0.0131	0.1327	3.6000e-004	0.0364	2.6000e-004	0.0366	9.6700e-003	2.4000e-004	9.9100e-003	0.0000	32.6659	32.6659	9.4000e-004	0.0000	32.6893
Total	**0.0199**	**0.0325**	**0.1363**	**4.1000e-004**	**0.0375**	**3.7000e-004**	**0.0379**	**9.9900e-003**	**3.4000e-004**	**0.0103**	**0.0000**	**37.1716**	**37.1716**	**1.2700e-003**	**0.0000**	**37.2032**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.1219	1.1696	0.9703	1.6600e-003		0.0645	0.0645		0.0607	0.0607	0.0000	143.3894	143.3894	0.0351	0.0000	144.2679
Total	**0.1219**	**1.1696**	**0.9703**	**1.6600e-003**		**0.0645**	**0.0645**		**0.0607**	**0.0607**	**0.0000**	**143.3894**	**143.3894**	**0.0351**	**0.0000**	**144.2679**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.2000e-003	3.3000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6469	0.6469	3.0000e-005	0.0000	0.6476
Vendor	5.6000e-004	0.0172	3.2700e-003	4.0000e-005	9.5000e-004	1.0000e-004	1.0500e-003	2.8000e-004	9.0000e-005	3.7000e-004	0.0000	3.8589	3.8589	3.0000e-004	0.0000	3.8664
Worker	0.0192	0.0131	0.1327	3.6000e-004	0.0364	2.6000e-004	0.0366	9.6700e-003	2.4000e-004	9.9100e-003	0.0000	32.6659	32.6659	9.4000e-004	0.0000	32.6893
Total	**0.0199**	**0.0325**	**0.1363**	**4.1000e-004**	**0.0375**	**3.7000e-004**	**0.0379**	**9.9900e-003**	**3.4000e-004**	**0.0103**	**0.0000**	**37.1716**	**37.1716**	**1.2700e-003**	**0.0000**	**37.2032**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0261	0.2858	0.1893	4.4000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	38.9107	38.9107	0.0126	0.0000	39.2253
Total	**0.0261**	**0.2858**	**0.1893**	**4.4000e-004**		**0.0140**	**0.0140**		**0.0129**	**0.0129**	**0.0000**	**38.9107**	**38.9107**	**0.0126**	**0.0000**	**39.2253**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5000e-004	8.1300e-003	1.2900e-003	3.0000e-005	6.4000e-004	3.0000e-005	6.8000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	2.5723	2.5723	7.0000e-005	0.0000	2.5741
Vendor	1.8500e-003	0.0419	8.5700e-003	1.6000e-004	4.8900e-003	4.6000e-004	5.3500e-003	1.4100e-003	4.4000e-004	1.8500e-003	0.0000	15.4232	15.4232	2.0000e-004	0.0000	15.4283
Worker	1.2700e-003	8.6000e-004	8.7500e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4200e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.1538	2.1538	6.0000e-005	0.0000	2.1553
Total	**3.3700e-003**	**0.0509**	**0.0186**	**2.1000e-004**	**7.9300e-003**	**5.1000e-004**	**8.4500e-003**	**2.2300e-003**	**4.9000e-004**	**2.7100e-003**	**0.0000**	**20.1493**	**20.1493**	**3.3000e-004**	**0.0000**	**20.1578**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0261	0.2858	0.1893	4.4000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	38.9107	38.9107	0.0126	0.0000	39.2253
Total	**0.0261**	**0.2858**	**0.1893**	**4.4000e-004**		**0.0140**	**0.0140**		**0.0129**	**0.0129**	**0.0000**	**38.9107**	**38.9107**	**0.0126**	**0.0000**	**39.2253**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5000e-004	8.1300e-003	1.2900e-003	3.0000e-005	6.4000e-004	3.0000e-005	6.8000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	2.5723	2.5723	7.0000e-005	0.0000	2.5741
Vendor	1.8500e-003	0.0419	8.5700e-003	1.6000e-004	4.8900e-003	4.6000e-004	5.3500e-003	1.4100e-003	4.4000e-004	1.8500e-003	0.0000	15.4232	15.4232	2.0000e-004	0.0000	15.4283
Worker	1.2700e-003	8.6000e-004	8.7500e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4200e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.1538	2.1538	6.0000e-005	0.0000	2.1553
Total	**3.3700e-003**	**0.0509**	**0.0186**	**2.1000e-004**	**7.9300e-003**	**5.1000e-004**	**8.4500e-003**	**2.2300e-003**	**4.9000e-004**	**2.7100e-003**	**0.0000**	**20.1493**	**20.1493**	**3.3000e-004**	**0.0000**	**20.1578**

3.4 Building Construction2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0638	0.5620	0.4157	7.9000e-004		0.0286	0.0286		0.0269	0.0269	0.0000	65.8666	65.8666	0.0176	0.0000	66.3061
Total	**0.0638**	**0.5620**	**0.4157**	**7.9000e-004**		**0.0286**	**0.0286**		**0.0269**	**0.0269**	**0.0000**	**65.8666**	**65.8666**	**0.0176**	**0.0000**	**66.3061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8000e-004	0.0148	2.8100e-003	3.0000e-005	8.2000e-004	8.0000e-005	9.0000e-004	2.4000e-004	8.0000e-005	3.2000e-004	0.0000	3.3076	3.3076	2.6000e-004	0.0000	3.3140
Worker	0.0165	0.0112	0.1137	3.1000e-004	0.0312	2.2000e-004	0.0314	8.2900e-003	2.0000e-004	8.4900e-003	0.0000	27.9993	27.9993	8.0000e-004	0.0000	28.0194
Total	**0.0170**	**0.0260**	**0.1165**	**3.4000e-004**	**0.0320**	**3.0000e-004**	**0.0323**	**8.5300e-003**	**2.8000e-004**	**8.8100e-003**	**0.0000**	**31.3069**	**31.3069**	**1.0600e-003**	**0.0000**	**31.3334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0638	0.5620	0.4157	7.9000e-004		0.0286	0.0286		0.0269	0.0269	0.0000	65.8665	65.8665	0.0176	0.0000	66.3061
Total	**0.0638**	**0.5620**	**0.4157**	**7.9000e-004**		**0.0286**	**0.0286**		**0.0269**	**0.0269**	**0.0000**	**65.8665**	**65.8665**	**0.0176**	**0.0000**	**66.3061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8000e-004	0.0148	2.8100e-003	3.0000e-005	8.2000e-004	8.0000e-005	9.0000e-004	2.4000e-004	8.0000e-005	3.2000e-004	0.0000	3.3076	3.3076	2.6000e-004	0.0000	3.3140

Worker	0.0165	0.0112	0.1137	3.1000e-004	0.0312	2.2000e-004	0.0314	8.2900e-003	2.0000e-004	8.4900e-003	0.0000	27.9993	27.9993	8.0000e-004	0.0000	28.0194
Total	**0.0170**	**0.0260**	**0.1165**	**3.4000e-004**	**0.0320**	**3.0000e-004**	**0.0323**	**8.5300e-003**	**2.8000e-004**	**8.8100e-003**	**0.0000**	**31.3069**	**31.3069**	**1.0600e-003**	**0.0000**	**31.3334**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Unmitigated	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	232.50	232.50	232.50	678,786	678,786
Total	232.50	232.50	232.50	678,786	678,786

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.506092	0.032602	0.169295	0.124521	0.019914	0.005374	0.021664	0.110051	0.001797	0.001623	0.005307	0.000969	0.000792

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	381.0213	381.0213	0.0172	3.5600e-003	382.5143
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	381.0213	381.0213	0.0172	3.5600e-003	382.5143
NaturalGas Mitigated	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
NaturalGas Unmitigated	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

General Heavy Industry	2.8892e+006	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
Total		**0.0156**	**0.1416**	**0.1190**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.1787**	**154.1787**	**2.9600e-003**	**2.8300e-003**	**155.0949**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	2.8892e+006	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
Total		**0.0156**	**0.1416**	**0.1190**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.1787**	**154.1787**	**2.9600e-003**	**2.8300e-003**	**155.0949**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	1.30975e+006	381.0213	0.0172	3.5600e-003	382.5143
Total		**381.0213**	**0.0172**	**3.5600e-003**	**382.5143**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	1.30975e+006	381.0213	0.0172	3.5600e-003	382.5143
Total		**381.0213**	**0.0172**	**3.5600e-003**	**382.5143**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Unmitigated	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Total	**0.7132**	**1.0000e-005**	**1.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7700e-003**	**2.7700e-003**	**1.0000e-005**	**0.0000**	**2.9500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Total	**0.7132**	**1.0000e-005**	**1.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7700e-003**	**2.7700e-003**	**1.0000e-005**	**0.0000**	**2.9500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	67.7940	1.1705	0.0281	105.4326
Unmitigated	67.7940	1.1705	0.0281	105.4326

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	35.8438 / 0	67.7940	1.1705	0.0281	105.4326
Total		**67.7940**	**1.1705**	**0.0281**	**105.4326**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
General Heavy Industry	35.8438 / 0	67.7940	1.1705	0.0281	105.4326
Total		**67.7940**	**1.1705**	**0.0281**	**105.4326**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.0149	2.3057	0.0000	96.6577
Unmitigated	39.0149	2.3057	0.0000	96.6577

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

General Heavy Industry	192.2	39.0149	2.3057	0.0000	96.6577
Total		**39.0149**	**2.3057**	**0.0000**	**96.6577**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	192.2	39.0149	2.3057	0.0000	96.6577
Total		**39.0149**	**2.3057**	**0.0000**	**96.6577**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Stockton NuStar Domestic RD Project - San Joaquin Valley Unified APCD Air District, Annual

Stockton NuStar Domestic RD Project

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	155.00	1000sqft	3.56	155,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	2			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Provided by NuStar.

Off-road Equipment - Provided by NuStar

Off-road Equipment - Provided by NuStar

Off-road Equipment - Provided by NuStar

Trips and VMT - Concrete truck.

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	230.00	66.00
tblConstructionPhase	NumDays	230.00	44.00
tblConstructionPhase	NumDays	8.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblTripsAndVMT	VendorTripNumber	25.00	1.00
tblTripsAndVMT	VendorTripNumber	25.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1701	1.1006	1.3273	2.2100e-003	0.0356	0.0574	0.0930	9.4700e-003	0.0553	0.0648	0.0000	186.1828	186.1828	0.0355	0.0000	187.0692
Maximum	**0.1701**	**1.1006**	**1.3273**	**2.2100e-003**	**0.0356**	**0.0574**	**0.0930**	**9.4700e-003**	**0.0553**	**0.0648**	**0.0000**	**186.1828**	**186.1828**	**0.0355**	**0.0000**	**187.0692**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1701	1.1006	1.3273	2.2100e-003	0.0356	0.0574	0.0930	9.4700e-003	0.0553	0.0648	0.0000	186.1826	186.1826	0.0355	0.0000	187.0690
Maximum	**0.1701**	**1.1006**	**1.3273**	**2.2100e-003**	**0.0356**	**0.0574**	**0.0930**	**9.4700e-003**	**0.0553**	**0.0648**	**0.0000**	**186.1826**	**186.1826**	**0.0355**	**0.0000**	**187.0690**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-1-2020**	**6-30-2020**	0.7650	0.7650
2	**7-1-2020**	**9-30-2020**	0.5049	0.5049
		Highest	0.7650	0.7650

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Energy	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	535.2000	535.2000	0.0202	6.3900e-003	537.6092
Mobile	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Waste						0.0000	0.0000		0.0000	0.0000	39.0149	0.0000	39.0149	2.3057	0.0000	96.6577
Water						0.0000	0.0000		0.0000	0.0000	11.3716	56.4224	67.7940	1.1705	0.0281	105.4326
Total	**0.8167**	**1.0912**	**1.0362**	**5.1700e-003**	**0.2589**	**0.0147**	**0.2736**	**0.0696**	**0.0145**	**0.0842**	**50.3864**	**992.3288**	**1,042.7153**	**3.5229**	**0.0345**	**1,141.0675**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Energy	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	535.2000	535.2000	0.0202	6.3900e-003	537.6092
Mobile	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Waste						0.0000	0.0000		0.0000	0.0000	39.0149	0.0000	39.0149	2.3057	0.0000	96.6577
Water						0.0000	0.0000		0.0000	0.0000	11.3716	56.4224	67.7940	1.1705	0.0281	105.4326
Total	**0.8167**	**1.0912**	**1.0362**	**5.1700e-003**	**0.2589**	**0.0147**	**0.2736**	**0.0696**	**0.0145**	**0.0842**	**50.3864**	**992.3288**	**1,042.7153**	**3.5229**	**0.0345**	**1,141.0675**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	4/1/2020	4/30/2020	6	26	Civil
2	Building Construction1	Building Construction	5/1/2020	7/31/2020	6	66	Mechanical
3	Building Construction2	Building Construction	7/1/2020	8/31/2020	6	44	Electrical

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Excavators	1	6.00	158	0.38
Grading	Skid Steer Loaders	2	6.00	65	0.37
Building Construction1	Forklifts	2	6.00	89	0.20
Building Construction1	Welders	6	8.00	46	0.45
Building Construction1	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction1	Excavators	1	6.00	158	0.38
Building Construction1	Aerial Lifts	2	8.00	63	0.31
Building Construction1	Cranes	1	4.00	231	0.29
Building Construction1	Air Compressors	1	8.00	78	0.48
Building Construction1	Skid Steer Loaders	2	6.00	65	0.37
Building Construction2	Aerial Lifts	2	8.00	63	0.31
Building Construction2	Generator Sets	1	8.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction1	16	65.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction2	3	65.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9900e-003	0.0648	0.0812	1.2000e-004		3.3300e-003	3.3300e-003		3.0700e-003	3.0700e-003	0.0000	10.6249	10.6249	3.4400e-003	0.0000	10.7108
Total	**5.9900e-003**	**0.0648**	**0.0812**	**1.2000e-004**		**3.3300e-003**	**3.3300e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**10.6249**	**10.6249**	**3.4400e-003**	**0.0000**	**10.7108**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	5.5000e-004	3.7000e-004	3.7900e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.9333	0.9333	3.0000e-005	0.0000	0.9340
Total	**5.5000e-004**	**3.7000e-004**	**3.7900e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.9333**	**0.9333**	**3.0000e-005**	**0.0000**	**0.9340**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9900e-003	0.0648	0.0812	1.2000e-004		3.3300e-003	3.3300e-003		3.0700e-003	3.0700e-003	0.0000	10.6249	10.6249	3.4400e-003	0.0000	10.7108
Total	**5.9900e-003**	**0.0648**	**0.0812**	**1.2000e-004**		**3.3300e-003**	**3.3300e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**10.6249**	**10.6249**	**3.4400e-003**	**0.0000**	**10.7108**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.7000e-004	3.7900e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.9333	0.9333	3.0000e-005	0.0000	0.9340
Total	**5.5000e-004**	**3.7000e-004**	**3.7900e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.9333**	**0.9333**	**3.0000e-005**	**0.0000**	**0.9340**

3.3 Building Construction1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1326	0.8921	0.9601	1.4700e-003		0.0478	0.0478		0.0461	0.0461	0.0000	119.9619	119.9619	0.0277	0.0000	120.6533
Total	**0.1326**	**0.8921**	**0.9601**	**1.4700e-003**		**0.0478**	**0.0478**		**0.0461**	**0.0461**	**0.0000**	**119.9619**	**119.9619**	**0.0277**	**0.0000**	**120.6533**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.8100e-003	9.1000e-004	1.0000e-005	2.6000e-004	3.0000e-005	2.9000e-004	8.0000e-005	3.0000e-005	1.0000e-004	0.0000	1.0666	1.0666	8.0000e-005	0.0000	1.0687
Worker	0.0109	7.3700e-003	0.0749	2.0000e-004	0.0205	1.5000e-004	0.0207	5.4600e-003	1.3000e-004	5.5900e-003	0.0000	18.4329	18.4329	5.3000e-004	0.0000	18.4461
Total	**0.0110**	**0.0122**	**0.0758**	**2.1000e-004**	**0.0208**	**1.8000e-004**	**0.0210**	**5.5400e-003**	**1.6000e-004**	**5.6900e-003**	**0.0000**	**19.4995**	**19.4995**	**6.1000e-004**	**0.0000**	**19.5148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.1326	0.8921	0.9601	1.4700e-003		0.0478	0.0478		0.0461	0.0461	0.0000	119.9617	119.9617	0.0277	0.0000	120.6531
Total	**0.1326**	**0.8921**	**0.9601**	**1.4700e-003**		**0.0478**	**0.0478**		**0.0461**	**0.0461**	**0.0000**	**119.9617**	**119.9617**	**0.0277**	**0.0000**	**120.6531**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.8100e-003	9.1000e-004	1.0000e-005	2.6000e-004	3.0000e-005	2.9000e-004	8.0000e-005	3.0000e-005	1.0000e-004	0.0000	1.0666	1.0666	8.0000e-005	0.0000	1.0687
Worker	0.0109	7.3700e-003	0.0749	2.0000e-004	0.0205	1.5000e-004	0.0207	5.4600e-003	1.3000e-004	5.5900e-003	0.0000	18.4329	18.4329	5.3000e-004	0.0000	18.4461
Total	**0.0110**	**0.0122**	**0.0758**	**2.1000e-004**	**0.0208**	**1.8000e-004**	**0.0210**	**5.5400e-003**	**1.6000e-004**	**5.6900e-003**	**0.0000**	**19.4995**	**19.4995**	**6.1000e-004**	**0.0000**	**19.5148**

3.4 Building Construction2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0127	0.1263	0.1562	2.6000e-004		5.9600e-003	5.9600e-003		5.9000e-003	5.9000e-003	0.0000	22.7969	22.7969	3.3700e-003	0.0000	22.8812
Total	**0.0127**	**0.1263**	**0.1562**	**2.6000e-004**		**5.9600e-003**	**5.9600e-003**		**5.9000e-003**	**5.9000e-003**	**0.0000**	**22.7969**	**22.7969**	**3.3700e-003**	**0.0000**	**22.8812**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2800e-003	4.9400e-003	0.0502	1.4000e-004	0.0138	1.0000e-004	0.0139	3.6600e-003	9.0000e-005	3.7500e-003	0.0000	12.3664	12.3664	3.5000e-004	0.0000	12.3752
Total	**7.2800e-003**	**4.9400e-003**	**0.0502**	**1.4000e-004**	**0.0138**	**1.0000e-004**	**0.0139**	**3.6600e-003**	**9.0000e-005**	**3.7500e-003**	**0.0000**	**12.3664**	**12.3664**	**3.5000e-004**	**0.0000**	**12.3752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0127	0.1263	0.1562	2.6000e-004		5.9600e-003	5.9600e-003		5.9000e-003	5.9000e-003	0.0000	22.7969	22.7969	3.3700e-003	0.0000	22.8812
Total	**0.0127**	**0.1263**	**0.1562**	**2.6000e-004**		**5.9600e-003**	**5.9600e-003**		**5.9000e-003**	**5.9000e-003**	**0.0000**	**22.7969**	**22.7969**	**3.3700e-003**	**0.0000**	**22.8812**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2800e-003	4.9400e-003	0.0502	1.4000e-004	0.0138	1.0000e-004	0.0139	3.6600e-003	9.0000e-005	3.7500e-003	0.0000	12.3664	12.3664	3.5000e-004	0.0000	12.3752
Total	**7.2800e-003**	**4.9400e-003**	**0.0502**	**1.4000e-004**	**0.0138**	**1.0000e-004**	**0.0139**	**3.6600e-003**	**9.0000e-005**	**3.7500e-003**	**0.0000**	**12.3664**	**12.3664**	**3.5000e-004**	**0.0000**	**12.3752**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Unmitigated	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	232.50	232.50	232.50	678,786	678,786
Total	232.50	232.50	232.50	678,786	678,786

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.506092	0.032602	0.169295	0.124521	0.019914	0.005374	0.021664	0.110051	0.001797	0.001623	0.005307	0.000969	0.000792

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	381.0213	381.0213	0.0172	3.5600e-003	382.5143
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	381.0213	381.0213	0.0172	3.5600e-003	382.5143
NaturalGas Mitigated	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
NaturalGas Unmitigated	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	2.8892e+006	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
Total		**0.0156**	**0.1416**	**0.1190**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.1787**	**154.1787**	**2.9600e-003**	**2.8300e-003**	**155.0949**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	2.8892e+006	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
Total		**0.0156**	**0.1416**	**0.1190**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.1787**	**154.1787**	**2.9600e-003**	**2.8300e-003**	**155.0949**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
General Heavy Industry	1.30975e+006	381.0213	0.0172	3.5600e-003	382.5143
Total		**381.0213**	**0.0172**	**3.5600e-003**	**382.5143**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	1.30975e+006	381.0213	0.0172	3.5600e-003	382.5143
Total		**381.0213**	**0.0172**	**3.5600e-003**	**382.5143**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Mitigated	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Unmitigated	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Total	**0.7132**	**1.0000e-005**	**1.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7700e-003**	**2.7700e-003**	**1.0000e-005**	**0.0000**	**2.9500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003

Total	**0.7132**	**1.0000e-005**	**1.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7700e-003**	**2.7700e-003**	**1.0000e-005**	**0.0000**	**2.9500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	67.7940	1.1705	0.0281	105.4326
Unmitigated	67.7940	1.1705	0.0281	105.4326

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	35.8438 / 0	67.7940	1.1705	0.0281	105.4326
Total		**67.7940**	**1.1705**	**0.0281**	**105.4326**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	35.8438 / 0	67.7940	1.1705	0.0281	105.4326
Total		**67.7940**	**1.1705**	**0.0281**	**105.4326**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.0149	2.3057	0.0000	96.6577
Unmitigated	39.0149	2.3057	0.0000	96.6577

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	192.2	39.0149	2.3057	0.0000	96.6577
Total		**39.0149**	**2.3057**	**0.0000**	**96.6577**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	192.2	39.0149	2.3057	0.0000	96.6577
Total		**39.0149**	**2.3057**	**0.0000**	**96.6577**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Stockton NuStar Ethanol Project

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	155.00	1000sqft	3.56	155,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	2			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Provided by NuStar.

Off-road Equipment - Provided by NuStar.

Off-road Equipment - Provided by NuStar.

Off-road Equipment - Provided by NuStar.

Trips and VMT - Provided by NuStar.

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	230.00	104.00
tblConstructionPhase	NumDays	230.00	78.00
tblConstructionPhase	NumDays	8.00	77.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblTripsAndVMT	VendorTripNumber	25.00	1.00
tblTripsAndVMT	VendorTripNumber	25.00	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2347	1.5148	1.8119	3.0400e-003	0.3048	0.0805	0.3853	0.1436	0.0775	0.2211	0.0000	256.6668	256.6668	0.0481	0.0000	257.8696
Maximum	**0.2347**	**1.5148**	**1.8119**	**3.0400e-003**	**0.3048**	**0.0805**	**0.3853**	**0.1436**	**0.0775**	**0.2211**	**0.0000**	**256.6668**	**256.6668**	**0.0481**	**0.0000**	**257.8696**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

2020	0.2347	1.5148	1.8119	3.0400e-003	0.3048	0.0805	0.3853	0.1436	0.0775	0.2211	0.0000	256.6665	256.6665	0.0481	0.0000	257.8694
Maximum	**0.2347**	**1.5148**	**1.8119**	**3.0400e-003**	**0.3048**	**0.0805**	**0.3853**	**0.1436**	**0.0775**	**0.2211**	**0.0000**	**256.6665**	**256.6665**	**0.0481**	**0.0000**	**257.8694**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	0.2144	0.2144
2	**4-1-2020**	**6-30-2020**	1.1352	1.1352
3	**7-1-2020**	**9-30-2020**	0.3990	0.3990
		Highest	1.1352	1.1352

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Energy	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	535.2000	535.2000	0.0202	6.3900e-003	537.6092
Mobile	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Waste						0.0000	0.0000		0.0000	0.0000	39.0149	0.0000	39.0149	2.3057	0.0000	96.6577
Water						0.0000	0.0000		0.0000	0.0000	11.3716	56.4224	67.7940	1.1705	0.0281	105.4326
Total	**0.8167**	**1.0912**	**1.0362**	**5.1700e-003**	**0.2589**	**0.0147**	**0.2736**	**0.0696**	**0.0145**	**0.0842**	**50.3864**	**992.3288**	**1,042.7153**	**3.5229**	**0.0345**	**1,141.0675**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Energy	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	535.2000	535.2000	0.0202	6.3900e-003	537.6092
Mobile	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Waste						0.0000	0.0000		0.0000	0.0000	39.0149	0.0000	39.0149	2.3057	0.0000	96.6577
Water						0.0000	0.0000		0.0000	0.0000	11.3716	56.4224	67.7940	1.1705	0.0281	105.4326
Total	**0.8167**	**1.0912**	**1.0362**	**5.1700e-003**	**0.2589**	**0.0147**	**0.2736**	**0.0696**	**0.0145**	**0.0842**	**50.3864**	**992.3288**	**1,042.7153**	**3.5229**	**0.0345**	**1,141.0675**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2020	3/30/2020	6	77	Civil
2	Building Construction1	Building Construction	4/1/2020	7/30/2020	6	104	Mechanical
3	Building Construction2	Building Construction	5/1/2020	7/30/2020	6	78	Electrical

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 38.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Excavators	1	6.00	158	0.38
Grading	Skid Steer Loaders	2	6.00	65	0.37
Building Construction1	Forklifts	2	6.00	89	0.20
Building Construction1	Welders	6	8.00	46	0.45
Building Construction1	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction1	Excavators	1	6.00	158	0.38
Building Construction1	Cranes	1	4.00	231	0.29
Building Construction1	Air Compressors	1	8.00	78	0.48
Building Construction1	Skid Steer Loaders	2	6.00	65	0.37
Building Construction2	Aerial Lifts	2	8.00	63	0.31
Building Construction2	Generator Sets	1	8.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction1	15	65.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction2	11	65.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2523	0.0000	0.2523	0.1297	0.0000	0.1297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0177	0.1918	0.2405	3.6000e-004		9.8700e-003	9.8700e-003		9.0800e-003	9.0800e-003	0.0000	31.4660	31.4660	0.0102	0.0000	31.7204
Total	**0.0177**	**0.1918**	**0.2405**	**3.6000e-004**	**0.2523**	**9.8700e-003**	**0.2621**	**0.1297**	**9.0800e-003**	**0.1387**	**0.0000**	**31.4660**	**31.4660**	**0.0102**	**0.0000**	**31.7204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4400e-003	1.6600e-003	0.0168	5.0000e-005	4.6200e-003	3.0000e-005	4.6500e-003	1.2300e-003	3.0000e-005	1.2600e-003	0.0000	4.1461	4.1461	1.2000e-004	0.0000	4.1490
Total	**2.4400e-003**	**1.6600e-003**	**0.0168**	**5.0000e-005**	**4.6200e-003**	**3.0000e-005**	**4.6500e-003**	**1.2300e-003**	**3.0000e-005**	**1.2600e-003**	**0.0000**	**4.1461**	**4.1461**	**1.2000e-004**	**0.0000**	**4.1490**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					0.2523	0.0000	0.2523	0.1297	0.0000	0.1297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0177	0.1918	0.2405	3.6000e-004		9.8700e-003	9.8700e-003		9.0800e-003	9.0800e-003	0.0000	31.4660	31.4660	0.0102	0.0000	31.7204
Total	**0.0177**	**0.1918**	**0.2405**	**3.6000e-004**	**0.2523**	**9.8700e-003**	**0.2621**	**0.1297**	**9.0800e-003**	**0.1387**	**0.0000**	**31.4660**	**31.4660**	**0.0102**	**0.0000**	**31.7204**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4400e-003	1.6600e-003	0.0168	5.0000e-005	4.6200e-003	3.0000e-005	4.6500e-003	1.2300e-003	3.0000e-005	1.2600e-003	0.0000	4.1461	4.1461	1.2000e-004	0.0000	4.1490
Total	**2.4400e-003**	**1.6600e-003**	**0.0168**	**5.0000e-005**	**4.6200e-003**	**3.0000e-005**	**4.6500e-003**	**1.2300e-003**	**3.0000e-005**	**1.2600e-003**	**0.0000**	**4.1461**	**4.1461**	**1.2000e-004**	**0.0000**	**4.1490**

3.3 Building Construction1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1705	1.1074	1.1501	1.7600e-003		0.0615	0.0615		0.0593	0.0593	0.0000	142.5817	142.5817	0.0315	0.0000	143.3679
Total	**0.1705**	**1.1074**	**1.1501**	**1.7600e-003**		**0.0615**	**0.0615**		**0.0593**	**0.0593**	**0.0000**	**142.5817**	**142.5817**	**0.0315**	**0.0000**	**143.3679**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1000e-004	6.3300e-003	1.2000e-003	1.0000e-005	3.4000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.4041	1.4041	1.1000e-004	0.0000	1.4069
Worker	0.0143	9.7000e-003	0.0986	2.7000e-004	0.0270	1.9000e-004	0.0272	7.1800e-003	1.8000e-004	7.3600e-003	0.0000	24.2661	24.2661	7.0000e-004	0.0000	24.2834
Total	**0.0145**	**0.0160**	**0.0998**	**2.8000e-004**	**0.0274**	**2.2000e-004**	**0.0276**	**7.2800e-003**	**2.1000e-004**	**7.4900e-003**	**0.0000**	**25.6702**	**25.6702**	**8.1000e-004**	**0.0000**	**25.6903**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1705	1.1074	1.1501	1.7600e-003		0.0615	0.0615		0.0593	0.0593	0.0000	142.5816	142.5816	0.0315	0.0000	143.3677
Total	**0.1705**	**1.1074**	**1.1501**	**1.7600e-003**		**0.0615**	**0.0615**		**0.0593**	**0.0593**	**0.0000**	**142.5816**	**142.5816**	**0.0315**	**0.0000**	**143.3677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1000e-004	6.3300e-003	1.2000e-003	1.0000e-005	3.4000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.4041	1.4041	1.1000e-004	0.0000	1.4069
Worker	0.0143	9.7000e-003	0.0986	2.7000e-004	0.0270	1.9000e-004	0.0272	7.1800e-003	1.8000e-004	7.3600e-003	0.0000	24.2661	24.2661	7.0000e-004	0.0000	24.2834
Total	**0.0145**	**0.0160**	**0.0998**	**2.8000e-004**	**0.0274**	**2.2000e-004**	**0.0276**	**7.2800e-003**	**2.1000e-004**	**7.4900e-003**	**0.0000**	**25.6702**	**25.6702**	**8.1000e-004**	**0.0000**	**25.6903**

3.4 Building Construction2 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0187	0.1859	0.2299	3.9000e-004		8.7700e-003	8.7700e-003		8.6800e-003	8.6800e-003	0.0000	33.5501	33.5501	4.9600e-003	0.0000	33.6742
Total	**0.0187**	**0.1859**	**0.2299**	**3.9000e-004**		**8.7700e-003**	**8.7700e-003**		**8.6800e-003**	**8.6800e-003**	**0.0000**	**33.5501**	**33.5501**	**4.9600e-003**	**0.0000**	**33.6742**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	4.7500e-003	9.0000e-004	1.0000e-005	2.6000e-004	3.0000e-005	2.8000e-004	7.0000e-005	3.0000e-005	1.0000e-004	0.0000	1.0531	1.0531	8.0000e-005	0.0000	1.0552
Worker	0.0107	7.2700e-003	0.0739	2.0000e-004	0.0203	1.4000e-004	0.0204	5.3900e-003	1.3000e-004	5.5200e-003	0.0000	18.1996	18.1996	5.2000e-004	0.0000	18.2126
Total	**0.0109**	**0.0120**	**0.0748**	**2.1000e-004**	**0.0205**	**1.7000e-004**	**0.0207**	**5.4600e-003**	**1.6000e-004**	**5.6200e-003**	**0.0000**	**19.2526**	**19.2526**	**6.0000e-004**	**0.0000**	**19.2677**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0187	0.1859	0.2299	3.9000e-004		8.7700e-003	8.7700e-003		8.6800e-003	8.6800e-003	0.0000	33.5501	33.5501	4.9600e-003	0.0000	33.6742
Total	**0.0187**	**0.1859**	**0.2299**	**3.9000e-004**		**8.7700e-003**	**8.7700e-003**		**8.6800e-003**	**8.6800e-003**	**0.0000**	**33.5501**	**33.5501**	**4.9600e-003**	**0.0000**	**33.6742**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	4.7500e-003	9.0000e-004	1.0000e-005	2.6000e-004	3.0000e-005	2.8000e-004	7.0000e-005	3.0000e-005	1.0000e-004	0.0000	1.0531	1.0531	8.0000e-005	0.0000	1.0552

Worker	0.0107	7.2700e-003	0.0739	2.0000e-004	0.0203	1.4000e-004	0.0204	5.3900e-003	1.3000e-004	5.5200e-003	0.0000	18.1996	18.1996	5.2000e-004	0.0000	18.2126
Total	**0.0109**	**0.0120**	**0.0748**	**2.1000e-004**	**0.0205**	**1.7000e-004**	**0.0207**	**5.4600e-003**	**1.6000e-004**	**5.6200e-003**	**0.0000**	**19.2526**	**19.2526**	**6.0000e-004**	**0.0000**	**19.2677**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650
Unmitigated	0.0879	0.9496	0.9158	4.3200e-003	0.2589	3.9700e-003	0.2628	0.0696	3.7500e-003	0.0734	0.0000	400.7036	400.7036	0.0265	0.0000	401.3650

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	232.50	232.50	232.50	678,786	678,786
Total	232.50	232.50	232.50	678,786	678,786

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.506092	0.032602	0.169295	0.124521	0.019914	0.005374	0.021664	0.110051	0.001797	0.001623	0.005307	0.000969	0.000792

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	381.0213	381.0213	0.0172	3.5600e-003	382.5143
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	381.0213	381.0213	0.0172	3.5600e-003	382.5143
NaturalGas Mitigated	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
NaturalGas Unmitigated	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

General Heavy Industry	2.8892e+006	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
Total		**0.0156**	**0.1416**	**0.1190**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.1787**	**154.1787**	**2.9600e-003**	**2.8300e-003**	**155.0949**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	2.8892e+006	0.0156	0.1416	0.1190	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.1787	154.1787	2.9600e-003	2.8300e-003	155.0949
Total		**0.0156**	**0.1416**	**0.1190**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.1787**	**154.1787**	**2.9600e-003**	**2.8300e-003**	**155.0949**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	1.30975e+006	381.0213	0.0172	3.5600e-003	382.5143
Total		**381.0213**	**0.0172**	**3.5600e-003**	**382.5143**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	1.30975e+006	381.0213	0.0172	3.5600e-003	382.5143
Total		**381.0213**	**0.0172**	**3.5600e-003**	**382.5143**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Unmitigated	0.7133	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Total	**0.7132**	**1.0000e-005**	**1.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7700e-003**	**2.7700e-003**	**1.0000e-005**	**0.0000**	**2.9500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7700e-003	2.7700e-003	1.0000e-005	0.0000	2.9500e-003
Total	**0.7132**	**1.0000e-005**	**1.4300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7700e-003**	**2.7700e-003**	**1.0000e-005**	**0.0000**	**2.9500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	67.7940	1.1705	0.0281	105.4326
Unmitigated	67.7940	1.1705	0.0281	105.4326

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	35.8438 / 0	67.7940	1.1705	0.0281	105.4326
Total		**67.7940**	**1.1705**	**0.0281**	**105.4326**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
General Heavy Industry	35.8438 / 0	67.7940	1.1705	0.0281	105.4326
Total		**67.7940**	**1.1705**	**0.0281**	**105.4326**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.0149	2.3057	0.0000	96.6577
Unmitigated	39.0149	2.3057	0.0000	96.6577

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

General Heavy Industry	192.2	39.0149	2.3057	0.0000	96.6577
Total		**39.0149**	**2.3057**	**0.0000**	**96.6577**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	192.2	39.0149	2.3057	0.0000	96.6577
Total		**39.0149**	**2.3057**	**0.0000**	**96.6577**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

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

Species	Federal	State	Habitat Association	Potential to Occur
Invertebrates				
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T	-	Riparian scrub in association with blue elderberry (*Sambucus mexicana*)	No potential to occur. Habitat not present.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	E	-	Valley and foothill grassland; vernal pool; wetland	No potential to occur. Habitat not present.
Amphibians				
California tiger salamander (*Ambystoma californiense*)	T	T	Cismontane woodland; meadow and seep; riparian woodland; valley and foothill grassland	No potential to occur. Habitat not present.
Western pond turtle (*Emys marmorata*)	-	SSC	Aquatic; flowing waters; standing waters; wetland	No potential to occur. Habitat not present.
Birds				
Tricolored blackbird (*Agelaius tricolor*)	-	CE; SSC	Freshwater marsh; marsh and swamp; swamp; wetland	No potential to occur. Habitat not present.
Burrowing owl (*Athene cunicularia*)	-	SSC	Prairie; scrub; grassland	No potential to occur. Habitat not present.
White-tailed kite (*Elanus leucurus*)	-	FP	Open grasslands; savanna; open woodlands; marshes; desert grassland; partially cleared lands; cultivated fields	Very low potential to occur in trees surrounding the project site.
Swainson's hawk (*Buteo swainsoni*)	-	T	Great basin grassland; riparian forest; riparian woodland; valley and foothill grassland	Very low potential to occur in trees surrounding the project site.
Least Bell's vireo (*Vireo bellii pusillus*)	E	E	Riparian forest; riparian scrub; riparian woodland	No potential to occur. Habitat not present.
California black rail (*Laterallus jamaicensis coturniculus*)	-	T; FP	Brackish marsh; freshwater marsh; marsh and swamp; salt marsh; wetland	No potential to occur. Habitat not present.
Song sparrow ("Modesto" population) (*Melospiza melodia*)	-	SSC	Riparian shrub-scrub	No potential to occur. Habitat not present.

Species	Federal	State	Habitat Association	Potential to Occur
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	-	SSC	Marsh and swamp; wetland	No potential to occur. Habitat not present.
Loggerhead shrike (*Lanius ludovicianus*)	-	SSC	Broadleaved upland forest, Desert wash, Joshua tree woodland, Mojavean desert scrub, Pinon and juniper woodlands, Riparian woodland, Sonoran desert scrub	No potential to occur. Habitat not present.
Mammals				
Riparian brush rabbit (*Sylvilagus bachmani riparius*)	E	E	Riparian forest	No potential to occur. Habitat not present.
American badger (*Taxidea taxus*)	-	SSC	Variety of terrestrial habitats	No potential to occur. Habitat not present.
Fish				
Delta smelt (*Hypomesus transpacificus*)	T	E	Aquatic; estuary	Very low potential to occur in San Joaquin River.
Steelhead - Central Valley DPS (*Oncorhynchus mykiss irideus*)	T	-	Aquatic; Sacramento/San Joaquin flowing waters	Moderate potential to occur in San Joaquin River.
Longfin smelt (*Spirinchus thaleichthys*)	C	T; SSC	Aquatic; estuary	Moderate potential to occur in San Joaquin River.
Reptiles				
Giant garter snake (*Thamnophis gigas*)	T	T	Marsh and swamp; riparian scrub; wetland	No potential to occur. Habitat not present.
Plants				
Palmate-bracted salty bird's-beak (*Chloropyron palmatum*)	E	E; 1B.1	Chenopod scrub; meadow and seep; valley and foothill grassland; wetland	No potential to occur. Habitat not present.
Delta button-celery (*Eryngium racemosum*)	-	E; 1B.1	Riparian scrub; wetland	No potential to occur. Habitat not present.

Notes:
Source: California Natural Diversity Database 2019 search of Project area and surrounding quadrangles (Stockton West, Terminous, Lodi South, Waterloo, Stockton East, Manteca, Lathrop, Union Island, and Holt).
C: candidate
E: endangered
FP: California Department of Fish and Wildlife fully protected
T: threatened
SSC: state species of special concern
Rare Plant Rank 1B.1 – rare, threatened, or endangered in California and elsewhere; seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)

Appendix G
CNPS List Plant Species with the Potential to Occur in the Study Area

Table G-1
CNPS List Plant Species with the Potential to Occur in the Study Area

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

Notes:
Source: California Department of Fish and Wildlife, 2019. California Native Diversity Database Rarefind 5 Program Search of Stockton West Terminous, Lodi South, Waterloo, Stockton East, Manteca, Lathrop, Union Island, and Holt quadrangles.
Rare Plant Rank 1B.1: rare, threatened, or endangered in California and elsewhere; seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
Rare Plant Rank 1B.2: rare, threatened, or endangered in California and elsewhere; fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
Rare Plant Rank 2B.1: rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
Rare Plant Rank 2B.2: rare, threatened, or endangered in California, but more common elsewhere; moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
Rare Plant Rank 2B.3: rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)