Final

Environmental Assessment
Renewed Fueling Operations
at
Defense Fuel Support Point
San Pedro, California

February 2022

Prepared for:
United States Department
of the Navy

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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	Renewed Fueling Operations at Defense Fuel Support Point, San Pedro, California
Project Location:	Defense Fuel Support Point, San Pedro, California
Lead Agency for the EA:	Department of the Navy
Affected Region:	San Pedro, Los Angeles County, California
Action Proponent:	Commanding Officer, Naval Weapons Station Seal Beach
Point of Contact:	Amanda Peyton, Community Planner, Naval Facilities Engineering System Command Southwest 750 Pacific Highway (12th Floor, Environmental) San Diego, California 92132-5190
Date:	February 2022

The United States (U.S.) Navy (Navy) has prepared this Environmental Assessment in accordance with the National Environmental Policy Act, as implemented by the Council on Environmental Quality Regulations and Navy regulations for implementing the National Environmental Policy Act. The Navy proposes to enter into an outlease of its fee-owned real property, pursuant to 10 U.S. Code (U.S.C.) section 2667, and assign its interests in the Navy-owned fuel pipeline rights-of-way, to allow for renewed fueling operations for commercial and military purposes at Defense Fuel Support Point (DFSP) San Pedro, California. The commercial outlease lessee would be required to provide the Navy with the capability of receiving fuel alongside Pier 12 at the Marine Terminal during normal and contingency operations. The purchase and delivery of fuel to Navy vessels and ships would be addressed by the Navy through contracts outside of the commercial outlease. The purpose of the Proposed Action is the reactivation and sustainment of the DFSP San Pedro facility to the maximum extent practicable for commercial fueling use, with allowance for periodic and contingency fueling of Navy ships (facilitating compliance with 10 U.S.C. section 5062 by equipping the Navy for “prompt and sustained combat incident to operations at sea”). Renewed fueling operations at DFSP San Pedro would help to ensure the availability of uninterrupted fuel supplies to Pacific Fleet vessels during normal operations and contingency scenarios. The need for the Proposed Action is to ensure the fullest possible use and maintenance of the Navy’s assets (e.g., the DFSP San Pedro Main and Marine Terminals and associated pipelines) through the commercial use of facilities and infrastructure while maintaining capability to meet Navy fueling needs in a safe and secure environment. This Environmental Assessment evaluates the potential environmental impacts associated with two action alternatives and the No Action Alternative to the following resource areas: air quality, water resources, geological resources, biological resources, land use and coastal resources, visual resources, noise, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and environmental justice. None of the action alternatives would result in significant impacts, and with implementation of the impact avoidance and minimization measures discussed herein, the anticipated impacts of the Proposed Action would be further minimized.

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EXECUTIVE SUMMARY

Proposed Action

The United States (U.S.) Navy (Navy) has prepared this Environmental Assessment (EA) for the proposed outlease of its fee-owned real property, pursuant to 10 U.S. Code (U.S.C.) section 2667, and assignment of its interests in the Navy-owned fuel pipeline rights-of-way, to allow for renewed fueling operations for commercial and military purposes at Defense Fuel Support Point (DFSP) San Pedro, California. The purchase and delivery of fuel to Navy vessels and ships would be addressed by the Navy through contracts outside of the commercial outlease. The commercial outlease lessee would be required to provide the Navy with the capability of receiving fuel alongside Pier 12 at the Marine Terminal during normal and unanticipated or emergency (contingency) operations.

Renewed fueling operations at DFSP San Pedro would help to ensure the availability of fuel supplies to Pacific Fleet vessels during normal operations and contingency scenarios. Periodic fueling for the Navy during normal operations would include approximately 6 ships per quarter, or 24 ships per year. Under normal operations, the Navy would act as a regular customer and follow the commercial outlease lessee's standard operating procedures for fueling. The Navy would fuel during the lessee's normal operating hours and follow the lessee's scheduling procedures. Contingency fueling would involve a potential temporary surge of up to several ships per week before returning to normal operations. During contingency fueling events, the Navy would be given priority over all other potential users to ensure certainty and primacy in fueling when needed. Navy ships require uninterrupted fuel supplies in order to conduct both normal and contingency operations.

An outlease would be pursued to establish commercial fueling operations similar to past military fueling operations at DFSP San Pedro, and separate fuel contracts would be pursued outside of the commercial outlease to support fueling for military use. Rehabilitation and improvements to facilities and infrastructure would likely be required to accommodate continued use of the Main and Marine Terminals; however, development at both locations would be limited to previously disturbed areas (former “Operations Areas”) and those areas that do not contain environmental resources of concern. The siting of upgraded and new facilities would be similar to the existing Navy infrastructure. The area proposed for outlease would exclude 24 acres for the ball fields on the northwest and northeast areas of the property, and the Los Angeles Police Department shooting range, just south of the Administration Area on the eastern border of the property. All conditions that were required as part of recent Biological Opinions (BOs) (U.S. Fish and Wildlife Service [USFWS] 2010; 2015) issued to DFSP San Pedro would still apply under the Proposed Action.

Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is the reactivation and sustainment of the DFSP San Pedro facility to the maximum extent practicable for commercial fueling use, with allowance for periodic and contingency fueling of Navy ships (facilitating compliance with 10 U.S.C. section 5062 by equipping the Navy for “prompt and sustained combat incident to operations at sea”).

The need for the Proposed Action is to ensure the fullest possible use and maintenance of the Navy’s assets (e.g., the DFSP San Pedro Main and Marine Terminals and associated pipelines) through the commercial use of facilities and infrastructure while maintaining capability to meet periodic and contingency Navy fueling needs.

Screening Factors

Alternatives were developed for analysis based upon the following reasonable alternative screening factors:

- The alternative must allow for both priority surge (i.e., contingency) fueling of Navy ships within the southern California area as well as periodic fueling during normal operations.
- The siting of upgraded and new facilities under all viable alternatives must be similar to the existing Navy infrastructure.
- The alternative must ensure reactivation and sustainment of existing Navy infrastructure in a cost effective manner.
- Development under each alternative must avoid areas with known sensitive natural resources; disturbance would be limited to areas historically used for operations.
- The alternative must allow for the maintenance and enhancement of habitat for Palos Verdes blue butterfly and coastal California gnatcatcher.
- The alternative must accommodate the ongoing Defense Logistics Agency (DLA) and Navy site cleanup pursuant to both the Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act; and the Clean Water Act.

Alternatives Considered

Various alternatives were evaluated against the screening factors. The alternatives considered include:

- Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines
- Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines
- Rehabilitation and Operation of Main Terminal and Operation of On-site and Off-site Pipelines
- Full Site Redevelopment
- Conversion of Site to Full Recreational or Open Space Use
- Navy Fueling at the Port of Los Angeles or Port of Long Beach
- Navy Fueling at Other Navy Installations Along the Southern California Coast
- Connect Marine Terminal Pier 12 Directly to Pipelines from Area Refiners
- Navy Fueling Using Barges or Offshore Refueling Booms

Based on the reasonable alternative screening factors, two action alternatives were identified that meet the purpose and need for the Proposed Action. A No Action Alternative is also analyzed.

Alternative 1, Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines, would allow commercial fueling operations similar to past military fueling operations at both the Main and Marine Terminals, and would provide for periodic and contingency fueling of Navy ships. During contingency fueling events, the Navy would be given priority over all other potential users to ensure certainty and primacy in fueling when needed. Alternative 1 would include limited or full use of the Main Terminal as deemed appropriate by the lessee to meet their and the Navy's fueling capacity and capability needs. This could include the rehabilitation of existing infrastructure as selected by the lessee as well as potential construction of new infrastructure by the lessee on previously disturbed land. New infrastructure could include fueling-related infrastructure, including but not limited to any combination of aboveground storage tanks; office, industrial, warehouse or storage buildings; outdoor storage areas; and parking areas. The siting of upgraded and new facilities under all viable alternatives would be similar to the existing Navy infrastructure. Site use could also include the on-site pipelines via the outlease as well as use of off-site pipelines. G-Line, R-Line, and Long Beach Pipelines would be part of the outlease while the 10-inch Government pipeline and Norwalk pipeline would not. They would be assigned to the lessee, if the Navy in-transfers them from the current Department of Defense owner, via separate assignment documents. Rehabilitation of the existing on-site pipelines could potentially include the construction of new or upgraded branch service lines servicing the terminals and/or new or upgraded in-plant pipelines within the terminals. The Navy, a contractor to the Navy, and/or the lessee would be responsible for conducting ongoing maintenance of, and required environmental compliance activities in, the Main and Marine Terminals and associated pipelines, including maintenance and compliance requirements in sensitive habitat areas, though the Navy would retain overall responsibility for all aspects of environmental compliance. Any non-emergency ground-disturbing activities (e.g., inspection, repair, replacement, rehabilitation, reconstruction, new construction connections to pipelines, or maintenance) of the pipelines outside the boundaries of the terminals by the lessee could potentially require additional environmental impacts analysis. In addition, any changes to the pier structure or appurtenances to facilitate commercial vessels would also potentially require additional environmental impacts analysis.

Alternative 2, Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines, would allow commercial fueling operations in the same manner as Alternative 1, but only at the Marine Terminal. It would also provide for periodic and contingency fueling of Navy ships, and during contingency fueling events, the Navy would be given priority over all other potential users to ensure certainty and primacy in fueling when needed. Alternative 2 would also include rehabilitation of existing infrastructure and construction of new infrastructure, of the same types noted for Alternative 1, on previously disturbed land at the Marine Terminal. Site use could also include the Long Beach Pipelines on and leading to the Marine Terminal via separate assignment documents. Rehabilitation of the existing on-site pipelines could potentially include the construction of new or upgraded branch service lines servicing the terminal and/or new or upgraded in-plant pipelines within the terminal. As with Alternative 1, the Navy, a contractor to the Navy, and/or the lessee would be responsible for conducting ongoing maintenance of, and required environmental compliance activities in, the Main and Marine Terminals and associated pipelines, including maintenance and compliance requirements in sensitive habitat areas, though the Navy would retain overall responsibility for all aspects of environmental compliance. As noted above, any non-emergency ground-disturbing activities of the pipelines outside the boundaries of the terminal, or changes to pier structure or appurtenances to facilitate commercial vessels), could potentially require additional environmental impacts analysis.

The No Action Alternative, which is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 *Final Environmental Assessment for the Complete or Partial Closure of Defense Fuel Support Point San Pedro, California* (herein after ‘2016 EA’), would involve permanent closure of a portion of the facility, while a portion would be taken out of temporary closure status and returned to operation by the Navy. Activities related to the closure of underground storage tanks and other infrastructure included under the 2016 EA’s Alternative 4 are complete, and no additional closure activities related to the 2016 EA would occur. Partial operations would be approximately one-third of historical pre-temporary closure levels. Some of the off-site pipelines would be placed back into service, and others would be abandoned in-place.

Summary of Environmental Resources Evaluated in the EA

The National Environmental Policy Act (NEPA), Council on Environmental Quality regulations, and Navy instructions for implementing NEPA, specify that an EA should address those resource areas potentially subject to more than negligible impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The following resource areas have been addressed in this EA: air quality, water resources, geological resources, biological resources, land use and coastal resources, visual resources, noise, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and environmental justice. The following resources were not evaluated in detail in this EA, as potential impacts were found to be negligible or nonexistent: cultural resources and air space.

Summary of Potential Environmental Consequences of the Action Alternatives and Major Mitigating Actions

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with each of the action alternatives analyzed.

Public Involvement

As part of public outreach efforts for this EA, the Navy solicited input from federal and state agencies, local governments and the public during two periods: (1) the Public Scoping Period and (2) the Public Review Period.

The Navy solicited agency and public comments during a Public Scoping Period from October 10, 2018 through November 13, 2018. Comments received during the Public Scoping Period were considered in preparing the Draft EA.

The Public Review Period for the Draft EA was initiated with the publication of the Notice of Availability of the Draft EA in three local newspapers: Los Angeles Times, Daily Breeze, and Long Beach Press-Telegram for three consecutive days, from April 19, 2019 to April 21, 2019. The Draft EA was also made available for review at five local public libraries (San Pedro Regional Library, Peninsula Center Library, Bay Shore Branch Library, Miraleste Branch Library, and Wilmington Branch Library) and via the project website (www.cnic.navy.mil/SanPedroEA/). The Navy held a public meeting on May 6, 2019 to describe the environmental impacts of the Proposed Action and alternatives, and receive comments on the Draft EA impacts analyses. The Public Review Period began on April 19, 2019 and closed on May 20, 2019, but was extended to June 3, 2019 for local community groups who requested more time to submit comments. All substantive comments submitted for the project, even those received after the deadline, were considered in preparation of the Final EA.

Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	***No Action Alternative[1]***	***Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines***	***Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines***
Air Quality	**No Significant Impact.** Activities during partial operations would not exceed *de minimis* levels for volatile organic compounds (VOCs), nitrous oxide (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than or equal to 10 microns in diameter (PM_{10}), or particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). All required air permits would be obtained before initiating partial operations.	**No Significant Impact.** Temporary increase in dust would occur during construction. Activities during construction and renewed operations would not exceed *de minimis* levels for VOCs, CO, SO_2, PM_{10}, or $PM_{2.5}$, but would exceed *de minimis* levels for NO_x under construction, and would exceed *de minimis* levels for NO_x and VOCs under operations. All required air permits would be obtained by the lessee before initiating operations. A Record of Non-applicability for Clean Air Act Conformity has been prepared for the emissions for the Marine Terminal portion of Alternative 1, which would be below *de minimis* for all criteria pollutants, as presented in Appendix C.	**No Significant Impact.** Impacts from rehabilitation and construction, and renewed operation impacts would be similar to those described for Alternative 1 except a smaller area would be subject to ground-disturbing activity. Activities during construction would not exceed *de minimis* levels, and activities during renewed operations would not exceed *de minimis* levels for VOCs, CO, SO_2, PM_{10}, or $PM_{2.5}$, but would exceed *de minimis* levels for NO_x. All required air permits would be obtained by the lessee before initiating operations.
Water Resources	**No Significant Impact.** Partial operations would be conducted in compliance with new stormwater pollution prevention plans (SWPPPs) and associated best management practices (BMPs) prepared for the Main and Marine Terminals.	**No Significant Impact.** No potential for significant direct impacts to surface waters or floodplains. Negligible impacts to groundwater resources. Implementation of and adherence to the project-specific construction SWPPP and associated BMPs would minimize the potential for pollutants to enter receiving waters at the Main Terminal and Marine Terminal during rehabilitation and construction activities. Renewed operations would be conducted in compliance with new SWPPPs and associated BMPs prepared for the Main and Marine Terminals.	**No Significant Impact.** Rehabilitation and construction impacts would be similar to those described for Alternative 1 except a smaller area would be subject to ground-disturbing activity. Renewed operations would be conducted in compliance with new SWPPP and associated BMPs prepared for the Marine Terminal.

Table ES-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	***No Action Alternative***[1]	***Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines***	***Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines***
Geological Resources	**No Significant Impact.** Partial operations would not affect geological resources.	**No Significant Impact.** Surface disturbance and grading would occur. Slight increase in risk for lands and erosion would be minimized. No or negligible impacts would occur to mineral resources, bedrock, or soils. Renewed operations would not affect geological resources.	**No Significant Impact.** Rehabilitation and construction impacts would be similar to those described for Alternative 1 except a smaller area would be subject to ground-disturbing activity, limited to the Marine Terminal. Renewed operations would not affect geological resources.
Biological Resources	**No Significant Impact.** Biological resources would continue to be managed in accordance with the Integrated Natural Resources Management Plan and recent Biological Opinions (BOs) issued for DFSP San Pedro (USFWS 2010; 2015).	**No Significant Impact.** No direct impacts to native habitats, only indirect impacts would occur at the Main Terminal. During construction, temporary impacts to wildlife could occur within adjacent habitats due to an increase in dust, noise, or visual disturbances. No adverse effects to federally listed species. Biological resources would continue to be managed in accordance with the Integrated Natural Resources Management Plan and recent BOs issued for DFSP San Pedro (USFWS 2010; 2015).	**No Significant Impact.** Rehabilitation and construction impacts would be similar to those described for Alternative 1 related to wildlife, but would be limited to the Marine Terminal. There is no vegetation nor special status species located at the Marine Terminal.
Land Use and Coastal Resources	**No Significant Impact.** Land uses and coastal resources would not change under partial operations.	**No Significant Impact.** Land uses would not change under renewed operations at either the Main or Marine Terminal. Coastal uses and resources would not be impacted.	**No Significant Impact.** Land uses would not change under renewed operations at the Marine Terminal. Coastal uses and resources would not be impacted.

Table ES-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	***No Action Alternative[1]***	***Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines***	***Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines***
Visual Resources	**No Significant Impact.** Visual resources would not change under partial operations.	**No Significant Impact.** Temporary change to the visual environment during construction from the presence of construction equipment could occur. Equipment installed for operations would be similar to existing infrastructure on site at the Main and Marine Terminals, and would be consistent with similar industrial fueling operations directly adjacent to the DFSP San Pedro sites. The addition of infrastructure at the Main and Marine Terminals could be visible from certain vantage points in the surrounding community, but this generally would not represent a significant change to the visual environment based on the industrial character of the area.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.
Noise	**No Significant Impact.** Noise levels at identified sensitive receptors would not be noticeably distinct from the existing noise environment. Noise from partial operations would be less than historical levels and indistinct.	**No Significant Impact.** Temporary and localized noise from construction activities as well as localized noise during repair and activation activities would occur. Noise levels at identified sensitive receptors would not be noticeably distinct from the existing noise environment. Existing noise sources would continue to be the predominant noise contributors in the area. The proposed outlease of the Main Terminal and future development under Alternative 1 would not significantly change those conditions. Noise generated at the Marine Terminal, under Alternative 1, would not change significantly from existing activity and would be consistent with the current industrial land uses surrounding the facility.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal, which is located in an industrial area over 2 miles from noise sensitive receptors. Noise generated at the Marine Terminal, under Alternative 2, would not change significantly from existing activity and would be consistent with the current industrial land uses surrounding the facility.

Table ES-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	*No Action Alternative[1]*	*Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines*	*Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines*
Infrastructure	**No Significant Impact.** No change to infrastructure under partial operations.	**No Significant Impact.** Temporary increase in production of solid waste during construction. Renewed use of existing infrastructure with the possible connection to new infrastructure under operations. Demand for utilities under Alternative 1 would be consistent with historic demand.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.
Transportation	**No Significant Impact.** Daily traffic under partial operations would be the same as under current conditions.	**No Significant Impact.** Traffic in waterways related to fueling operations is anticipated to incrementally increase, but be of negligible size and impact in regard to the vast size and impact of the Los Angeles Harbor. Temporary increase in daily trips (87), with mainly worker trips (60) occurring during peak hours. During operations, an estimated recurring increase of approximately 240 daily trips during peak hours for worker commutes, and up to 125 passenger car equivalent trips for fuel onloading or offloading occurring throughout the day.	**No Significant Impact.** Temporary increase in daily trips (29), with mainly worker trips (20) occurring during peak hours going to/from the Marine Terminal. During operations, an estimated recurring increase of approximately 80 daily trips during peak hours for worker commutes, and up to 63 passenger car equivalent trips for fuel onloading or offloading occurring throughout the day.
Public Health and Safety	**No Significant Impact.** No change to public health and safety under partial operations.	**No Significant Impact.** Construction would be conducted with implementation of a health and safety program and the exclusion of the public from the construction area. During operations, implementation of site-specific health and safety plans, spill and contingency plans, compliance with federal, state, and local safety regulations, and the continued exclusion of the public from operational areas would minimize potential impacts during operations. Rehabilitated and newly construction equipment and infrastructure would be required to comply with current safety and environmental requirements.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.

Table ES-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	***No Action Alternative***[1]	***Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines***	***Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines***
Hazardous Materials and Wastes	**No Significant Impact.** Under partial operations, existing plans would be followed to minimize potential for inadvertent release. Ongoing site assessments and remediation activities would continue.	**No Significant Impact.** Proposed construction activities could encounter contamination associated with existing Navy Installation Restoration Program sites and/or Defense Logistics Agency restoration sites. However, the sites would not be available for development until ongoing site assessments and remediation activities are complete and the sites achieve regulatory closure. Under operations, applicable plans and BMPs would be followed to minimize potential for inadvertent releases (e.g., SWPPPs, spill and contingency plans).	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.
Socioeconomics	**No Significant Impact.** No change to socioeconomics under partial operations.	**No Significant Impact.** Construction associated with the rehabilitation of the Main and Marine Terminals may temporarily increase economic activity. Additional personnel may be hired to support expanded operations, which would increase economic activity. Employees are likely to be hired from surrounding communities and would not result in a need for new housing or schools.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal and the immediate vicinity.
Environmental Justice	**No Significant Impact.** No change to environmental justice under partial operations.	**No Significant Impact.** Implementation of a health and safety program and the exclusion of the public from the construction area would limit any potential impacts to the 107 block groups that are considered environmental justice communities near the Main and Marine Terminals. Renewed operations would not disproportionately impact environmental justice communities due to the continued implementation of safety and minimization measures.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal and the immediate vicinity.

Note: [1] Closure activities have already occurred at DFSP San Pedro, as analyzed in the 2016 EA. Impacts described for the No Action Alternative relate to the resumption of partial operations at approximately one-third of historical full operational levels.

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Abbreviations and Acronyms

ACM	asbestos-containing material
AST	aboveground storage tank
bgs	below ground surface
BMP	best management practice
BO	Biological Opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAGN	coastal California gnatcatcher
CARB	California Air Resources Board
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLT	California least tern
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2e}	CO_2 equivalent
COL	commercial outlease
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted sound level
DFM	Diesel Fuel Marine
DFSP	Defense Fuel Support Point
DLA	Defense Logistics Agency
DNL	day-night average sound level
DoD	Department of Defense
EA	Environmental Assessment
EIR	Environmental Impact Report
EO	Executive Order
ESA	Endangered Species Act
F-76	military diesel fuel 76
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FY	fiscal year
GHG	greenhouse gas
GIS	geographic information system
HAP	hazardous air pollutant
INRMP	Integrated Natural Resources Management Plan
IR	Installation Restoration
IRP	Installation Restoration Plan
JP-5	Jet Propellant 5
JP-8	Jet Propellant 8
LADWP	Los Angeles Department of Water and Power
LAPD	Los Angeles Police Department
LASAN	City of Los Angeles Department of Public Works Bureau of Sanitation
LBP	lead based paint
L_{eq}	Equivalent Sound Level
LID	low impact development

L_{max}	root mean squared maximum level of a noise
LOS	level of service
LUC	Land Use Control
MBTA	Migratory Bird Treaty Act
mg/kg	milligram per kilogram
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NAVFAC SW	Naval Facilities Engineering Command Southwest
NAVWPNSTA	Naval Weapons Station
Navy	U.S. Navy
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	ozone
OMES	Operation, Maintenance, Environmental, and Safety
OSHA	Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
Pb	lead
PCB	polychlorinated biphenyl
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
PVB	Palos Verdes blue butterfly
RCRA	Resource, Conservation, and Recovery Act
ROI	Region of influence
RWQCB	Regional Water Quality Control Boards
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SEL	sound exposure level
SGI	Source Group Incorporated Inc.
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

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1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States (U.S.) Navy (Navy) proposes to enter into an outlease of its fee-owned real property (pursuant to 10 U.S. Code [U.S.C.] section 2667) and assign interests in Navy-owned fuel pipeline rights-of-way, to allow for renewed fueling operations for commercial and military purposes at Defense Fuel Support Point (DFSP) San Pedro, California. The purchase and delivery of fuel to Navy vessels and ships would be addressed by the Navy through contracts outside of the commercial outlease. The commercial outlease lessee would be required to provide the Navy with the capability of receiving fuel alongside Pier 12 at the Marine Terminal during normal and contingency operations. Navy ships require uninterrupted fuel supplies in order to conduct both normal and unanticipated or emergency operations. The Navy, as the lead agency, has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality (CEQ) Regulations and Navy regulations for implementing NEPA.

1.2 Background

DFSP San Pedro is comprised of two Special Areas, the San Pedro Fuel Depot (Main Terminal) and Long Beach Fuel Complex (Marine Terminal including Pier 12), both assigned to Naval Weapons Station (NAVWPNSTA) Seal Beach. The areas at DFSP San Pedro proposed for outlease consist of approximately 311 acres of the Main Terminal, the approximately 11.1-acre Marine Terminal, and an off-site network of pipelines totaling approximately 40 miles. Operation of DFSP San Pedro was the responsibility of the Defense Logistics Agency (DLA) through November 2020. (Note: The Navy assumed the maintenance responsibility and management of DFSP San Pedro in November 2020 from DLA.) DLA had been a tenant of the Navy at DFSP San Pedro since 1980. In May 2014, DLA placed DFSP San Pedro in a temporary closure status, which involved cleaning and isolating/securing the aboveground and underground fuel storage tanks and pipelines (as permitted by the Certified Unified Program Agency), so that they could be re-opened or permanently closed depending on future mission requirements.

An EA was completed jointly by the Navy and DLA in 2016 (hereinafter referred to as the 2016 EA) to analyze impacts that could potentially result from the complete or partial permanent closure of DFSP San Pedro. A Finding of No Significant Impact (FONSI) was signed in February 2016, documenting the Navy's decision to move forward with a partial closure of the facility (Alternative 4), and DLA began the process of permanently closing all underground storage tanks (USTs) on the Main Terminal. At the same time, the Navy began the process of planning for the long-term utilization of DFSP San Pedro. The Navy determined, based on its mission needs, and on an evaluation of the facilities and of regulatory, resource, and development considerations at DFSP San Pedro, that potential options existed to allow for a lessee to use DFSP San Pedro for commercial fueling operations under an outlease. Separate fuel purchase agreement(s) would be established with commercial entity(ies) to address the Navy's fueling requirements in a safe and secure environment.

1.3 Location

The Main Terminal is primarily located in the City of Los Angeles in the County of Los Angeles, California. It is surrounded by the cities of Carson and Torrance to the north, City of Long Beach to the east, the community of San Pedro to the south, and the cities of Rancho Palos Verdes and Palos Verdes Estates to the west. The Main Terminal is located approximately 20 miles southwest of the City of Los Angeles urban center (Figure 1-1).

The Main Terminal is paralleled by Palos Verdes Drive along its northern boundary, North Gaffey Street along its eastern boundary, and South Western Avenue along its western boundary. Land uses around the Main Terminal include residential properties to the north, south, and west. A cemetery borders the Main Terminal on its western boundary, and a high school, residential and commercial areas border the facility to the south. A local community college and commercial fueling operations border the Main Terminal to the east.

The Marine Terminal including Pier 12 is located within the Port of Long Beach, adjacent to the Port of Los Angeles. The Marine Terminal is located on Nimitz Road at the former Long Beach Naval Station Mole Pier on Terminal Island in Long Beach, California.

There are nine off-site pipelines associated with DFSP San Pedro (Table 1-1). These include the Long Beach Pipelines (three pipelines in total), Norwalk pipeline, G-Line, R-Line, surge pipeline, 10-inch Government pipeline, and multi-product pipeline. Two of the Long Beach Pipelines (JP-5 and JP-8), G-Line, R-Line, would be part of the outlease and the 10-inch Government pipeline, and the Norwalk pipeline would be assigned to the lessee (pending the Navy's ability to in-transfer the 10-inch Government pipeline, and the Norwalk pipeline[1]) (Figure 1-2).

Table 1-1 DFSP San Pedro Off-Site Pipelines

Off-Site Pipeline Name	***Proposed for Assignment***
Long Beach Pipeline (Main Terminal to Pier 12) – JP-5	**Yes**
Long Beach Pipeline (Main Terminal to Pier 12) – JP-8	**Yes**
Long Beach Pipeline (Main Terminal to Pier 12) – DFM[1]	No
Norwalk Pipeline (Dominquez Channel to Norwalk)[3]	**Yes**
G-Line Pipeline	**Yes**
R-Line Pipeline	**Yes**
Surge Pipeline	No
10-inch Government Pipeline[3]	**Yes**
Multi-Product Pipeline[2]	No

Legend: DFM = Diesel Fuel Marine; JP = Jet Propellant.
Note: [1] Long Beach Pipeline-DFM is currently out-of-service and not included in the outlease initiative. DLA is planning to formalize the closure of the DFM line with the California State Fire Marshal via abandonment in-place.
[2] Closed, filled with foamcrete
[3] Contingent upon the Navy obtaining the pipeline and real property interests.

[1] The Norwalk and 10-inch Government pipelines and real property interests are being considered for transfer between DoD agencies to the Navy.

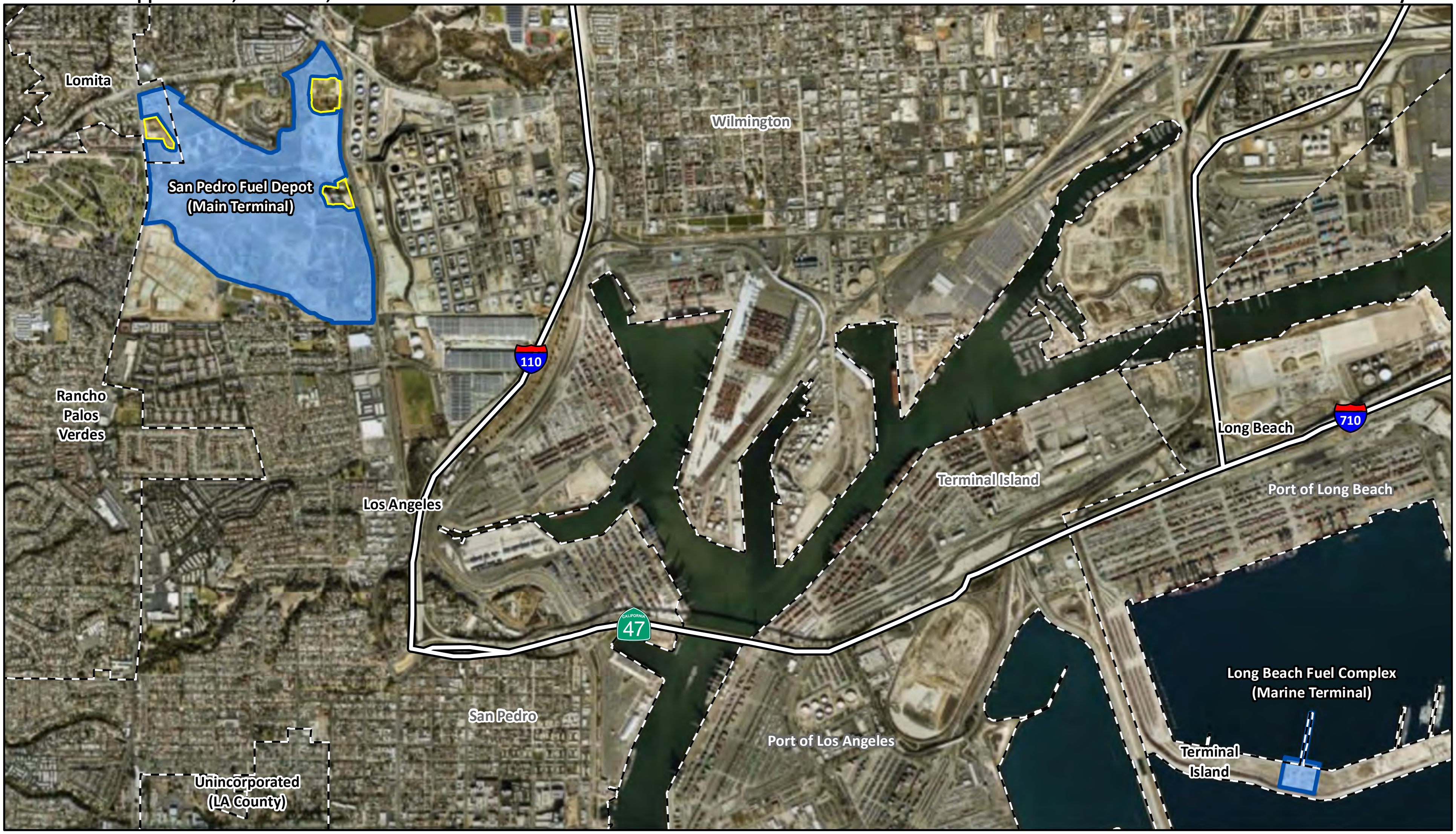

Figure 1-1. Location Map (Main and Marine Terminals)

Installation
Licensed Areas (Not Part of the Project Area)
Highway
City Boundary

0 0.5 1 Miles

Source: NAVWPNSTA Seal Beach 2019, Port of Long Beach 2017

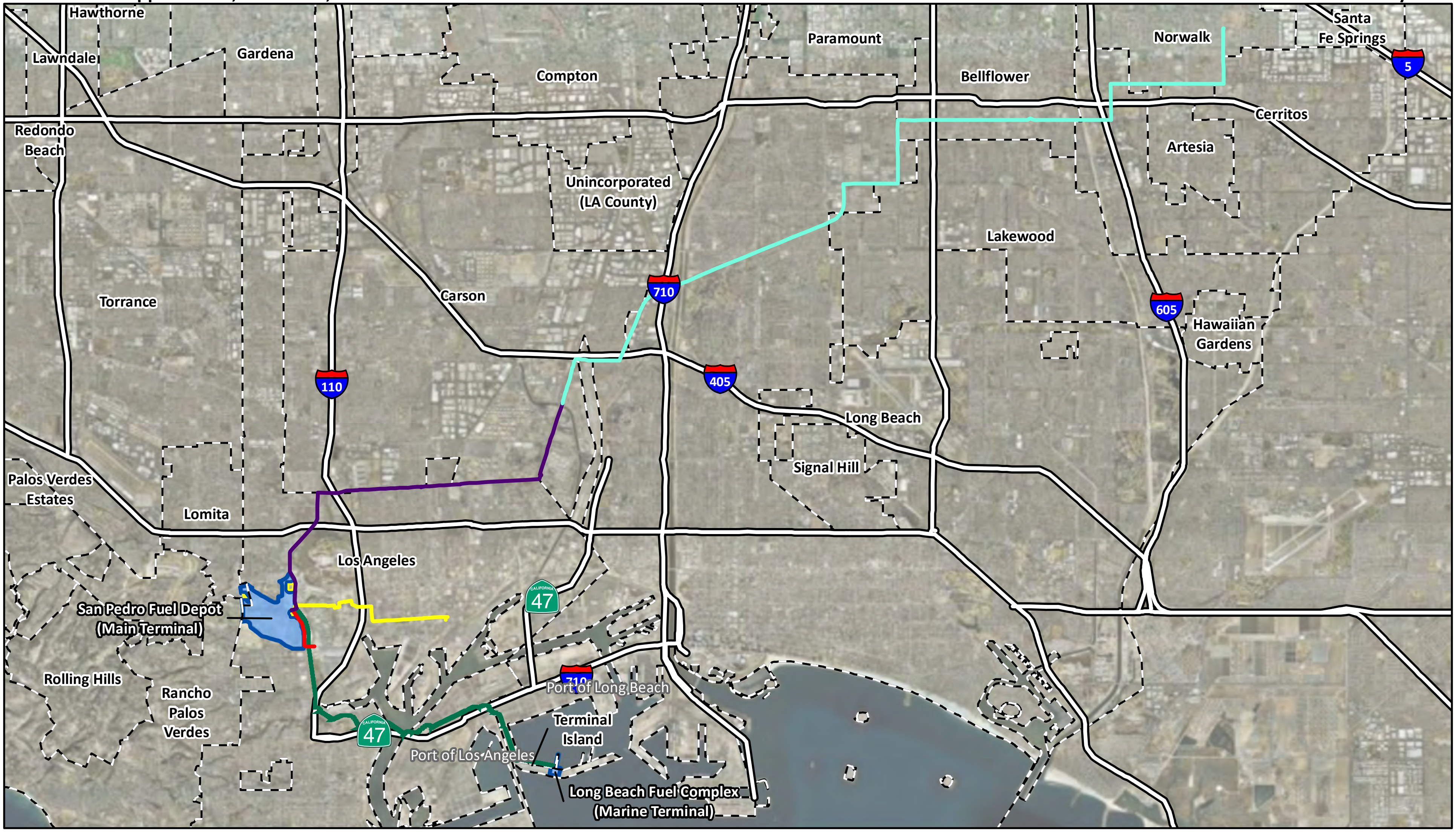

Figure 1-2. Location Map (Pipelines)

Installation

Licensed Areas (Not Part of the Project Area)

Highway

City Boundary

0 1.75 3.5 Miles

Long Beach Pipelines (JP-5, JP-8)

R-Line

G-Line

10-inch Government Line

Norwalk Line

Note: The 10-inch Government pipeline and Norwalk pipeline would not be part of the outlease, but would be assigned to the lessee, if the Navy in-transfers them from the current DoD owner, via separate assignment documents.

Source: NAVWPNSTA Seal Beach 2019, Navy 2015, Port of Long Beach 2017

1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is the reactivation and sustainment of the DFSP San Pedro facility to the maximum extent practicable for commercial fueling use, with allowance for periodic and contingency fueling of Navy ships (facilitating compliance with 10 U.S.C. section 5062 by equipping the Navy for "prompt and sustained combat incident to operations at sea").

The need for the Proposed Action is to ensure the fullest possible use and maintenance of the Navy's assets (e.g., the DFSP San Pedro Main and Marine Terminals and associated pipelines) through the commercial use of facilities and infrastructure while maintaining capability to meet periodic and contingency Navy fueling needs in a safe and secure environment.

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with two action alternatives and a No Action Alternative. The environmental resource areas analyzed in this EA include: air quality, water resources, geological resources, biological resources, land use, visual resources, noise, infrastructure, transportation, public health and safety, hazardous materials and waste, socioeconomics, and environmental justice. The study area is defined in Chapter 3 for each resource analyzed and may differ due to how the Proposed Action would interact with or potentially impact that particular resource. If Alternative 1 or 2 is ultimately selected, and the Navy has solicited and received proposals from potential commercial lessees, the Navy would evaluate the operations proposed by the commercial lessees to determine whether the environmental impacts of the proposals are fully encompassed by this EA's analysis. If a potential lessee proposes an activity or use that would involve anticipated environmental impacts beyond those analyzed in the EA, and the Navy wishes to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.

Additionally, the Navy notes that further environmental impact analysis may be required with respect to any proposal or portion of a proposal that would use or connect to pipelines extending beyond the boundaries of the Main Terminal or Marine Terminal, depending on any unanticipated conditions that may be found along such pipelines. This would also include any non-emergency ground-disturbing activities (e.g., inspection, repair, replacement, rehabilitation, reconstruction, new construction connections to pipelines, or maintenance) of the pipelines outside the boundaries of the terminals.

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- Final EA and FONSI – Defense Fuel Support Point San Pedro (February 2016) (2016 EA).

A list of references used in preparing this EA can be found in Chapter 6. Documents incorporated herein by reference are available upon request during the Public Review Period by contacting the Navy via the information provided in the abstract.

1.7 Relevant Laws and Regulations

The Navy has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 U.S.C. sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508)
- Navy regulations for implementing NEPA (32 CFR part 775), which provide Navy policy for implementing CEQ regulations and NEPA
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Rivers and Harbors Act (33 U.S.C. section 407)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. section 703–712)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Emergency Planning and Community Right-to-Know Act (42 U.S.C. sections 11001–11050)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Toxic Substances Control Act (15 U.S.C. sections 2601–2629)
- Farmland Protection Policy Act (7 U.S.C. 4201 et seq.)
- Oil Pollution Act of 1990 (33 U.S.C. section 2701)
- Transportation of Hazardous Liquids by Pipeline (49 CFR part 195)
- Facilities Transferring Oil or Hazardous Materials in Bulk (33 CFR part 154)
- Executive Order (EO) 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- California Aboveground Petroleum Storage Act (California Health and Safety Code, Chapter 6.67)

A description of the Proposed Action’s consistency with these laws, policies and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5.

1.8 Public and Agency Participation and Intergovernmental Coordination

The Navy has prepared this EA to inform the public of the Proposed Action and to allow for public review and comment. As part of public outreach efforts for this EA, the Navy solicited input from federal and state agencies, local governments and the public during two periods: (1) the Public Scoping Period and (2) the Public Review Period.

The Navy solicited agency and public comments during a Public Scoping Period from October 10, 2018 through November 13, 2018. Comments received during the Public Scoping Period were considered in preparing the Draft EA.

The Public Review Period for the Draft EA was initiated with the publication of the Notice of Availability of the Draft EA in three local newspapers: Los Angeles Times, Daily Breeze, and Long Beach Press-Telegram for three consecutive days, from April 19, 2019 to April 21, 2019. The Draft EA was also made available for review at five local public libraries (San Pedro Regional Library, Peninsula Center Library, Bay Shore Branch Library, Miraleste Branch Library, and Wilmington Branch Library) and via the project website (www.cnic.navy.mil/SanPedroEA/). The Draft EA was also available on the following website: https://www.cnic.navy.mil/navysouthwestprojects. The Navy held a public meeting on May 6, 2019 to describe the environmental impacts of the Proposed Action and alternatives, and receive comments on the Draft EA impacts analyses.

The Public Review Period began on April 19, 2019 and closed on May 20, 2019, but was extended to June 3, 2019 for local community groups who requested more time to submit comments. All substantive comments submitted for the project were considered in preparation of the Final EA.

The Navy is consulting with the South Coast Air Quality Management District (SCAQMD) to confirm the estimated emissions increase associated with the Proposed Action is within the emissions budget outlined in the approved Air Quality Management Plan. In addition, the Navy has consulted with the State Historic Preservation Officer on the Navy’s proposed finding of no Historic Properties Affected for the Proposed Action and they concurred with the Navy’s proposed finding. The results of this consultation are included in Appendix A. Finally, the Navy has informally consulted with the U.S. Fish and Wildlife Service, making them aware of the Proposed Action, no adverse effects to listed species determination, and continued adherence to prior formal consultations (2010 and 2015 Biological Opinions).

Appendix A contains a description of the public involvement process, a summary of comments received during the Public Review Period, and Navy responses, and copies of agency correspondence.

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2 Proposed Action and Alternatives

2.1 Proposed Action

The United States (U.S.) Navy (Navy) proposes to enter into an outlease of its fee-owned real property (pursuant to 10 U.S. Code [U.S.C.] section 2667) and assign interests in Navy-owned fuel pipeline rights-of-way, to allow for renewed fueling operations for commercial and military purposes at Defense Fuel Support Point (DFSP) San Pedro, California. The purchase and delivery of fuel to Navy vessels and ships would be addressed by the Navy through one or more separate supply service contract(s) arranged by or in conjunction with Naval Supply Systems Command and/or the Defense Logistics Agency (DLA). The commercial outlease lessee would be required to provide the Navy with the capability of receiving fuel alongside Pier 12 at the Marine Terminal during normal and contingency operations. Navy ships require uninterrupted fuel supplies in order to conduct both normal and contingency operations. Renewed fueling operations at DFSP San Pedro would help to ensure the availability of fuel supplies to Pacific Fleet vessels and ships. Periodic fueling for the Navy during normal operations would include approximately 6 ships per quarter, or 24 ships per year. Under normal operations, the Navy would act as a regular customer and follow the commercial outlease lessee’s standard operating procedures for fueling. Operations at the Main and Marine Terminals could occur 24 hours per day, 7 days per week; however, it is anticipated the highest operational tempo would be during standard commercial hours. The Navy would fuel during the lessee’s normal operating hours and follow the lessee’s scheduling procedures. The Navy would use Pier 12 to receive the F-76 and/or JP-5 fuel (military specification fuel and potentially some Marine Gas Oil commercial specification fuel) arranged through the separate supply service contract(s). Contingency fueling would involve a temporary potential surge of up to several ships per week before returning to normal operations. During contingency fueling events, the Navy would be given priority over all other potential users to ensure certainty and primacy in fueling when needed.

Rehabilitation and improvements to facilities and infrastructure would likely be required to accommodate continued use of the Main and Marine Terminals; however, development at both locations would be limited to previously disturbed areas (former “Operations Areas”) and those areas that do not contain environmental resources of concern. The area proposed for outlease would exclude 24 acres for the ball fields on the northwest and northeast areas of the property, and the Los Angeles Police Department shooting range just south of the Administration Area on the eastern border of the property. All conditions that were required as part of recent Biological Opinions (BOs) (U.S. Fish and Wildlife Service 2010; 2015) issued to DFSP San Pedro would still apply under the Proposed Action.

2.1.1 Existing Developed Condition

Figures 2-1 and 2-2 provide a general illustration of the existing developed condition at DFSP San Pedro’s Main and Marine Terminals, respectively. Currently, DFSP San Pedro consists of the following:

- *Main Terminal Administration Area,* which contains fueling infrastructure (including pump house) and buildings with storage bunkers but no bulk fuel storage. This area also contains a tank truck loading facility.
- *Main Terminal Aboveground Storage Tank (AST) Area,* which provides for approximately 165,000 total barrels of fuel storage in three tanks.

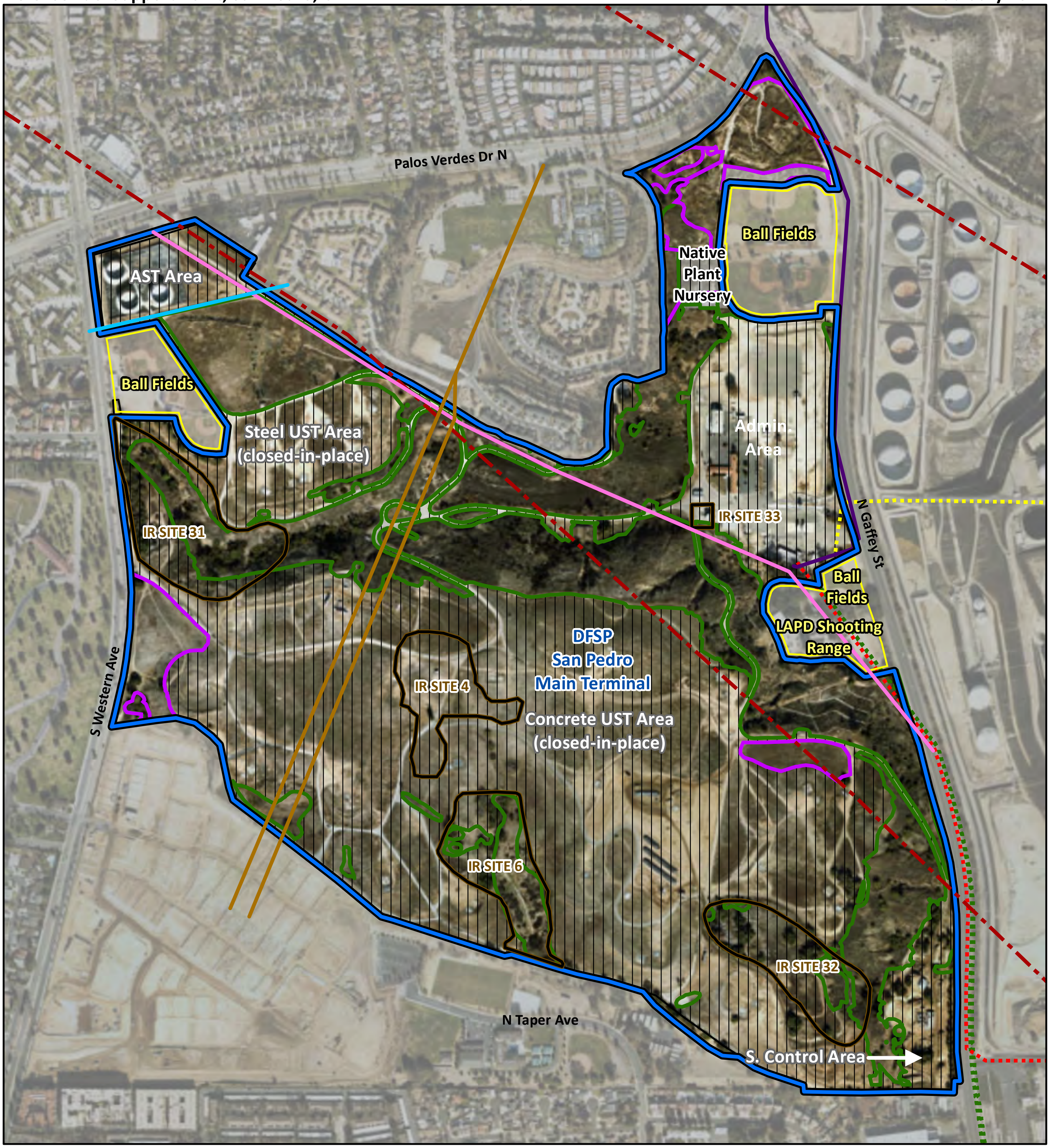


Figure 2-1. DFSP San Pedro Existing Developed Condition at Main Terminal

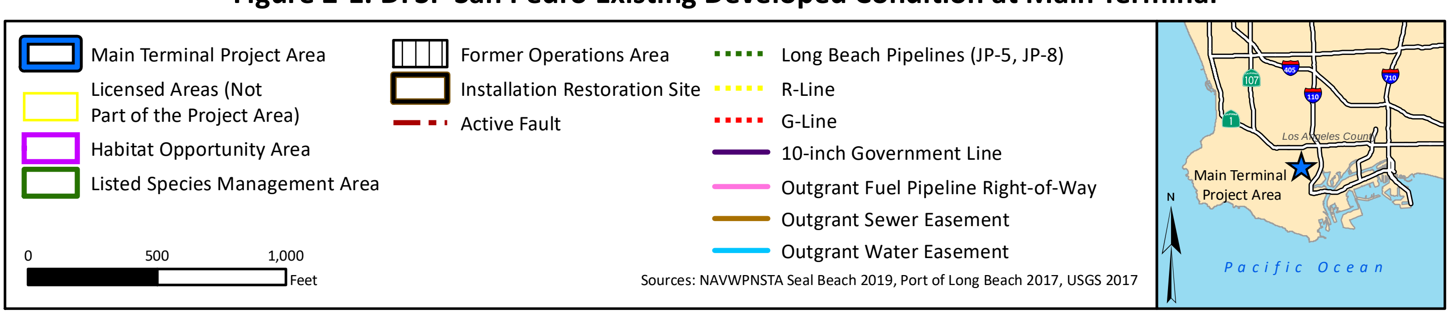


Figure 2-2. DFSP San Pedro Existing Developed Condition at Marine Terminal

- *Main Terminal Former Underground Storage Tank (UST) Areas (Steel UST Area and Concrete UST Area),* which no longer contain functioning fueling infrastructure and bulk fuel storage. These areas previously stored 1,300,000 barrels of fuel below ground; these tanks have been disconnected, cleaned, and filled with foamcrete (cement-based slurry with a small amount of foam added).
- *Main Terminal South Control Area (Pump House Area),* which provides for miscellaneous fueling-related infrastructure but no bulk fuel storage.
- *Pipelines, Sewer, and Other Rights-of-Way (on-site and off-site),* which were built starting in the 1930s and through the 1980s.
- *Marine Terminal/Pier 12,* which includes a pier with fueling-related infrastructure, and support buildings and aboveground storage for 87,000 barrels of fuel within the Administration Area.

2.1.2 Potential Development Scenarios

Under the Proposed Action, commercial use of DFSP San Pedro could include adding aboveground fuel storage capacity, administrative and/or warehouse/storage capacity, and/or ancillary parking throughout the developable areas on the Main and/or Marine Terminal; adding connections to other pipelines; replacing pipelines; adding potential energy facilities (e.g., solar farms, battery storage facilities) to support on-site energy requirements, as well as providing for some ancillary commercial distribution; modifying mooring systems at Pier 12 to accommodate different configurations of vessels, ships and barges; and loading and offloading fuel from additional vessels at Pier 12. Use of DFSP San Pedro would also require repair of existing systems and may include improvements to existing facilities, systems and components.

Figures 2-3 and 2-4 provide a general summary of the non-restricted areas at the Main and Marine Terminals that can be used for general development scenarios at DFSP San Pedro. The following were considered in determining the proposed general development scenarios at DFSP San Pedro:

- The “Listed Species Management Areas”, the native plant nursery, and “Habitat Opportunity Areas” identified in the 2016 Environmental Assessment (EA) would all be unavailable for development. Tentatively, the DLA remediation sites would not be available until 2022-2024 and the Navy’s Installation Restoration (IR) Program sites would not be available until 2023. In addition, the DLA and Navy remediation sites may include future Land Use Controls (LUCs) that require limited use or prohibit use of certain areas going into the future.
- Any new buildings and ASTs would not be located on land above any utilities or an active fault line that runs through the Main Terminal, although outdoor storage and parking could be. The construction of fuel storage tanks, warehouse, storage, office space, or parking on top of closed USTs may or may not be feasible and would be dependent upon design and study by the lessee. The Navy notes that further environmental impact analysis may be required with respect to any proposal or portion of a proposal that would construct in these areas, depending on any unanticipated conditions that may be found.
- Fuel storage estimates are based on the storage capacity and throughput of the complex in the past and are generally consistent with similar functions and facilities in the local area.

The height of new structures would be consistent with similar facilities in the area (approximately 50-feet tall), and appropriate buffers around any new structures would be established in substantive compliance with all applicable laws and regulations.

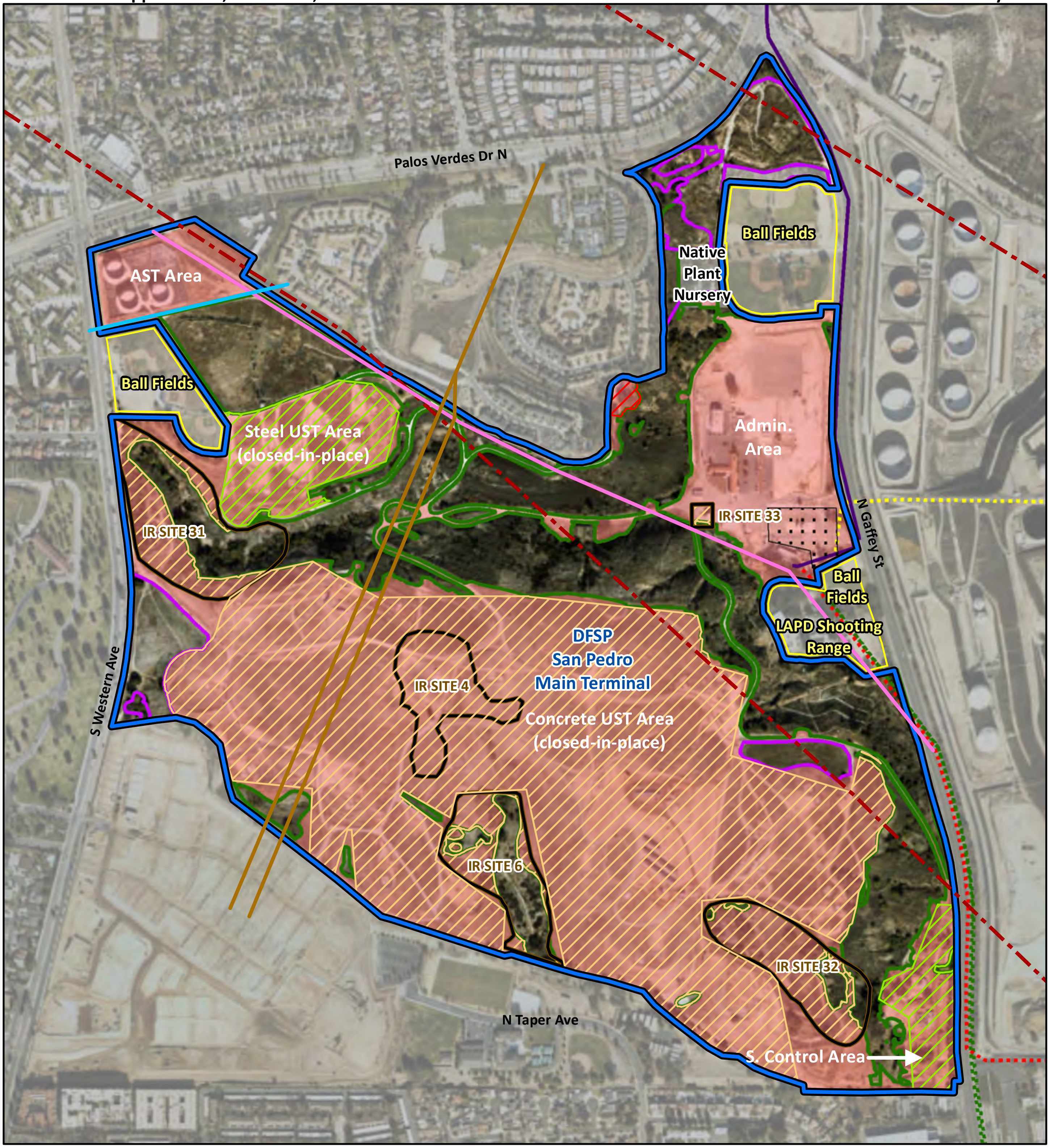


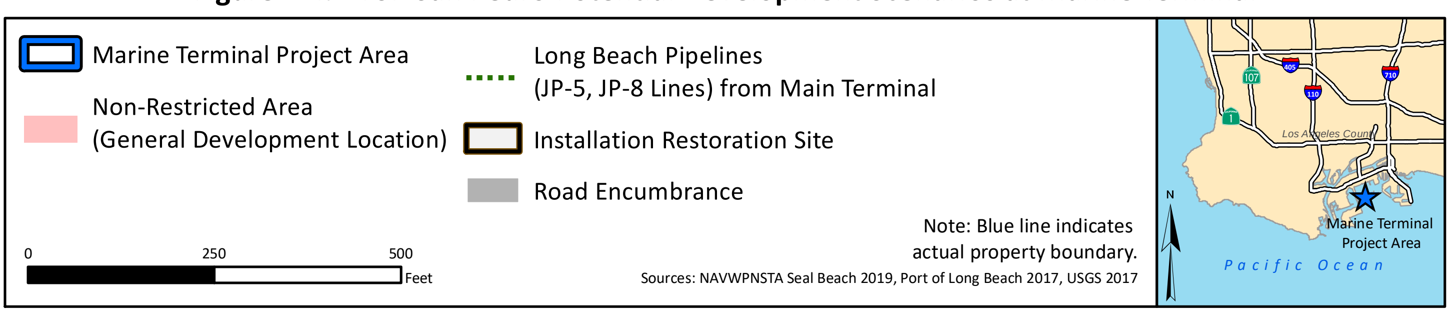
Figure 2-3. DFSP San Pedro Potential Development Scenarios at Main Terminal

Main Terminal Project Area
Licensed Areas (Not Part of the Project Area)
Habitat Opportunity Area
Listed Species Management Area
Installation Restoration Site
Non-Restricted Area (General Development Location)
Active Fault
Area Restricted for Use Until:
FY 2022
FY 2023
FY 2024
Semi Restricted for Use Until FY 2021
Long Beach Pipelines (JP-5, JP-8)
R-Line
G-Line
10-inch Government Line
Outgrant Fuel Pipeline Right-of-Way
Outgrant Sewer Easement
Outgrant Water Easement

0 500 1,000 Feet

Sources: NAVWPNSTA Seal Beach 2019, Port of Long Beach 2017, USGS 2017

Figure 2-4. DFSP San Pedro Potential Development Scenarios at Marine Terminal



Operations at the Main and Marine Terminals under the Proposed Action would involve fuels required for military use (i.e., F-76 and JP-5 jet fuel). Other products and processes may be added to the site, based on the needs of the commercial lessee. Ultimate design and placement of facilities, ASTs, and buildings and structures proposed by the commercial lessee, as well as fuels and processes allowed on Main and Marine Terminals, would be subject to review and approval by the Navy, with considerations of market demand, physical limitations of the site (e.g., topography, utilities, environmental), characteristics of adjacent properties, or operational feasibility for fueling purposes.

A maximum development scenario based on historic operations and potential future operations by a commercial lessee has been considered at the site. Historical operations of the site have ranged between approximately 4 million barrels to 12 million barrels of fuel shipped from and received at the DFSP San Pedro Main and Marine Terminals annually. Future total fuel throughput cannot be forecasted with any level of certainty, due to market fluctuations and potential Navy contingency fueling needs. However, for the purposes of this analysis, an estimated peak fuel throughput of 30 million barrels annually is assumed (combined between commercial and Navy usage)[2]. During contingency operations, the Navy's fueling needs would supersede those of the commercial fuel customers, and the amount of fuel available for commercial customers would be limited during the duration of the contingency. This level of fuel throughput could result in up to 12,291,100 barrels of fuel storage in ASTs, 13,722,000 square feet of administrative and/or warehousing space, and 1,653,102 square yards of parking areas being built throughout the developable area on the DFSP San Pedro Main and Marine Terminals (Burke 2019). This equates to around 57,088 barrels of storage per acre, which is similar to or less than other petroleum tank storage projects in the vicinity (Los Angeles Harbor Department 2018a; Port of Long Beach 2019a; Port of Los Angeles 2019). The maximum fuel storage capacity was developed by considering the operations areas where storage tanks could be built on both the Main and Marine Terminals. On the Main Terminal, the areas where ASTs may potentially be developed include the Administrative Area, the Former Concrete UST Area, the South Control Area, and the AST area (refer to Figure 2-3). Based on this land area, a total of 24 ASTs ranging in size from 100-feet to 280-feet in diameter and up to 50 feet tall could be constructed on the Main Terminal. On the Marine Terminal, the area where ASTs may potentially be developed is the Administrative Area (refer to Figure 2-4), and a total of 4 ASTs ranging in size from 150-feet to 180-feet in diameter and up to 45 feet tall could be constructed. In general, ASTs constructed as part of the Proposed Action would be visually similar to that of other fueling uses in the immediate surrounding area or nearby vicinity.

The square footage assumption was developed based on an allowed floor to area ratio of 1.5 to 1 (or, for every 1 square foot of land area, no more than 1.5 square feet of building would be allowed). A floor to area ratio is the total amount of usable floor area that a building is permitted to have based on the total lot area. Floor to area ratios are generally used in zoning codes to prescribe a certain density of development and, in general, a higher ratio allows for greater density. Due to DFSP San Pedro's federal ownership, the land is generally not subject to local planning and zoning requirements; however, this floor to area ratio is similar to those applied to the industrial areas to the south and east of the Main Terminal and is assumed to be a reasonable estimate of what the Navy would allow under the Proposed Action.

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[2] This peak annual throughput estimate is similar for other projects being proposed in the Port of Los Angeles area, like the Berths 167-169 [Shell] Marine Oil Terminal Wharf Improvements Project (Los Angeles Harbor Department 2018a).

Of the 311 acres included in the Main Terminal outlease, approximately 104 acres would be unavailable for development because they include the “Listed Species Management Areas”, the native plant nursery, and “Habitat Opportunity Areas”. The remaining 207 acres of previously disturbed land on the Main Terminal would be available for rehabilitation of existing infrastructure or construction of new infrastructure. Approximately 43.1 acres of previously disturbed land would be available immediately. The remaining 163.9 acres are currently undergoing environmental remediation by the DLA (approximately 133.6 acres) and the Navy (approximately 30.3 acres). Remediation activities are currently scheduled into 2024, but the timeline is subject to fluctuation, dependent on the status of each remediation effort. Based on DLA’s current remediation efforts and timelines, 16.9 acres would become available for development in 2022, 116.1 acres in 2023, and the remaining 0.6 acres in 2024. Based on Navy’s current remediation efforts and timelines, 30.3 acres would be available for development in 2023. The DLA and Navy remediation acres may include future LUCs that require limited use or prohibit use of certain areas going into the future. The LUCs would help to minimize the potential for exposure to contamination and protect the integrity of a cleanup action. Each LUC may have a different time frame imposed on it. For the purposes of the maximum development scenario, it is assumed construction would occur on the acreage available in the year it becomes available (e.g., 16.9 acres developed in 2022, 116.1 acres in 2023) and the imposed LUCs would not prohibit use or require limited use. The Marine Terminal includes 11.1 acres that are available for development under the Proposed Action. For the purposes of this analysis, construction on the Marine Terminal would be assumed to begin in 2022 and last for approximately 1 year. No proposed changes to pier structure or appurtenances to facilitate commercial vessels are currently being considered for the Marine Terminal. If such changes are desired, any necessary additional environmental impact analysis would be performed for the Navy by the lessee.

In order to calculate maximum potential operational impacts, fuel would be assumed to be shipped and received by either marine tanker, fuel barge, Navy ships, or fuel truck (with minimal use of underground pipelines). As with fuel throughput, the exact type and number of annual vessel calls cannot be forecasted with any level of certainty, due to market fluctuations and Navy fueling needs based on operational requirements. At an annual throughput of approximately 30 million barrels, the Proposed Action would be projected to accommodate up to 375 annual vessel calls (comprised of tankers, barges, and combatant ships). During operations, this could include up to an estimated 350 ships (with a capacity of 149,000 barrels or less), 70 mid-size vessels (with a capacity between 150,000 and 177,000 barrels), and 10 fuel barges (with a capacity of 300,000 barrels) visiting Pier 12 throughout the year to transfer fuel; however the amount of ships visiting Pier 12 in any 1 year could fluctuate based on demand and scheduling. Navy ships would also visit Pier 12 in order to receive fuel as part of routine and contingency operations. Typical fueling evolutions at the Marine Terminal pier would take approximately 4 to 6 hours for a ship, 20 hours for a mid-size vessel (assumed to take 2 days), or up to 3 days for a large tanker. Fueling operations would typically occur during standard commercial hours (Monday to Friday), 50 weeks per year, but could occur 24 hours per day, 7 days per week. Additionally, an estimated 41 fuel trucks per day could visit the site for pickups or deliveries at the Main Terminal under Alternative 1, and approximately 20 trucks per day at the Marine Terminal under Alternative 2, if the commercial lessee were to elect to construct a truck rack at the site.

As described in Section 1.5., *Scope of Environmental Analysis*, if Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees. The Navy would review all proposals from potential commercial lessees to determine whether they exceed the maximum development scenario analyzed in this EA. If a potential lessee proposes an activity or use that would involve anticipated environmental impacts beyond those analyzed in the EA, and the Navy wishes to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.

2.2 Screening Factors

NEPA's implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and to meet the purpose and need require detailed analysis.

Potential alternatives that meet the purpose and need were evaluated against the following screening factors:

- The alternative must allow for both priority surge (i.e., contingency) fueling of Navy ships within the southern California area as well as fueling under routine operations.
- The siting of upgraded and new facilities under all viable alternatives must be similar to the existing Navy infrastructure.
- The alternative must ensure reactivation and sustainment of existing Navy infrastructure in a cost effective manner.
- Development under each alternative must avoid areas with known sensitive natural resources; disturbance would be limited to areas historically used for operations.
- The alternative must allow for the maintenance and enhancement of habitat for Palos Verdes blue butterfly and coastal California gnatcatcher.
- The alternative must accommodate the ongoing DLA and Navy site cleanup pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act; and the Clean Water Act.

Various alternatives were evaluated against the screening factors. The alternatives considered include:

- Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines
- Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines
- Rehabilitation and Operation of Main Terminal and Operation of On-site and Off-site Pipelines
- Full Site Redevelopment
- Conversion of Site to Full Recreational or Open Space Use
- Navy Fueling at Port of Los Angeles or Port of Long Beach
- Navy Fueling at Other Navy Installations Along the Southern California Coast
- Connect Marine Terminal Pier 12 Directly to Pipelines from Area Refiners
- Navy Fueling Using Barges or Offshore Refueling Booms

2.3 Alternatives Carried Forward for Analysis

Based on the reasonable alternative screening factors and meeting the purpose and need for the Proposed Action, two action alternatives were identified for analysis in this EA.

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The No Action Alternative, which is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA, would involve permanent closure of a portion of the facility, while a portion would be taken out of temporary closure status and returned to operation by the Navy. In addition, some of the off-site pipelines would be placed back into service and others would be abandoned in-place. Activities related to the closure of underground storage tanks and other infrastructure included under the 2016 EA's Alternative 4 are complete, and no additional closure activities related to the 2016 EA would occur. Facilities that are past their service life would be demolished as resources allow and additional permanent closures to pipelines would continue to take place over time as the condition of some facilities degrades to an unsustainable level and the relevance of some facilities changes due to changes in operations at the site. Facilities critical to the fueling mission would be repaired and re-activated from the temporary closure status, in accordance with the partial operations analyzed under the 2016 EA. These facilities would be returned to operation by the Navy and the operations and maintenance of the facility would be potentially contracted out via a new base operating support services contract similar to the one the DLA developed and used for many years prior to the 2016 EA. Operations would be approximately one-third of historical pre-temporary closure levels.

The No Action Alternative would not meet the purpose and need for the Proposed Action because it would not allow for general reactivation and sustainment of the DFSP San Pedro facility, in conjunction with Navy requirements for periodic and contingency fueling, as only partial operations would resume on site. However, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative is used to analyze the consequences of not undertaking the Proposed Action, and serves to establish a comparative baseline for analysis.

2.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

This action alternative would allow commercial fueling operations similar to past military fueling operations at both the Main and Marine Terminals, and would provide for periodic and contingency fueling of Navy ships. During contingency fueling events, the Navy would be given priority over all other potential users to ensure certainty and primacy in fueling when needed. Alternative 1 would include limited or full use of the Main Terminal as deemed appropriate by the lessee to meet their and the Navy's fueling capacity and capability needs. This could include the rehabilitation of existing infrastructure as selected by the lessee as well as potential construction of new infrastructure on previously disturbed land by the lessee. New infrastructure could include fueling-related infrastructure, including but not limited to any combination of ASTs; office, industrial, warehouse or storage buildings; outdoor storage areas; and parking areas. Tanks and pipelines built to receive, store and deliver military grade fuel to the Navy or proposed to remain on site after the lease term has completed would meet Unified Facilities Criteria requirements. Tanks and pipelines built to receive/store/transfer commercial products could be built to commercial standards (i.e., in compliance with applicable federal, state and/or local requirements). The siting of upgraded and new facilities would be similar to the existing Navy infrastructure. Site use could also include the on-site pipelines via outlease as well as off-site pipelines (G-Line, R-Line, and Long Beach Pipelines connecting the Main and Marine Terminals. Note: The 10-inch Government pipeline and Norwalk pipeline would not be a part of the outlease. These pipelines would be assigned, if the Navy in-transfers them from the current owner, via separate assignment documents. Rehabilitation of the existing on-site pipelines could potentially include the construction of new or upgraded branch service lines servicing the terminals and/or new or upgraded in-plant pipelines within the terminals. The Navy, a contractor to the Navy, and/or the lessee would be responsible for conducting ongoing maintenance of, and required environmental compliance activities in, the Main and Marine Terminals and associated pipelines, including such maintenance and compliance requirements in sensitive habitat areas, though the Navy would retain overall responsibility for all aspects of compliance with regulatory requirements, which includes operating permit and environmental protection requirements. Any non-emergency ground-disturbing activities (e.g., inspection, repair, replacement, rehabilitation, reconstruction, new construction connections to pipelines, or maintenance) of the pipelines outside the boundaries of the terminals by the lessee could potentially require additional environmental impacts analysis. In addition, any changes to pier structure or appurtenances to facilitate commercial vessels would also potentially require additional environmental impacts analysis.

2.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

This action alternative would allow commercial fueling operations in the same manner as Alternative 1, but only at the Marine Terminal. It would also provide for periodic and contingency fueling of Navy ships. During contingency fueling events, the Navy would be given priority over all other potential users to ensure certainty and primacy in fueling when needed. Alternative 2 would also include rehabilitation of existing infrastructure and construction of new infrastructure, of the same types as noted for Alternative 1, on previously disturbed land at the Marine Terminal. Site use could also include the Long Beach Pipelines on and leading to the Marine Terminal via separate assignment documents. Rehabilitation of the existing on-site pipelines could potentially include the construction of new or upgraded branch service lines servicing the terminal and/or new or upgraded in-plant pipelines within the terminal. As with Alternative 1, the Navy, a contractor to the Navy, and/or the lessee would be responsible for conducting ongoing maintenance of, and required environmental compliance activities in, the Main and Marine Terminals and associated pipelines, including such maintenance and compliance requirements in sensitive habitat areas, though the Navy would retain overall responsibility for all aspects of environmental compliance. As noted for Alternative 1, any non-emergency ground-disturbing activities of the pipelines outside the boundaries of the terminal, or changes to pier structure or appurtenances to facilitate commercial vessels), could potentially require additional environmental impacts analysis.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

The following alternatives were considered, but not carried forward for detailed analysis in this EA as they did not meet the purpose and need for the project and/or satisfy the reasonable alternative screening factors presented in Section 2.2.

2.4.1 Rehabilitation and Operation of the Main Terminal and Operation of On-site and Off-site Pipelines

The Navy considered the possibility of allowing Navy and commercial fueling operations consistent with previous Navy property use at only the DFSP San Pedro Main Terminal. This alternative was not carried forward for further analysis as it would not fully meet the Navy's purpose and need for the Proposed Action because it would not provide the Navy with the capability of receiving fuel during routine and contingency operations, as access to a fuel terminal (fuel storage and distribution facility) supplied by pipeline and/or vessel is required for this service.

2.4.2 Full Site Redevelopment (Commercial, Residential, or Mixed Use) of the Main Terminal

The Navy considered the possibility of full redevelopment of the DFSP San Pedro facility, to include commercial, residential or mixed uses. This would involve more extensive development of the Main Terminal, including potential development of areas where known sensitive resources currently exist. This alternative was not carried forward for further analysis as it would not meet the Navy's purpose for the Proposed Action, which is to obtain infrastructure reactivation and sustainment of the DFSP San Pedro facility, while allowing for periodic and contingency military fueling. Further, full redevelopment of the site would not avoid affecting areas with known sensitive natural resources and it could include disturbance in new areas not previously used for operations. In so doing, this alternative would not provide for the maintenance or enhancement of habitat for Palos Verdes blue butterfly and coastal California gnatcatcher, and it would likely interfere with ongoing site cleanup required pursuant to both CERCLA and CWA.

2.4.3 Conversion of Site to Full Recreational or Open Space Use of the Main Terminal

The Navy considered the possibility of converting the site to full recreational or open space use, to include the possibility of either or both additional recreational facilities and other open space uses (e.g., parks, reserves). This would require the Navy transferring the land to state and local governments, regional agencies, or non-profit organizations who administer this type of use. This alternative would require the demolition of all on-site fueling facilities located above ground. This alternative would avoid disturbance in new areas and those with known sensitive natural resources, provide for the potential maintenance and enhancement of habitat for Palos Verdes blue butterfly and coastal California gnatcatcher, and accommodate the ongoing DLA and Navy site cleanup activities pursuant to regulatory requirements. However, this alternative was not carried forward for further analysis as it would not meet the Navy's purpose for the Proposed Action to obtain infrastructure reactivation and sustainment of the DFSP San Pedro facility, with allowance for periodic and contingency military fueling.

2.4.4 Navy Fueling at Port of Los Angeles or Port of Long Beach

The Navy considered the possibility of performing periodic and contingency fueling at separate commercial fueling facilities within the Port of Los Angeles and the Port of Long Beach. This alternative would require a fuel purchase agreement to be established between the Navy and a private/commercial fueling entity. Additionally, the Navy requires a safe and secure environment to load fuel, which requires the use of military security forces to secure and patrol the area. However, this alternative was not carried forward for further analysis as it would not meet the Navy's purpose for the Proposed Action, which is to allow for infrastructure reactivation and sustainment of the DFSP San Pedro facility.

2.4.5 Navy Fueling at Other Navy Installations Along the Southern California Coast

The Navy considered the possibility of performing periodic and contingency fueling at other Navy installations (i.e., Naval Base Coronado, Naval Station San Diego, Naval Base Point Loma, Naval Weapons Station Seal Beach). There is a Navy fuel pier in San Diego at Naval Base Point Loma, but this single pier is not sufficient to meet regional Navy contingency requirements. DFSP San Pedro contains the only other Navy ship fueling facilities within 1,000 miles of the fleet concentration in San Diego. Other Navy shore installations such as Seal Beach have no ship fueling capabilities, and ship fueling would not be compatible with the missions of these other installations. Therefore, this alternative was not carried forward for further analysis as it would not fully meet the Navy's purpose and need for the Proposed Action to obtain infrastructure reactivation and sustainment of the DFSP San Pedro facility and to ensure the fullest possible use and maintenance of the Navy's assets.

2.4.6 Navy Fueling Using Barges or Offshore Refueling Booms

The Navy considered the possibility of fueling Naval vessels and ships using barges or offshore refueling booms. This alternative would require the storage of military grade fuels at locally available locations where the barges or booms could obtain fuel, and would require fuel purchase agreements to be established between the Navy and a private/commercial fueling entity. Fuel barges may not have the required capacity or availability to fuel Navy vessels and ships under contingency situations. Additionally, the Navy requires a safe and secure environment to load fuel, which requires the use of military security forces to secure and patrol the area. This alternative would not fully meet the Navy's purpose and need for the Proposed Action to obtain infrastructure reactivation and sustainment of the DFSP San Pedro facility and to ensure the fullest possible use and maintenance of the Navy's assets. Therefore, this alternative was not carried forward for further analysis.

2.5 Best Management Practices Included in Proposed Action

Best management practices (BMPs) are existing policies, practices, and measures that the Navy would implement for the project to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing, reducing, or eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Avoidance and minimization measures are discussed separately in Chapter 3, and BMPs incorporated into the Proposed Action in this document are summarized in Appendix B.

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3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect effects of each alternative. Use of Defense Fuel Support Point (DFSP) San Pedro would require repair of existing systems and may include improvements to existing facilities, systems and components, and could also include construction of any combination of aboveground storage tanks (ASTs); office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas (see Section 2.1.2, Potential Development Scenarios for more details).

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ), and 32 Code of Federal Regulations (CFR) part 775 guidelines, the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to more than negligible impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

The term “significantly,” as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant (40 CFR part 1508.27). Intensity refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would need to be in order to be considered significant.

This section includes analyses of potential impacts to air quality, water resources, geological resources, biological resources, land use, visual resources, noise, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and environmental justice.

The potential impacts to the following resource areas are considered negligible or nonexistent, so these areas are not analyzed in detail in this EA:

Cultural Resources: The entire DFSP San Pedro was surveyed for cultural resources in 1998 (McLeod and Whetsell 1999). This study located no new prehistoric or historic sites (McLeod and Whetsell 1999). The 1998 study also evaluated two prehistoric sites and found that they were ineligible for listing in the National Register of Historic Places (NRHP) (McLeod and Whetsell 1999). In 2015, the Navy completed a Phase I cultural resources survey of the Main Terminal at DFSP San Pedro (Leidos 2015). No previously unrecorded prehistoric or historical cultural resources were identified during this study. Based on the results of the recent 2015 study at DFSP San Pedro, the Navy found that there are no NRHP-eligible archaeological sites at DFSP San Pedro. The Integrated Cultural Resources Management Plan determined that extensive disturbance characterized the area, and the archaeological resources that have been identified are in a disturbed context or have been relocated (Defense Logistics Agency [DLA] 2008). The Integrated Cultural Resources Management Plan concluded that these resources no longer exist or the remnants do not possess any contextual integrity or association to warrant any further consideration. Based on results from a 2014 architectural survey (Sproul 2014), the Navy has found that there is no

NRHP-eligible district, and no individually NRHP-eligible historic property at DFSP San Pedro. The Navy requested concurrence with a finding of "No Historic Properties Affected" from the State Historic Preservation Officer. In a response letter dated October 30, 2015, the State Historic Preservation Officer concurred that none of the 65 buildings and structures that comprised DFSP San Pedro (Main and Marine Terminals) in 2015, were eligible for listing in the NRHP. There are no known traditional cultural resources within or adjacent to the DFSP San Pedro. Therefore, cultural resources are not being further analyzed in this EA. The Navy has consulted with the State Historic Preservation Officer on the Navy's proposed finding of no Historic Properties Affected for the Proposed Action. The results of this consultation are included in Appendix A.

Airspace: The Proposed Action does not involve any activities that would affect or interfere with military airspace or military aircraft operations conducted within military airspace, nor would it change commercial airspace management or operations. Therefore, implementation of either Alternative 1 or Alternative 2 would not affect airspace. Accordingly, airspace is not carried forward for detailed analysis in this EA.

3.1 Air Quality

This discussion of air quality includes criteria pollutants, standards, sources, permitting, and greenhouse gases (GHGs). Air quality in a given location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses, ships) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents). Air pollutants are also released from natural sources such as volcanic eruptions and forest fires.

3.1.1 Regulatory Setting

3.1.1.1 Criteria Pollutants and National Ambient Air Quality Standards

Air quality is defined by ambient air concentrations of specific pollutants that are of concern with respect to the health and welfare of the public by the United States (U.S.) Environmental Protection Agency (USEPA). The USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants. The major pollutants of concern, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ground-level ozone (O_3), particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). Primary NAAQS are established to protect public health. Secondary NAAQS may also be established to avoid other adverse impacts to the public welfare such as visibility effects or damage to animals, crops, vegetation and buildings. Areas that violate a federal air quality standard are designated as nonattainment areas. Once a nonattainment area meets the standards and redesignation requirements outlined in the Clean Air Act (CAA), the area is designated as a maintenance area.

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter [$\mu g/m^3$] of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Pollutant emissions typically see the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources. PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, fine particulate matter (PM_{10} and $PM_{2.5}$) can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. Secondary pollutants, such as O_3, NO_2, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. In general, emissions that are considered "precursors" to secondary pollutants in the atmosphere (such as volatile organic compounds [VOCs] and oxides of nitrogen [NO_x], which are considered precursors for O_3), are the pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

The State of California has identified four additional pollutants for ambient air quality standards: visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The California Air Resources Board (CARB) has also established the more stringent California Ambient Air Quality Standards (CAAQS). Areas within California where ambient air concentrations of a pollutant are higher than the state and/or federal standard are considered to be in nonattainment for that pollutant. Table 3.1-1 details both the federal and state ambient air quality standards.

3.1.1.2 Greenhouse Gases

GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with global warming is producing negative economic and social consequences across the globe.

The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). To estimate global warming potential, which is the heat trapping capacity of a gas, the United States quantifies greenhouse gas emissions using the 100-year timeframe values established in the Intergovernmental Panel on Climate Change Fourth Assessment Report (Intergovernmental Panel on Climate Change 2007), in accordance with the 2013 United Nations Framework Convention on Climate Change reporting procedures. The global warming potential scale is standardized to CO_2, which has a value of one. For example, CH_4 has a global warming potential of 25, which means that CH_4 has a global warming effect 25 times greater than CO_2 on an equal-mass basis.

Table 3.1-1 Ambient Air Quality Standards

Pollutant	*Averaging Time*	*NAAQS[1] - Primary*	*NAAQS[1-] - Secondary*	*CAAQS - Concentration*
Ozone (O_3)	1-Hour	-	[3]	0.09 ppm (180 µg/m^3)
O_3	8-Hour	0.070 ppm (137 µg/m^3)	[3]	0.070 ppm (137 µg/m^3)
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
CO	1-Hour	35 ppm (40 mg/m^3)	None	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	53 ppb (100 µg/m^3)	[3]	0.030 ppm (57 µg/m^3)
NO_2	1-Hour	100 ppb (188 µg/m^3)	[3]	0.18 ppm (339 µg/m^3)
Sulfur Dioxide (SO_2)	24-Hour	-	-	0.04 ppm (105 µg/m^3)
SO_2	3-Hour	-	0.5 ppm (1,300 µg/m^3)	-
SO_2	1-Hour	75 ppb (196 µg/m^3)	-	0.25 ppm (655 µg/m^3)
Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	[3]	50 µg/m^3
PM_{10}	Annual Arithmetic Mean	-	[3]	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	35 µg/m$_3$	[3]	-
$PM_{2.5}$	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3	12 µg/m^3
Lead (Pb)[2]	30-Day Average	-	-	1.5 µg/m^3
Pb	3-Month Rolling Average	0.15 µg/m^3	Same as Primary Standard	-
Hydrogen Sulfide	1-Hour	[4]	[4]	0.03 ppm (42 µg/m^3)
Sulfates	24-Hour	[4]	[4]	25 µg/m^3
Visibility Reducing Particles	8-Hour (10 A.M. to 6 P.M., Pacific Standard Time)	[4]	[4]	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.
Vinyl Chloride[2]	24-Hour	[4]	[4]	0.01 ppm (26 µg/m^3)

Legend: µg/m^3 = microgram/cubic meter; mg/m^3= milligrams per cubic meter; ppb = parts per billion; ppm = parts per million.

Notes: [1] NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[2] The CARB has identified Pb and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[3] Same as primary standard

[4] No federal standards

Sources: CARB 2016; USEPA 2016.

CO_2 is the dominant gas in terms of quantities of total GHG emissions, although other GHGs have a higher global warming potential than CO_2. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emission rate representing all GHGs. The potential effects of GHG emissions are by nature global and cumulative, and it is impractical to attribute climate change effects to individual projects. Therefore, the impact of GHG emissions associated with this project is discussed in the context of cumulative impacts in Chapter 4.

3.1.2 Affected Environment

3.1.2.1 Regional Setting

DFSP San Pedro is located in the City of Los Angeles' San Pedro community and the City of Long Beach, within the South Coast Air Basin (SCAB). The SCAB comprises a single air district, the South Coast Air Quality Management District (SCAQMD), and consists of Orange County, the western portion of Los Angeles County, the southwestern portion of San Bernardino County, and the western portion of Riverside County.

The DFSP San Pedro area enjoys the typical southern California "Mediterranean" climate, with cool, dry summers and mild winters. The major influences on the regional climate are the Eastern Pacific High (a strong, persistent high-pressure system) and the Pacific Ocean. Seasonal variations in the position and strength of the Eastern Pacific High are a key factor in the weather changes in the area. From February through July, the prevailing winds generally come from the south (onshore) or from the west. From August through January, the prevailing winds generally come from the west-northwest direction (Western Regional Climate Center 2018).

The entire air basin is currently in extreme nonattainment of the 2015 and 2008 8-hour O_3 NAAQS and serious nonattainment of the $PM_{2.5}$ NAAQS; and is a maintenance area for CO, PM_{10}, and NO_2 (USEPA 2018a). In addition, Los Angeles County was designated as nonattainment for the Pb NAAQS due to exceedances measured near a large battery recycling facility after the USEPA reduced the Pb standard to 0.15 $\mu g/m^3$ in 2008 (SCAQMD 2012). In the current Air Quality Management Plan (2016), the SCAQMD states it will request the USEPA redesignate the Los Angeles County portion of the SCAB as in attainment for Pb, as the final near-source monitoring location was below the standard throughout the 2012 through 2015 time period (SCAQMD 2016); however, there is no documentation available on the SCAQMD website indicating this request has been submitted.

With respect to the CAAQS, the SCAB is in nonattainment of the state standards for O_3, $PM_{2.5}$, and PM_{10} (CARB 2018b), and is in attainment of all other CAAQS criteria pollutants, with the exception of Hydrogen Sulfide and Visibility Reducing Particles, which are unclassified.

Effects to human health exposure to ambient concentrations of ground-level O_3 can include the aggravation of respiratory illnesses such as asthma, emphysema, and bronchitis, or the development of asthma, and long-term exposure can cause damage to lung tissue (USEPA 2013). Effects to human health from exposure to particulate matter (both PM_{10} and $PM_{2.5}$) include aggravation of respiratory and cardiovascular disease, increased respiratory symptoms, decreased lung function growth, and exacerbation of allergic symptoms (USEPA 2013).

3.1.2.2 Region of Influence

The region of influence (ROI) for DFSP San Pedro is defined by the SCAB. For inert pollutants (all pollutants other than O_3 and its precursors), the ROI is generally limited to a few miles downwind from the source. However, for a photochemical pollutant such as O_3, the ROI may extend much farther downwind. O_3 is a secondary pollutant that is formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors (VOCs and NO_x). The maximum effect on O_3 levels from precursors tends to occur several hours after the time of emission during periods of high solar load and may occur many miles from the source. O_3 and its precursors transported from other regions can also combine with local emissions to produce high local O_3 concentrations.

3.1.2.3 Regulatory Framework

Federal Requirements

Under NEPA, air quality impacts must be evaluated and assessed with regard to the significance of their impacts. In addition to NEPA, the CAA, General Conformity, and New Source Review (NSR) are applicable to analyses of impacts to air quality. These federal requirements are discussed in the following sections.

Clean Air Act

The USEPA is the agency responsible for enforcing the CAA of 1970, and the 1977 and 1990 CAA Amendments. The purpose of the CAA is to establish NAAQS, which classify areas as to their attainment status relative to the NAAQS; develop schedules and strategies to meet the NAAQS; and to regulate emissions of criteria pollutants and air toxics to protect public health and welfare. Under the CAA, individual states are allowed to adopt ambient air quality standards and other regulations, provided they are at least as stringent as federal standards. The CAA Amendments established new deadlines for achievement of NAAQS, dependent upon the severity of nonattainment.

The USEPA requires each state to prepare a State Implementation Plan (SIP), which describes how that state will achieve compliance with NAAQS. A SIP is a compilation of goals, strategies, schedules, and enforcement actions that will lead the state into compliance with all federal air quality standards. Each change to a compliance schedule or plan must be incorporated into the SIP. In California, the SIP consists of separate elements for each air basin, depending upon the attainment status of the particular air basin.

The CAA Amendments also required that states develop an operating permit program that would require permits for all major sources of pollutants. The program is designed to reduce criteria pollutant emissions and control emissions of hazardous air pollutants (HAPs) by establishing control technology guidelines for various classes of emission sources. Under the CAA, state and/or local agencies may be delegated authority to administer the requirements of the CAA, including requirements to obtain Permits to Operate stationary sources on Navy installations.

General Conformity

Under 40 CFR part 93 and the provisions of part 51, Subchapter C, Chapter I, Title 40, Appendix W of the CFR, of the CAA as amended, federal agencies are required to demonstrate that federal actions conform with the applicable SIP. To ensure that federal activities do not hamper local efforts to control air pollution, Section 176(c) of the CAA, 42 U.S. Code [U.S.C.] section 7506(c) prohibits federal agencies, departments, or instrumentalities from engaging in, supporting, providing financial assistance for, licensing, permitting or approving any action which does not conform to an approved SIP or federal implementation plan.

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emission thresholds that trigger requirements of the General Conformity Rule are called *de minimis* levels. Table 3.1-2 identifies the federal nonattainment and maintenance pollutants and the relevant *de minimis* emission thresholds for the ROI.

Table 3.1-2 Applicable General Conformity Rule *de minimis* Levels (tons/year)

VOCs[1]	*NO_x*[1]	*CO*[3]	*SO_2*[2]	*NO_2*[2]	*PM_{10}*[3]	*$PM_{2.5}$*[1]	*Pb*[1]
10	10	100	100	100	100	70	25

Notes: 1. SCAB is an extreme nonattainment area for the 2008 and 2015 8-hour federal O_3 standard; VOCs and NO_x are precursors to the formation of O_3. It is in serious nonattainment of the federal $PM_{2.5}$ standard and in nonattainment of the federal Pb standard.
2. SO_2, NO_x, and VOCs are precursor compounds to the formation of $PM_{2.5}$.
3. SCAQMD is a serious maintenance area for CO and PM_{10}, and in a maintenance area for NO_2.

Source: USEPA 2018b.

To demonstrate conformity with the CAA, a project must clearly demonstrate that it does not cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard, any required interim emission reductions, or other milestones in any area. A Conformity Applicability Analysis is required for each of the pollutants for which the area has been designated as either nonattainment or maintenance, or the pollutant's precursor emissions.

Compliance with the General Conformity Rule can be demonstrated in several ways. Compliance is presumed if the net increase in direct and indirect emissions from a federal action would be less than the relevant *de minimis* level for a pollutant.

New Source Review

There are three types of NSR permitting requirements. Prevention of Significant Deterioration permits are required for new major sources or an existing major source making a major modification that is located in an area that meets the NAAQS. Nonattainment NSR permits are required for new major sources or major sources making a major modification in an area where one or more of the NAAQS are not being met. Minor source permits are for regulating pollution from stationary sources that do not meet the Prevention of Significant Deterioration or nonattainment NSR requirements. The purpose of minor NSR permits is to prevent the construction of sources that would either interfere with attainment or maintenance of the NAAQS or violate the control strategy in nonattainment areas. Local air districts have the primary responsibility for issuance of air permits

Hazardous Air Pollutants

The USEPA has listed 187 substances that are regulated under Section 112 of the CAA, and the State of California has identified additional substances that are regulated under state and local air toxics rule. Emission factors for most HAPs from combustion sources are roughly three or more orders of magnitude lower than emission factors for criteria pollutants. Trace amounts of HAPs may be emitted from sources during the rehabilitation/construction and operational activities; however, the amounts that would be emitted would be small in comparison with the emissions of criteria pollutants. Emissions of HAPs would also be subject to dispersion due to wind mixing and other dissipation factors.

Local Requirements

In Los Angeles County, the SCAQMD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. The SCAQMD's tasks include air pollution monitoring, preparation of the SIP for the SCAB, and the promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain the federal O_3 standard within the SCAB. The SCAQMD's rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

These regulations require that facilities constructing, altering, or replacing stationary equipment that may emit air pollutants obtain an Authority to Construct permit. Further, SCAQMD regulations require proponents of stationary sources of air pollutants to obtain and maintain Permits to Operate for all stationary sources subject to the requirements of Regulation II. The SCAQMD is responsible for the review of applications, and for the approval and issuance of these permits. Once a permit is issued, the facility is responsible for compliance with the conditions specified in the permit, and is responsible for quantification of emissions associated with the permitted unit.

3.1.2.4 Existing Conditions

With the temporary closure of DFSP San Pedro, fuel storage and distribution activities shifted to the Kinder Morgan facilities located in the cities of Watson and Carson, California. Both Kinder Morgan facilities are located within the same air basin and county as DFSP San Pedro.

Since the fuel facility temporary closure process was completed at DFSP San Pedro, there have been approximately 39 employees on site daily. These employee vehicle trips, in addition to other miscellaneous trips each day, currently contribute negligible air emissions to the region.

Before temporary closure, DFSP San Pedro facilities within the Main Terminal and Pier 12 operated under permits issued by the SCAQMD. Table 3.1-3 lists the permits currently held by DFSP San Pedro as of December 2018.

Table 3.1-3 SCAQMD Permits

Permit Number	*Equipment Description*
G19451	Main Terminal - Diesel-Powered Fire Fighting Pump
G20707	Main Terminal - Diesel-Powered Backup Electrical Generator
G23681	Main Terminal - Diesel-Powered Backup Electrical Generator
G58410	Main Terminal - Soil Vapor Extraction and Treatment System: Ex-Situ Soil Remediation
G58411	Main Terminal - Soil Vapor Extraction and Treatment System
G58412	Main Terminal - Soil Vapor Extraction and Treatment System, Solleco Environmental Equipment
G58413	Main Terminal - Soil Vapor Extraction and Treatment System (UST Cluster 1)
G58414	Main Terminal - Soil Vapor Extraction and Treatment System (UST 2)
G58415	Main Terminal - Soil Vapor Extraction and Treatment System (UST Cluster 2)
G58416	Main Terminal - Soil Vapor Extraction and Treatment System (ERH No. 2)
G58417	Main Terminal - Boiler, Portable, Hurst, Natural Gas Fired
G58418	Main Terminal - Soil Vapor Extraction and Treatment System (Tank 43 Area)
G58419	Main Terminal - Soil Vapor Extraction and Treatment System (Steam SVE No. 1)
603867[1]	Main Terminal - Site Specific Rule 1166 Contaminated Soil Mitigation Plan - South Control (Pump House Area) Remediation Project Area

Notes: 1. Application number, no permit number available on SCAQMD Facility Information Detail website.
Source: SCAQMD 2019.

3.1.3 Environmental Consequences

This section focuses on groups of activities that have the potential to result in an impact to the ambient air quality. The analysis was separated by estimated project phases related to the rehabilitation and renewed fueling operations. Types of activities that could affect air quality include operation of construction equipment, worker trips, and earth-moving activities during construction, and worker trips, fuel loading and unloading, and vessel or truck trips for fuel shipments and receipts during operations.

3.1.3.1 Approach to Analysis

The air quality analysis estimated the magnitude of emissions that would occur from proposed site construction and rehabilitation activities, as well as emissions related to renewed fueling operations at DFSP San Pedro. Rehabilitation-related activities could include adding ASTs to the suitable project areas, adding ancillary buildings, adding connections to existing pipelines, adding parking areas, conducting earth movement to construct new facilities, and vehicle trips to and from the site for the rehabilitation phase. Operational activities would include a throughput of up to 30 million barrels of fuel annually, and include storage of fuel in ASTs at the Main and/or Marine Terminals.

The analysis compared emissions from the rehabilitation and renewed fueling operations under each alternative to the criteria identified in Section 3.1.2.3, to evaluate the significance of the impacts to air quality resources. The *de minimis* levels provide logical thresholds for determining whether further analysis would be required in order to support a Finding of No Significant Impact.

3.1.3.2 Emissions Evaluation Methodology

Air quality impacts from rehabilitation and renewed fueling operations proposed under each action alternative would primarily occur from combustive emissions due to the use of fossil fuel-powered equipment; emissions generated from rehabilitation of existing infrastructure; the construction and operation of new infrastructure, including emissions from storage of petroleum products in ASTs; and vessel emissions from fueling transactions at the Marine Terminal (Pier 12). Emissions were estimated using the California Emissions Estimator Model (version 2016.3.2), which is the current comprehensive tool for quantifying air quality impacts from land use projects throughout California, as well as supplemental calculations for project-related emissions that were not included in model. The model, developed in collaboration with the air districts of California, includes default data (e.g., emission factors, trip lengths, meteorology, and source inventory) that have been provided by the various California air districts to account for local requirements and conditions (California Air Pollution Control Officers Association 2018). For this analysis, default data were overridden in the model by project-specific data, as described in Section 2.1.2, Potential Development Scenarios, when available. Emissions factors for Pb, from both vessel and vehicle exhaust, are typically presented as a fraction of particulate matter emissions (California Air Resources Board 2022; Environment Canada 2012). Assumptions were made regarding the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used. Additional calculations related to emissions from vessels and ships receiving fuel while moored to the pier at the Marine Terminal, emissions from the loading and operation of fuel tanker trucks, and petroleum storage at both the Main and Marine Terminals (using TANKS Emissions Estimation Software, version 4.09D) were prepared separately and added to the model outputs. Assumptions and model inputs are provided within the modeling and supplemental calculations provided in Appendix C.

3.1.3.3 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels (as stated in the 2016 EA). The fuel facility would remain in partial closure and air emissions would be expected to be less than either of the action alternatives, as described in the following sections.

Therefore, no significant impacts to air quality would occur with the No Action Alternative.

3.1.3.4 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Under Alternative 1, a total of 218.1 acres (approximately 207 acres of developable area at the Main Terminal and approximately 11.1 acres at the Marine Terminal) would be available for development, including rehabilitation of existing infrastructure, and construction of new infrastructure and reconnection of on- and off-site pipelines at both the Main and Marine Terminals. New infrastructure could include any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas. In order to evaluate maximum potential air quality impacts, construction activities under Alternative 1 were assumed to occur on the acreage available in a given year between 2021 and 2024. On the Main Terminal, 43.1 acres would be available for immediate development as well as 11.1 acres on the Marine Terminal, and construction is assumed to begin in 2021. In 2022, 2023, and 2024, an additional 16.9 acres, 146.6 acres, and 0.6 acre, respectively, would be available for development on the Main Terminal, after remediation activities conducted by the DLA and Navy are completed. Under the maximum development scenario, construction would be completed by the end of 2024.

Table 3.1-4 presents the summary of the annual emissions associated with the rehabilitation and new construction activities under Alternative 1. The specific input parameters, assumptions and model outputs are shown in further detail in Appendix C. As shown in Table 3.1-4, the annual emissions from the Alternative 1 would fall below General Conformity Rule *de minimis* thresholds for all pollutants during rehabilitation/construction. Emissions of Pb would be a fraction of the particulate matter emissions shown in Table 3.1-4, and thus are estimated to be well below 1 ton per year.

Table 3.1-4 Alternative 1 – Rehabilitation/Construction Emissions with Evaluation of Conformity (tons/year)

Emission Source	*VOCs*	*NO_x*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Rehabilitation Activities – 2021	0.39	3.34	3.10	0.01	0.43	0.27
Rehabilitation Activities – 2022	0.32	2.78	2.84	0.01	0.39	0.23
Rehabilitation Activities – 2023	0.36	2.59	2.94	0.01	0.39	0.22
Rehabilitation Activities – 2024	0.13	1.05	1.33	0.00	0.16	0.07
Conformity *de minimis* Thresholds	10	10	100	100	100	70
Exceeds Conformity *de minimis* Thresholds?	No	No	No	No	No	No

Notes: The SCAB is in extreme nonattainment of the 8-hour 2008 and 2015 O_3 NAAQS, in serious nonattainment of the $PM_{2.5}$ NAAQS, and in nonattainment of the Pb NAAQS; and is a maintenance area for CO, PM_{10}, and NO_2.
Pb emissions would be a fraction of the particulate matter emissions presented above and would thus be significantly below one ton per year.

There are residential, educational, and recreational facilities to the north, south, and west of the Main Terminal site. To the east and southeast of the Marine Terminal are the Ports of Los Angeles and Long Beach, and associated industrial facilities. During periods of onshore wind flow (generally when prevailing winds come from the south) in the spring and summer months, there would be a chance for fugitive dust from excavation and demolition during the rehabilitation and/or new construction activities to be carried to the areas north of the Main Terminal, towards residential, commercial, and educational areas. When the prevailing winds come from the west-northwest, generally from August to January, there would be a chance for fugitive dust to be carried into the Port-related Industrial areas to the east of the Marine Terminal site. However, throughout the entire year, dust suppression methods (such as using water trucks to wet unvegetated or disturbed areas twice daily or as needed) would be implemented to minimize fugitive dust emissions.

A dust control plan would not be required as long as required dust control measures from the SCAQMD are implemented during the entire phase of earth-moving activities, unless the daily earth-moving activities qualify the project as a “large operation” as defined by SCAQMD Rule 403. Per SCAQMD Rule 403, a “large operation” is:

> “any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards) or more three times during the most recent 365-day period.”

If the amount of soil to be moved would exceed the threshold defined by SCAQMD Rule 403, the lessee would be responsible for preparing a Fugitive Dust Plan, and additional dust control measures would be implemented, as identified in the Fugitive Dust Plan.

The amount of water that would be needed for dust suppression activities would be highly dependent upon the amount of soil moved at one time, the type and moisture content of the soil, time of year, weather conditions, etc. Non-potable water would likely be used for dust suppression activities at the time the project is implemented. Disturbed areas would be revegetated, which would reduce dust generation potential. A complete list of impact avoidance and minimization measures is provided in Appendix B.

Operations

Post-rehabilitation of the Main and Marine Terminals and on- and off-site pipelines, resumption of operations at DFSP San Pedro would ensue. Under the maximum development scenario, operations would begin in 2022 at both the Main and Marine Terminals, as construction of the first available area is completed, and then additional operations would come online as the subsequent construction in 2022, 2023, and 2024 is completed. Full operational emissions are assumed to occur after 2025, when all of the developable land on the Main Terminal could be built out. Operations under Alternative 1 would include a throughput of up to 30 million barrels of fuel annually, with delivery and issuance of fuel occurring at both the Main and Marine Terminals. Additionally, fuel would be stored in ASTs at both the Main and Marine Terminals, including up to 11,599,900 barrels at the Main Terminal and 691,200 barrels at the Marine Terminal. This level of operations would result in an estimated 41 fuel trucks visiting the Main or Marine Terminal per day. Additionally, an estimated 120 employees would also commute to the site each day. Table 3.1-5 shows the total annual emissions from continued operations under Alternative 1.

Table 3.1-5 Alternative 1 – Total Annual Emissions from Operations (tons/year)

Emission Source	*VOCs*	*NO_x*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Main and Marine Terminal Land-based Emissions at Full Buildout	19.38	0.20	0.17	0.00	0.02	0.02
On-road Worker Commute Emissions	0.01	0.04	0.75	0.00	0.00	0.00
Vessel Emissions from Onloading and Offloading Fuel at the Marine Terminal	2.34	52.63	7.05	13.88	1.12	1.11
Emissions from Operation of Fuel Trucks (Loading and Exhaust)	5.06	2.70	0.22	0.01	0.02	0.02
Emissions from Storage and Withdrawal from ASTs	8.97	NA	NA	NA	NA	NA
Total Estimated Annual Emissions	**35.76**	**55.57**	**8.19**	**13.89**	**1.16**	**1.15**

Aboveground storage tank and truck loading rack operations would go through New Source Review under SCAQMD rules and regulations and are therefore not included in the evaluation for General Conformity. Table 3.1-6 shows annual estimated emissions from mobile sources under Alternative 1. The emissions would fall well below General Conformity Rule *de minimis* thresholds for all pollutants except VOCs and NO_x. Emissions of Pb would be a fraction of the particulate matter emissions shown in Table 3.1-6, and thus are estimated to be well below 1 ton per year.

Table 3.1-6 Alternative 1 – Annual Emissions from Operational Mobile Sources with Evaluation of Conformity (tons/year)

Emission Source	*VOCs*	*NO_x*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Main and Marine Terminal Land-based Emissions at Full Buildout	19.38	0.20	0.17	0.00	0.02	0.02
On-road Worker Commute Emissions	0.01	0.04	0.75	0.00	0.00	0.00
Vessel Emissions from Onloading and Offloading Fuel at the Marine Terminal	2.34	52.63	7.05	13.88	1.12	1.11
Emissions from Operation of Fuel Trucks (Exhaust)	0.02	2.70	0.22	0.01	0.02	0.02
Total Estimated Annual Emissions	**21.75**	**55.57**	**8.19**	**13.90**	**1.16**	**1.15**
Conformity *de minimis* Thresholds	10	10	100	100	100	70
Exceeds Conformity *de minimis* Thresholds?	**Yes**	**Yes**	No	No	No	No

Notes: The SCAB is in extreme nonattainment of the 8-hour 2008 and 2015 O_3 NAAQS, in serious nonattainment of the $PM_{2.5}$ NAAQS, and in nonattainment of the Pb NAAQS; and is a maintenance area for CO, PM_{10}, and NO_2.
Pb emissions would be a fraction of the particulate matter emissions presented above and would thus be significantly below one ton per year.

The Navy is consulting with the SCAQMD to confirm that operational emissions from implementation of the Proposed Action would be within the emissions budget in the current Air Quality Management Plan, and that the Proposed Action would conform to the SIP. The lessee would be responsible for obtaining appropriate air emissions permits and operating in accordance with those permits, and in general operating in accordance with all SCAQMD laws and regulations, for any new equipment or that would be present on site.

A Record of Non-applicability for Clean Air Act Conformity has been prepared for the emissions for the Marine Terminal portion of Alternative 1, which would be below *de minimis* for all criteria pollutants, as presented in Appendix C.

Therefore, implementation of Alternative 1 would not have a significant impact to air quality.

3.1.3.5 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Over the 12-month rehabilitation period of Alternative 2, there would be roughly 11.1 acres of rehabilitation of existing infrastructure, as well as construction of new infrastructure and reconnection of on and off-site pipelines. New infrastructure, including but not limited to, any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; parking areas; and other ancillary uses.

Table 3.1-6 presents the summary of the annual emissions associated with the Proposed Action under Alternative 2. For modeling purposes, it was assumed that all of the proposed activities would occur over a 12-month construction period. The specific input parameters, assumptions and model outputs are shown in further detail in Appendix C. As shown in Table 3.1-7, the annual emissions from rehabilitation and construction under Alternative 2 would fall well below General Conformity Rule *de minimis* thresholds for all pollutants under rehabilitation/construction. Emissions of Pb would be a fraction of the particulate matter emissions shown in Table 3.1-7, and thus are estimated to be well below 1 ton per year.

Table 3.1-7 Alternative 2 – Rehabilitation/Construction Emissions with Evaluation of Conformity (tons/year)

Emission Source	*VOCs*	*NO_x*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Rehabilitation Activities – 2021	0.29	2.63	2.39	0.00	0.25	0.18
Conformity *de minimis* Thresholds	10	10	100	100	100	70
Exceeds Conformity *de minimis* Thresholds?	No	No	No	No	No	No

Notes: The SCAB is in extreme nonattainment of the 8-hour 2008 and 2015 O_3 NAAQS, in serious nonattainment of the $PM_{2.5}$ NAAQS, and in nonattainment of the Pb NAAQS; and is a maintenance area for CO, PM_{10}, and NO_2.
Pb emissions would be a fraction of the particulate matter emissions presented above and would thus be significantly below one ton per year.

Operations

Once rehabilitation is complete, the resumption of operations at the Marine Terminals would include a throughput of up to 30 million barrels of fuel annually, with delivery and issuance of fuel occurring at the Marine Terminal at any one time. Additionally, up to 691,200 barrels of fuel would be stored in ASTs at the Marine Terminal at any one time. Impacts would be similar to those described under Alternative 1, but with all activity occurring at the Marine Terminal. Table 3.1-8 shows the total annual emissions from continued operations under Alternative 2.

Table 3.1-8 Alternative 2 – Total Annual Emissions from Operations (tons/year)

Emission Source	*VOCs*	*NO_x*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Marine Terminal Land-based Emissions	1.00	0.01	0.01	0.00	0.00	0.00
On-road Worker Commute Emissions	0.00	0.01	0.25	0.00	0.00	0.00
Vessel Emissions from Onloading and Offloading Fuel at the Marine Terminal	2.34	52.63	7.05	13.88	1.12	1.11
Emissions from Operation of Fuel Trucks (Loading and Exhaust)	2.53	1.32	0.11	0.01	0.01	0.01
Emissions from Storage and Withdrawal from ASTs	1.81	NA	NA	NA	NA	NA
Total Estimated Annual Emissions	**7.68**	**53.97**	**7.42**	**13.89**	**1.13**	**1.11**

Aboveground storage tank and truck loading rack operations under Alternative 2 would go through New Source Review under SCAQMD rules and regulations and are therefore not included in the evaluation for General Conformity. Table 3.1-9 shows annual estimated emissions from mobile sources under Alternative 2. The emissions would fall well below General Conformity Rule *de minimis* thresholds for all pollutants except NO_x. Emissions of Pb would be a fraction of the particulate matter emissions shown in Table 3.1-9, and thus are estimated to be well below 1 ton per year.

Table 3.1-9 Alternative 2 – Annual Emissions from Operational Mobile Sources with Evaluation of Conformity (tons/year)

Emission Source	*VOCs*	*NO_x*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Marine Terminal Land-based Emissions	1.00	0.01	0.01	0.00	0.00	0.00
On-road Worker Commute Emissions	0.00	0.01	0.25	0.00	0.00	0.00
Vessel Emissions from Onloading and Offloading Fuel at the Marine Terminal	2.34	52.63	7.05	13.88	1.12	1.11
Emissions from Operation of Fuel Trucks (Exhaust)	0.01	1.32	0.11	0.01	0.01	0.01
Total Estimated Annual Emissions	**3.35**	**53.97**	**7.42**	**13.89**	**1.13**	**1.12**
Conformity *de minimis* Thresholds	10	10	100	100	100	70
Exceeds Conformity *de minimis* Thresholds?	No	**Yes**	No	No	No	No

Notes: The SCAB is in extreme nonattainment of the 8-hour 2008 and 2015 O_3 NAAQS, in serious nonattainment of the $PM_{2.5}$ NAAQS, and in nonattainment of the Pb NAAQS; and is a maintenance area for CO, PM_{10}, and NO_2.
Pb emissions would be a fraction of the particulate matter emissions presented above and would thus be significantly below one ton per year.

The Navy is consulting with the SCAQMD to confirm that operational emissions would be within the emissions budget in the current Air Quality Management Plan, and that the Proposed Action would conform to the SIP. Operational impacts would be the same under Alternative 2 as described under Alternative 1, but the emissions would only be generated at the Marine Terminal of DFSP San Pedro. Emissions calculations are presented in Appendix C.

Therefore, implementation of Alternative 2 would not have a significant impact to air quality.

3.2 Water Resources

Water resources include surface water, groundwater, water quality, and floodplains. Surface water includes lakes, ponds, rivers, streams, impoundments, nearshore waters, and wetlands. Groundwater is water that is located below the ground surface. Water quality describes the chemical and physical composition of water as affected by natural conditions and human activities. Floodplains are relatively flat areas adjacent to rivers, streams, watercourses, bays, or other bodies of water subject to inundations during flood events. A 100-year floodplain is an area that is subject to a 1 percent chance of flooding in any particular year.

3.2.1 Regulatory Setting

Water resource regulations focus on the right to use water and protection of water quality. The principal federal laws enforced by the USEPA to protect water quality are the Clean Water Act (CWA), as amended (33 U.S.C. section 1251 et seq.), and the Safe Drinking Water Act (42 U.S.C. section 300f et seq.). The CWA provides protection of surface water quality and preservation of wetlands. The Porter-Cologne Water Quality Control Act (California Water Code section 13000-13999.10) assigns the State Water Resources Control Board and the Regional Water Quality Control Boards (RWQCBs) responsibilities for protection of the waters within their regions. The regional boards are also responsible for implementing provisions of the CWA delegated to states, such as the National Pollutant Discharge Elimination System (NPDES), which regulates point and non-point discharges of pollutants to waters.

Stemming from the CWA, in October 2004, the Department of Defense (DoD) issued Unified Facilities Criteria (UFC) on low impact development (LID) that were later updated on 15 November 2010 and 01 July 2015 (UFC 3-210-10). This was a stormwater management strategy designed to maintain the hydrologic functions of a site and mitigate the adverse impacts of stormwater runoff from DoD construction projects. All DoD construction projects are required to be compliant with these LID building designs. Following UFC 3-210-10, Section 438 of the Energy Independence and Security Act of 2007 (42 U.S.C. section 17094) has also been implemented by the DoD. This goes further with stricter stormwater runoff requirements for federal development projects. Section 438 requires federal agencies to develop facilities having a footprint that exceeds 5,000 square feet in a manner that maintains or restores the pre-development site hydrology to the maximum extent technically feasible. Agencies can meet the pre-development hydrology requirements in two ways: (1) managing on-site the total volume of rainfall from the 95th percentile storm, or (2) managing on-site the total volume of rainfall based on a site-specific hydrologic analysis through various engineering techniques.

In the Water Quality Control Plan for the Los Angeles Region (Basin Plan), the Los Angeles RWQCB designated beneficial uses for the surface water and groundwater in the project area. Beneficial uses are defined as the uses of water necessary for the survival or well-being of man, plants, and wildlife; and are protected against degradation of their quality under the state Porter-Cologne Act (Los Angeles RWQCB 1995). Examples of beneficial uses include drinking; swimming; industrial and agricultural water supplies; and the support of fresh and saline aquatic habitats. The Basin Plan sets objectives for water quality that must be maintained to protect the designated beneficial uses of water resources in the Los Angeles Region and conform to the state's anti-degradation policy.

Waters of the U.S. include wetlands and non-wetlands under the U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the CWA. Non-wetland waters of the U.S. are areas that are generally defined by the ordinary high water mark. The USACE's jurisdiction can extend beyond the ordinary high water mark to the limit of adjacent wetlands, when present, and such jurisdiction will encompass certain wetlands as well. Wetlands are defined under CWA regulations (33 CFR 328) as, "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas."

Executive Order (EO) 11990, Protection of Wetlands, requires that governmental agencies, in carrying out their responsibilities, provide leadership and "take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Each agency is to consider factors relevant to a proposed project's effect on the survival and quality of the wetlands by maintenance of natural systems, including conservation and long-term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, and wildlife. If no practical alternative can be demonstrated, agencies are required to provide for early public review of any plans or proposals for new construction in wetlands.

EO 11988, Floodplain Management, directs all federal agencies to refrain from conducting, supporting, or allowing any activity that would significantly encroach into a floodplain or impact floodplain resources, unless it is the only practicable alternative. If the lead agency finds that the only practicable alternative requires siting in a floodplain, the agency shall either design or modify its action to minimize harm to or within the floodplain and publicly explain why the action is proposed to be located in a floodplain.

3.2.2 Affected Environment

The ROI for water resources is the proposed project area and any potential downstream receiving waters. The project area includes the DFSP San Pedro Main Terminal, off-site pipelines, and DFSP San Pedro Marine Terminal (refer to Figures 1-1 and 1-2). Receiving waters in the ROI include those at the Port of Los Angeles and the Port of Long Beach, located adjacent to the Marine Terminal (refer to Figure 1-2). Development at both the Main and Marine Terminals would be limited to previously disturbed areas and those that do not contain environmental resources of concern. The off-site underground pipelines subject to rehabilitation are located in developed areas with no overlapping or adjacent water resources. Infrastructure for the off-site pipelines (the G-Line, R-Line, and Long Beach Pipelines and the 10-inch Government pipeline and Norwalk pipeline [if assigned]), remains in place and would need to be inspected as to any work necessary to reconnect it to the other pipelines. Any non-emergency ground-disturbing activities (e.g., inspection, repair, replacement, rehabilitation, reconstruction, new construction connections to pipelines, or maintenance) of the pipelines outside the boundaries of the terminals by the lessee could potentially require additional environmental impacts analysis.

3.2.2.1 DFSP San Pedro Main Terminal

Surface Water

The Main Terminal property consists of rolling hills, ravines, and a gently sloping partially paved administrative portion of the Main Terminal. Surface water at the Main Terminal is ephemeral. Jurisdictional waters have not been identified at the Main Terminal. A reconnaissance-level wetland delineation was conducted in 2003 (Naval Weapons Station [NAVWPNSTA] Seal Beach 2014) across the entire Main Terminal property and identified the following surface water features:

- 2.05 acres of potential wetlands, mostly seasonally flooded arroyo willow or mule fat scrub
- 0.36 acres of other water areas consisting of intermittent or ephemeral channels which are predominantly unvegetated

The U.S. Fish and Wildlife Service (USFWS) provides up to date information about the abundance, characteristics, and distribution of wetlands using the National Wetlands Inventory. In 2018, the National Wetlands Inventory identified both freshwater emergent wetland and riverine habitats on the Main Terminal property. Riverine habitats are classified as river or stream channels, while freshwater emergent habitats include herbaceous marsh, fen, swale and wet meadows. These National Wetland Inventory indicated features are depicted in Figure 3.2-1.

Stormwater at the Main Terminal collects and runs off into the various ravines that dissect the area. The surface runoff is allowed to follow natural drainage patterns and drains eastward to North Gaffey Street where it is directed into the municipal stormwater drains and then enters the Port of Los Angeles. The DLA has prepared a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the Industrial Activities Storm Water General Permit CAS000001, Waste Discharge Identification number 419I005602, adopted by the State Water Resources Control Board (DLA 2017a). The SWPPP is actively being maintained for the Main Terminal and complies with state industrial general permit requirements.

Groundwater

Groundwater at the Main Terminal ranges in depth from 10 to 35 feet below ground surface (bgs) in the areas of lower elevation and up to 134 feet bgs in the former concrete underground storage tanks (USTs) area located on the hill to the southwest of the Administration Area. Groundwater beneath the facility is not used for any municipal or industrial purposes although the Los Angeles RWQCB has included it in the beneficial use aquifer. Based on the lack of a suitable aquifer and potential for saltwater intrusion to the aquifer, future water production within the Main Terminal is not practical (Naval Facilities Engineering Command Southwest [NAVFAC SW] 2018).

Water Quality

As part of the ongoing monitoring and sampling of facility groundwater wells performed under a Los Angeles RWQCB approved facility groundwater monitoring and sampling program, the DLA is actively evaluating the occurrence and concentration of fuel components floating on or dissolved in site groundwater, as well as monitoring potential migration from other sources.

Under the jurisdiction and approval of the Los Angeles RWQCB, ongoing remedial measures have been implemented in the Tank Farm Area, South Control Area (Pump House Area) and Administration Area of the Main Terminal to treat degraded groundwater. Although the Main Terminal is located within a groundwater area classified by the Los Angeles RWQCB as usable, including as drinking water, there is no indication from current groundwater sampling data that potable groundwater resources have been affected by the degraded groundwater from the Tank Farm Area, South Control Area or Administration Area (NAVFAC SW 2019).

Floodplains

No floodplains have been identified by the Federal Emergency Management Agency (FEMA) at the Main Terminal (FEMA 2008).

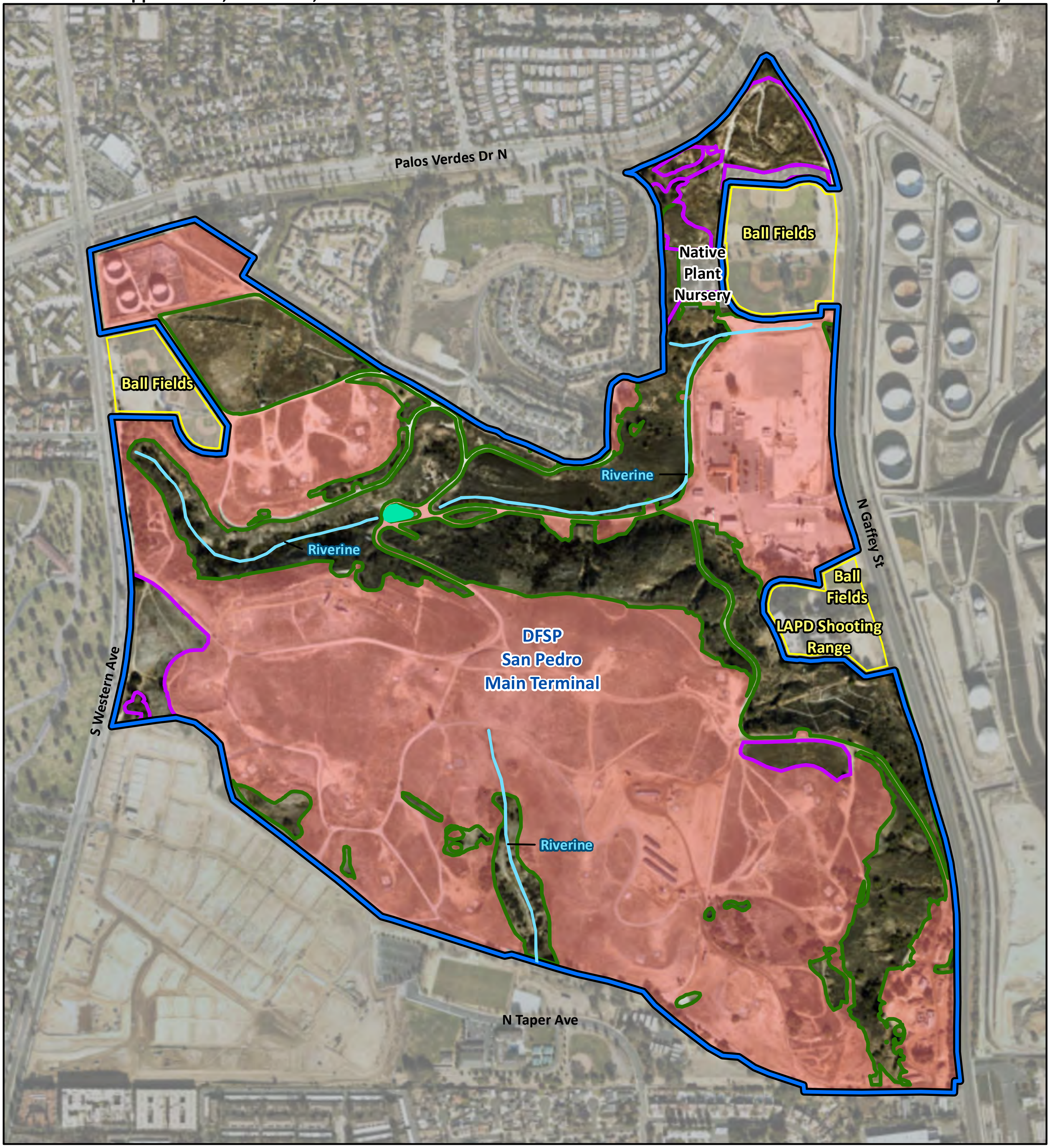
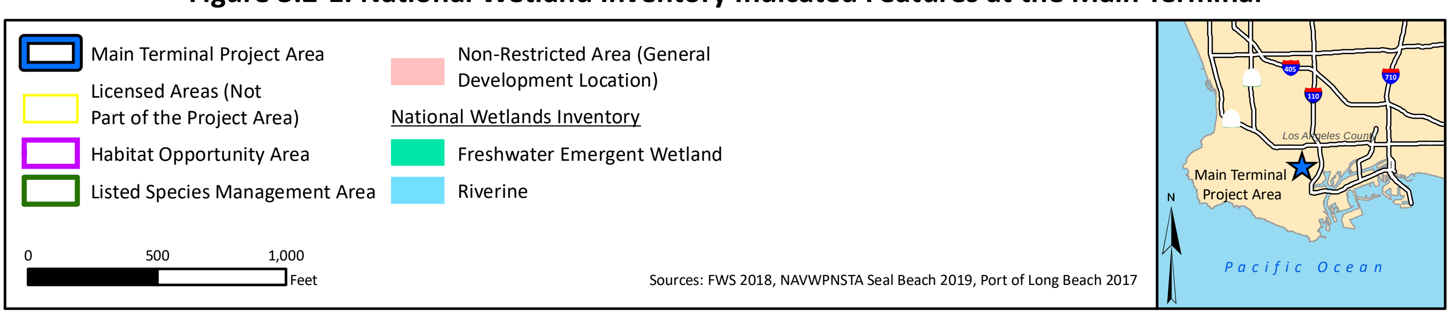


Figure 3.2-1. National Wetland Inventory Indicated Features at the Main Terminal



3.2.2.2 DFSP San Pedro Marine Terminal

Surface Water

The Marine Terminal is located on flat land in the Port of Long Beach. The entire Port complex is heavily developed and much of the land area is fill that was created using marine sediment from dredging adjacent water areas to construct shipping channels and berthing areas. There are no surface waters within the Marine Terminal; however, the Marine Terminal is surrounded by the jurisdictional waters of the Port of Long Beach.

Stormwater runoff at the facility is contained and captured by a series of containment basins, berms, and catchments (DLA 2011). Stormwater not otherwise contained may pool in areas, but would generally drain to the northeast and into the Long Beach Middle Harbor. Runoff on the pier is designed to drain to one of the valve pits, piping channels, or to a manifold vault. A drain basin and sump allows for the transfer of water or fuel to the slop tank at the Marine Terminal. On the Marine Terminal, all of the secondary containment structures are connected to the oil/water separator or the slop tank (DLA 2011). In accordance with the Industrial Activities Storm Water General Permit CAS000001 adopted by the California State Water Resources Control Board, a SWPPP has been prepared and is actively being maintained for the Marine Terminal and complies with state and industrial general permit requirements (DLA 2017b).

Groundwater

The underlying groundwater at the Marine Terminal is expected to be saline and not fit for drinking water use or other beneficial uses. There have been no reported groundwater investigations completed at the site, thus the quality of the groundwater is not known with certainty (DLA 2011). Based on an EDR® database search completed for the Marine Terminal, the inferred depth to groundwater is approximately 70 feet bgs (NAVFAC SW 2019).

Floodplains

The Marine Terminal is located outside of the 100-year floodplain (FEMA 2008).

3.2.3 Environmental Consequences

The environmental consequences evaluation for water resources includes a qualitative and quantitative analysis of surface water, groundwater, water quality, and floodplains to the extent possible given available project data. The analysis of potential impacts considers both direct and indirect impacts. Direct impacts result from disturbance of surface waters or removal or alternation of groundwater, while indirect impacts include effects to water quality away from the rehabilitation and continued operation. The following factors are also considered in evaluating potential impacts to water resources:

- degrading the quality of surface waters by introducing pollutants that pose a risk to human health, agricultural use, or ecological conditions
- noncompliance with applicable water quality standards, laws, and regulations
- decreasing existing and/or future beneficial uses of surface waters
- depleting or contaminating a groundwater source that is usable for municipal, private, or agricultural purposes
- increasing the risk of flooding

In this evaluation, best management practices (BMPs) and engineering controls (e.g., erosion control, runoff reduction, and sediment removal measures) are assessed for their ability to avoid, minimize, or reduce/eliminate potential impacts to water resources, in compliance with applicable local, state, or federal regulations. For each of the four water resource categories, the impact analysis is further broken down by rehabilitation and new construction (short-term impacts), included in Sections 2.3.2 and 2.3.3, and operations (long-term impacts). If an activity is deemed as having an impact, the activity was then evaluated to determine if the impact is significant or less than significant, as evaluated against the above bulleted list.

3.2.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. Partial operation activities would continue to be conducted in compliance with all regulations protecting water resources. Out-of-service infrastructure that prevents/minimizes water pollution (e.g., the oil/water sump at the Marine Terminal) would be brought back into service and/or repaired, as needed.

Under the No Action Alternative, no direct impacts to surface waters or floodplains would occur. Any potential impacts to groundwater resources would be negligible, as minimal demolition activities under this alternative would occur aboveground and the in-place abandonment of USTs would also not impact groundwater. For partial operation, new SWPPPs would be prepared for the Main Terminal and Marine Terminal in compliance with all regulatory requirements applicable to site conditions and activities.

Therefore, implementation of the No Action Alternative would not have a significant impact to water resources.

3.2.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Under Alternative 1, commercial fueling operations would occur at both the Main and Marine Terminals (as well as periodic and contingency Navy fueling). Alternate 1 would also include potential rehabilitation of existing infrastructure and construction of new infrastructure on previously disturbed land. As described in Section 3.2, the off-site underground pipelines subject to rehabilitation are located in developed areas with no overlapping or adjacent water resources. Accordingly, water resources in proximity to or associated with off-site pipelines would not be affected by Alternative 1.

Rehabilitation and Construction

Surface Water

Rehabilitation and/or construction of infrastructure would occur on already disturbed lands and would not occur in or in proximity to surface waters. Additionally, no materials would be stored or stockpiled in or in proximity to surface waters. Rehabilitation and construction activities would result in no potential for significant direct impacts to surface water and indirect impacts to surface waters would be avoided through implementation of a project-specific construction SWPPP and all applicable BMPs, to be carried out by the lessee (refer to Water Quality section below).

Water would be applied by the lessee as needed to aid in dust control during surface disturbing activities at the Main Terminal and the Marine Terminal. Based on the approximate amount of soil disturbance (potentially 218.1 acres at the Main and Marine Terminals), approximately 27 million gallons of water could be applied for dust control purposes over the project duration (about 12 months). The actual amount of water used would depend on site conditions, soil moisture levels, and other related factors. The water would come from an off-site source via water trucks (approximately 2 trucks [4 trips] per working day). Non-potable water sources (e.g., reclaimed water from a nearby treatment plant) for dust control would be preferred but not required. Therefore, impacts to surface water during rehabilitation and construction activities under Alternative 1 would be less than significant.

Groundwater

Most rehabilitation and/or construction activities under Alternative 1 would occur aboveground and would not directly impact groundwater. It is unlikely that groundwater would be encountered during the addition of connecting pipelines or replacement of pipelines at the Main and Marine Terminals. However, if groundwater is encountered, dewatering wells or sumps could be used to lower the water table a few feet below the impacted excavation area. This lowering of the water table would be temporary and water levels affected by dewatering would return to normal levels after rehabilitation and/or construction has been completed. All groundwater encountered would be captured, sampled, and pretreated before discharge in accordance with the project-specific construction SWPPP (refer to Water Quality discussion below for details). Therefore, impacts to groundwater during rehabilitation and construction activities under Alternative 1 would be less than significant.

Water Quality

As described in Section 2.1.2, rehabilitation of the Main and Marine Terminals could include construction of any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas. Any changes in surface cover to pavement/concrete would increase stormwater volume, and thus impact water quality.

In accordance with UFC 3-210-10, LID (as amended, 2010 and 2015) and the Energy Independence and Security Act Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. Under these requirements, Federal facility projects that include both (1) construction or expansion of one or more buildings as part of the primary scope and (2) a project footprint greater than 5,000 square feet of new impervious surface must maintain or restore, to the maximum extent technically feasible, the pre-development hydrology of the property with regard to the temperature, rate, volume, and duration of flow. Due to the conversion of pervious to impervious ground cover associated with future development, it is recommended that a stormwater study be conducted by the lessee to determine the ability of the existing stormwater infrastructure to accommodate the additional flow. The stormwater collection system would be designed and implemented based on the stormwater study and in compliance with UFC 3-210-10 and Section 438 of the Energy Independence and Security Act of 2007.

Rehabilitation and/or construction activities at the Main and Marine Terminals (to include potential temporary soil and construction debris stockpiling) associated with Alternative 1 may result in the generation of pollutants including sediment and other constituents associated with demolition (e.g., nutrients, trace metals, oil and grease, miscellaneous waste, and other toxic chemicals). Without controls, the pollutants could potentially enter receiving waters; however, controls are identified in the impact avoidance and minimization measures (refer to Appendix B).

Because the combination of rehabilitation and construction activities associated with the project at the Main and Marine Terminals would disturb more than 1 acre (0.4 hectare) of land, Alternative 1 would be subject to the requirements of the Construction General Permit. In compliance with the Construction

General Permit, the contractor would prepare and implement a project-specific construction SWPPP and all applicable BMPs for each location, from initiation through completion of construction activities. Implementation of a project-specific construction SWPPP and these BMPs would minimize the potential for pollutants to enter receiving waters throughout the duration of the project.

Soil and groundwater contamination has been found during the temporary closure process. Follow-on site investigations and restoration projects have been initiated (refer to Section 3.11, Hazardous Materials and Waste). If any additional soil or groundwater contamination is found during the rehabilitation process, a follow-on site investigation and restoration project would be initiated. Cleanup would be coordinated with the California Department of Toxic Substances Control, Certified Unified Program Agency and the Los Angeles RWQCB. This process would include analysis of any such contamination and ensure that any potentially contaminated soil or groundwater would be disposed of in accordance with applicable federal, state, and local regulations (DLA 2011; NAVFAC SW 2019). Future risks of leaks and spills would be minimized through the implementation of environmental safety techniques, such as the use of fuels inventory reconciliation (which involves monitoring inventory and identifying inventory discrepancies to identify potential leaks); leak detection methods and systems; and implementation of current code requirements, such as double-walled piping and sealed containment berms capable of holding 110 percent of an AST’s maximum capacity. Therefore, with implementation of the SWPPP and related BMPs and environmental safety techniques, impacts to water quality during rehabilitation and construction activities under Alternative 1 would be less than significant.

Floodplains

Construction and rehabilitation activities would not occur directly in floodplains. Therefore, construction and rehabilitation activities associated with implementation of Alternative 1 would result in no impacts to floodplains.

Operations

Following rehabilitation of and new construction at the fuel facility, operations would resume per the outlease agreement. Thus, additional impacts to water resources from Alternative 1 could occur after the rehabilitation and construction phases. New SWPPPs would be prepared by the lessee for the Main Terminal and Marine Terminal based on any ultimately-approved proposed operational activities, and in compliance with all regulatory requirements applicable to post-rehabilitation/construction site conditions and activities, to curtail any potential future impacts to water resources.

Therefore, implementation of Alternative 1 would not have a significant impact to water resources.

3.2.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Under Alternative 2, impacts to water resources would be as described for Alternative 1; however, because the proposed extent of rehabilitation and construction under Alternative 2 would be smaller, potential for impacts to water resources would accordingly be reduced relative to what has been described for Alternative 1.

Operation

Under Alternative 2, post-rehabilitation/construction impacts would be less than those described for Alternative 1 because the acreage of disturbed land from rehabilitation/construction and the amount of impervious surfaces would be smaller (i.e., it only includes the Marine Terminal and pipelines). Since there would be less land disturbed under Alternative 2, the potential for impacts to water resources once the Marine Terminal is operational would be lower than would be the case for Alternative 1. Additionally, the rehabilitation of and construction at the Marine Terminal would not significantly increase the amount of impervious surfaces, thus the potential impacts to water resources from runoff during operation of the facility would be similar to the current condition and lower than those described for Alternative 1. A new SWPPP would be prepared by the lessee for the Marine Terminal in compliance with all regulatory requirements applicable to post-rehabilitation/construction site conditions and activities, to curtail any potential future impacts to water resources.

Therefore, implementation of Alternative 2 would not have a significant impact to water resources.

3.3 Geological Resources

The geological resources of a given area include the topography, geology, soils, and mineral resources. The elevation, slope, aspect, and surface features found within a given area form its topography. Long-term geological, seismic, erosional, and depositional processes typically influence the topographic relief of an area. The geology of an area includes the geologic formations (i.e., bedrock) and geologic hazards. Bedrock refers to consolidated earthen materials that may be made up of either interlocking crystals (igneous and metamorphic rocks) or fragments of other rocks compressed and cemented together over time by pressure and dissolved minerals that have hardened in place (sedimentary rocks). Geologic hazards include seismic hazards (earthquakes, ground rupture, ground shaking, liquefaction, and tsunamis); landslides; and erosion. Seismic hazards can also trigger landslides and increase the effects of erosion. Soil lies above bedrock and consists of unconsolidated, weathered bedrock fragments (sand and silt); decomposed organic matter from plants, bacteria, fungi, and other living things. The value of soil as a geologic resource lies in its potential to support plant growth, especially agriculture. Soil structure, elasticity, strength, shrink-swell potential, and erodibility determine the ability for the ground to support structures and facilities. Soils are typically described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use. Mineral resources are metallic or non-metallic earth materials that can be extracted for a useful purpose, such as iron ore that can be refined to make steel, gravel that can be used to build roads, or petroleum and natural gas.

The ROI for geological resources includes the Main Terminal, Marine Terminal, the pipeline route between the terminals, and the immediate surrounding area (i.e., North Gaffey Street and the residential areas to the north, west, and south of the Main Terminal, and the northern portion of the Port of Long Beach). The Marine Terminal is built on artificial fill, which is not a geological resource and therefore will not be discussed or analyzed in detail in this section. In addition, the off-site underground pipelines would remain underground, and thus would generate no more than *de minimis* impacts to geological resources under any of the alternatives. As such, the off-site pipeline segments are not discussed or analyzed further in this section.

3.3.1 Regulatory Setting

Public health and safety with regard to earthquake-related hazards are addressed by the Alquist-Priolo Earthquake Fault Zoning Act (California Public Resource Code sections 2621-2630 1972 amended 1994) and State Seismic Hazards Mapping Act (California Public Resource Code sections 2690-2699 1990). The purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to prevent construction of buildings used for human occupancy across the surface trace of active faults (City of Los Angeles 2012a).

Consideration of geologic resources also extends to prime or unique farmlands. The Farmland Protection and Policy Act was enacted in 1981 in order to minimize the loss of prime farmland and unique farmlands as a result of federal actions. The implementing procedures of the Farmland Protection and Policy Act require federal agencies to evaluate the adverse effects of their activities on farmland, which includes prime and unique farmland and farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects.

3.3.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under geological resources at DFSP San Pedro.

3.3.2.1 Geologic History Background

The project area is located in the Southwestern Block of the Los Angeles Basin (Norris and Webb 1990). The Newport-Inglewood-Rose Canyon Fault Zone (Figure 3.3-1) bounds the Southwestern Block on the east. Troughs in bedrock in the Los Angeles Basin up to 20,500 feet deep have been filled with marine sediments and formed reservoirs for petroleum and natural gas (Norris and Webb 1990).

The Palos Verdes Fault Zone crosses the Main Terminal (Figure 3.3-1). The Palos Verdes Hills formed when marine sediments were uplifted along the steep Palos Verdes Fault. It is estimated that the Palos Verdes Hills began rising approximately 1.8 million years ago, and continue to rise at a rate of approximately 2 to 4 millimeters per year (Port of Long Beach 2006).

The large, active Portuguese Bend landslide and two smaller landslides are located approximately 3.4 miles southwest of the Main Terminal (Figure 3.3-1). The Portuguese Bend landslide, which began in 1956, was caused by a combination of steep slopes overlain with clay soil, natural wave erosion of the cliffs along the shore, and residential landscape watering and septic tanks (Norris and Webb 1990). Landslides have been occurring in the Portuguese Bend area for approximately 250,000 years, however movements occurring since 1956 have been attributed to construction (Vonder Linden 1989).

Figure 3.3-1. Faults in the Vicinity of DFSP San Pedro Fuel Facility

3.3.2.2 Site Topography

The northeastern portion of the Main Terminal, occupied offices and buildings, is generally flat and located approximately 30 feet above mean sea level (msl). The western portion of the Main Terminal rises steeply from the Administration Area to an elevation of approximately 180 feet above msl, and then forms a gentle, westward rising slope with a maximum elevation of approximately 260 feet above msl in the northwestern corner of the property where the ASTs are located. An east-west oriented central ravine with steep sides bisects the Main Terminal. The elevation at the bottom of the ravine is approximately 84 feet above msl. Figure 3.3-2 presents elevation contours at the Main Terminal. The Marine Terminal is flat and is approximately 15 feet above msl.

The natural slopes and topography of the Main Terminal were significantly altered during the original installation of USTs and pipelines; through fill with construction debris; and excavation and grading for other past construction projects (NAVWPNSTA Seal Beach 2014). The USTs were constructed during various periods by excavating areas for each tank and then reburying once the tanks were completed (DLA 2008). A network of roads were built to access the construction sites and included several earthen dams built along the small ravines that cut into the bluff. Six fuel pump houses were constructed along the contours of a ravine below the original twenty tanks. Additional phases of construction resulted in excavation alterations of the original topography, including additional USTs, roadways, and other infrastructure (DLA 2008).

3.3.2.3 Geology

Bedrock

Bedrock in the project area comprises Catalina schist (a metamorphic rock) and the Monterey shale (a fine-grained sedimentary rock) (Norris and Webb 1990; State of California 2003). However, due to the thick overlying sediments and soils, bedrock is rarely exposed at the surface. There are small patches of the Catalina schist on the Palos Verdes Peninsula, and the Malaga mudstone member of the Monterey formation is exposed in the deep central ravine of the Main Terminal (State of California 2003).

Geologic Hazards

Seismic Hazards

Southern California is a highly active seismic region, crossed by multiple faults. A fault is a fracture or line of weakness in the earth's crust, where bedrock on one side of the fault is offset vertically or horizontally relative to bedrock on the other side of the fault (City of Los Angeles 2012a). Figure 3.3-1 presents active faults in the project area and region.

With regard to the DFSP San Pedro project area, the widest section of the Palos Verdes Fault Zone, San Pedro Shelf Zone Section, is near the Vincent Thomas Bridge, where the DFSP San Pedro pipeline route (i.e., Long Beach Pipelines) crosses below the Los Angeles Harbor Main Channel (Los Angeles Harbor Department 2014). The onshore Palos Verdes Fault Zone crosses the Main Terminal site diagonally from southeast to northwest, beneath several closed-in-place USTs on the hill, the ASTs in the northwest corner of the terminal, and many valves and sections of on-site pipeline. The Cabrillo Fault is located approximately 2 miles west of the Main Terminal, and approximately 4 miles southwest of the Marine Terminal. The THUMS-Huntington Beach Fault runs along the south side of the Marine Terminal and Pier 12 (refer to Figure 3.3-1).

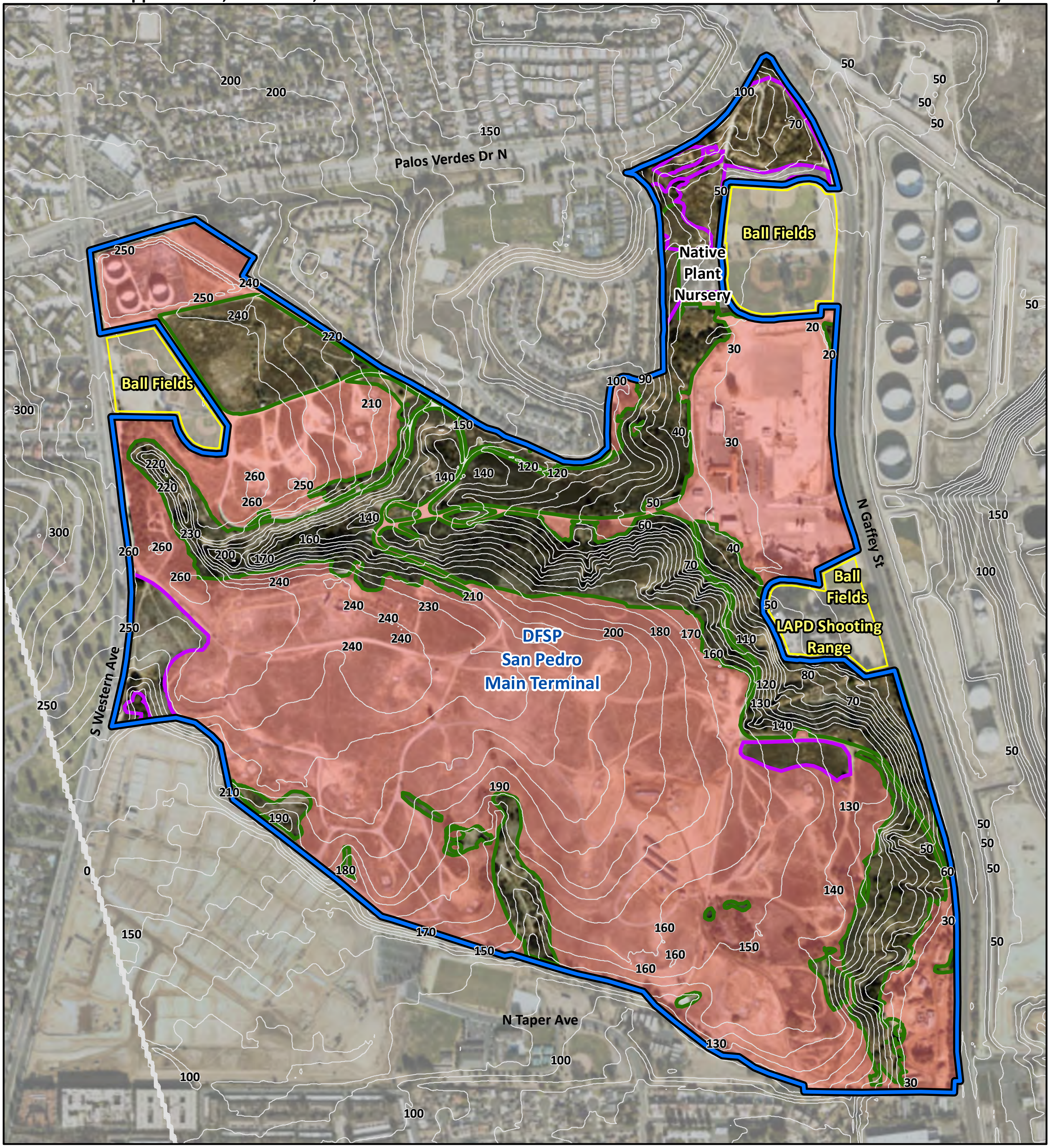


Figure 3.3-2. Elevation Contours at the Main Terminal

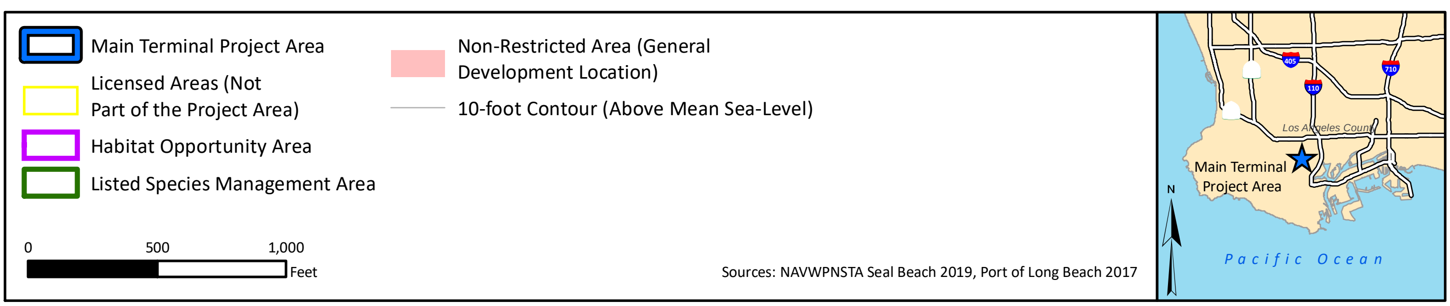


Table 3.3-1 provides seismic information for active faults in and around the project area.

Table 3.3-1 Summary of Seismic Data for Active Faults in Project Area

Fault Name	*Conservative Mean Characteristic Earthquake Moment Magnitude*[1]	*Earthquake Classification*	*Conservative Percent Chance of Earthquake Occurrence in 50 Years*	*Slip Rate (millimeters per year)*
Palos Verdes Fault Zone	6.65 to 7.2	Major	Less than 10	2.0 to 4.0
Palos Verdes Fault Zone, San Pedro Shelf Section	6.65 to 7.2	Major	Less than 10	2.0 to 4.0
Cabrillo Fault Zone	6.25 to 6.5	Moderate	Less than 0.001	0.1
THUMS- Huntington Beach Fault	7.1 to 7.2	Major	Less than 0.001	0.5 to 1.0
Newport-Inglewood-Rose Canyon Fault Zone[2]	6.7 to 7.2	Major	Less than 0.10	0.5 to 1.5
Los Alamitos Fault	6.5	Moderate	Less than 0.10	0.25 to 0.50
San Pedro Basin Fault Zone	7.1 to 7.2	Major	Less than 0.10	0.5 to 1.0

Notes: [1] Moment Magnitude is a measure of the energy the earthquake releases.
[2] The Newport-Inglewood-Rose Canyon Fault Zone caused the 1933 Long Beach earthquake, one of the major disasters in the history of southern California (Norris and Webb 1990; City of Los Angeles 2012a).

Sources: Norris and Webb 1990; Port of Long Beach 2006; City of Los Angeles 2012a; Los Angeles Harbor Department 2014; U.S. Geological Survey 2018.

The primary seismic hazard that results from an earthquake caused by local faults is strong ground shaking. The intensity of the shaking depends on several factors, including the magnitude of the earthquake, distance from the epicenter of the earthquake, and the underlying soil conditions. In general, effects would be greater the larger the magnitude of the earthquake and the closer a site is to the epicenter. Soil properties can also increase the earthquake's shock waves. In general, the shock waves are unchanged by bedrock, are somewhat increased in thick alluvium, and are greatly increased in thin alluvium (City of Los Angeles 2012a). Outside the Port of Los Angeles and the Port of Long Beach including Marine Terminal, which are constructed on artificial fill, the onshore portion of the pipeline route and the Main Terminal are underlain by natural soils derived from alluvium, mostly sand and silt (Port of Long Beach 2006; NAVWPNSTA Seal Beach 2014; NAVFAC SW 2016).

The Palos Verdes Fault Zone, which crosses the Main Terminal (as described above and shown on Figure 3.3-1) is classified in the City of Los Angeles Safety Element as a Fault Rupture Study Area. However, the Palos Verdes Fault Zone is not classified as an Alquist-Priolo Earthquake Fault Zone (Los Angeles Harbor Department 2012). As such, construction in this area is not subject to the Alquist-Priolo Earthquake Fault Zoning Act. The Navy complies with all applicable laws and regulations, and meets the substantive requirements of those laws and regulations that do not formally apply to the federal agencies such as the Navy, to the fullest extent practicable.

Liquefaction

Liquefaction is the sudden loss of strength and stiffness in water-saturated soils, due to the ground shaking caused by an earthquake. The effects of liquefaction include loss of the soil's ability to support structures. All low-elevation land at the Main Terminal lies within the liquefaction zone mapped by the City of Los Angeles. This includes all the land, facilities, and structures at the eastern base of the hill: the parking area, administration buildings, and fueling station. The land along the road at the bottom of the central ravine and the low area at the base of the hill in the southeastern corner of the Main Terminal are mapped in the liquefaction zone as well. Ten valves and several sections of the on-site pipeline are located in the southeastern mapped liquefaction zone (City of Los Angeles 2012a).

The Marine Terminal and the entire pipeline on Terminal Island are also located in the liquefaction zone. The remainder of the onshore pipeline route is outside the liquefaction zone until it reaches the low-lying, eastern part of the Main Terminal (California Department of Conservation 1998; City of Los Angeles 2012a).

Erosion

Erosion is the removal/loss of soil or soft bedrock such as shale or mudstone due to the force of runoff from rainfall. The Main Terminal has steep slopes and soft, highly permeable soils that could be subject to erosion without protective vegetative cover. Some areas are severely eroded with much of the upper soil profile missing. Drainage at the Main Terminal is partially controlled by a series of concrete-lined V-ditches. The Marine Terminal is located on a level, partially paved developed site where drainage is controlled to prevent erosion. On-site pipelines are buried; however, in some areas short segments have been exposed due to erosion.

Tsunamis and Seiches

Tsunamis are large ocean waves caused by significant seismic events, such as an earthquake or a submarine landslide near the California coastline. The Marine Terminal, Pier 12, and the entire pipeline route within the Port of Los Angeles boundary lie within the tsunami inundation area (California Emergency Management Agency 2009a). Seiches are seismically induced waves that surge back and forth in an enclosed basin and may be expected in the Port of Los Angeles and Port of Long Beach harbors as a result of earthquakes. Some areas along the coastal cliffs in the southern portion of San Pedro are susceptible to tsunami. Additionally, the Port of Los Angeles and the low-lying areas of San Pedro adjacent to the Port are potential tsunami impact areas. The Los Angeles Police Department (LAPD) has established Pacific Avenue and Gaffey Street (northbound direction), 6th Street, and 25th Street (westbound direction) as tsunami evacuation routes. The Angels Gate Recreation Center is identified as a “safe refuge center” (City of Los Angeles 2018). A significant seiche could cause damage to sea walls and piers (Los Angeles Harbor Department 2014). The Main Terminal is located outside the tsunami inundation area (California Emergency Management Agency 2009b).

3.3.2.4 Soils

Natural soils at the Main Terminal comprise Ramona Loam, Ramona Sandy Loam, Yolo Loam, and Yolo Sandy Loam (Port of Long Beach 2006; NAVWPNSTA Seal Beach 2014; NAVFAC SW 2016). Table 3.3-2 describes the properties of these soils. However, these soil properties were defined for areas with agricultural purposes. The Navy property surrounding the fuel operations and along the pipeline route is intensively developed for commercial and industrial use. Construction of the USTs and underground pipelines has extensively disturbed the natural soils and topography at the Main Terminal. In addition, up to 6 acres of a ravine in the southeast corner of the Main Terminal were filled with construction rubble and rough-graded into an engineered slope (NAVWPNSTA Seal Beach 2014). Figure 3.3-3 shows the soils in the Main Terminal.

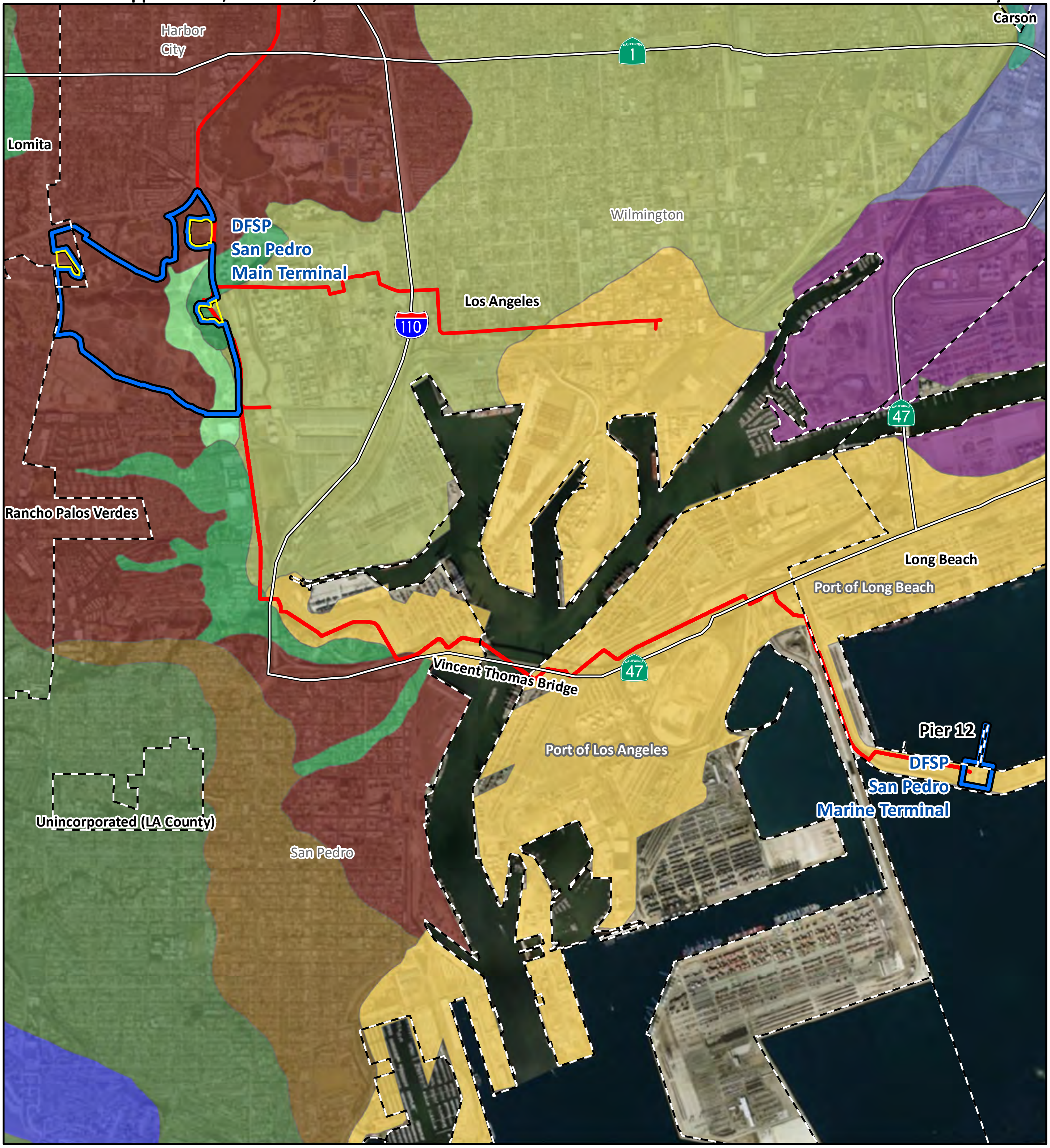


Figure 3.3-3. Existing Soils within the Project Area

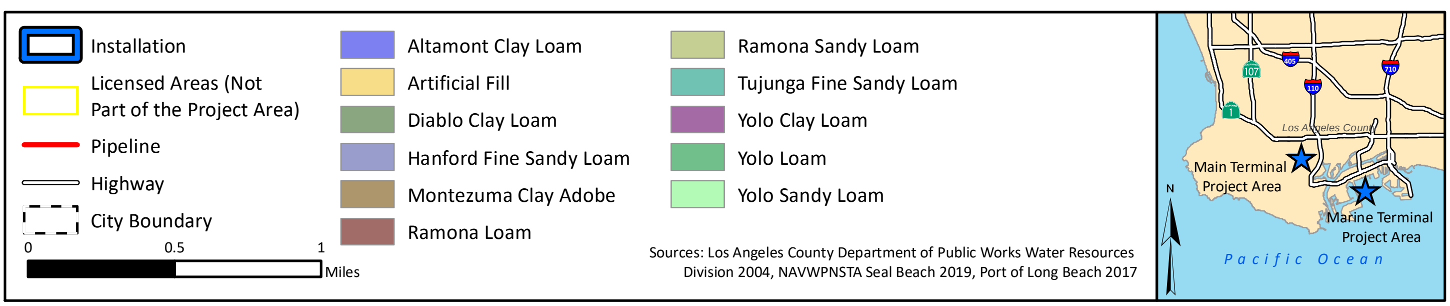


Table 3.3-2 Natural Soil Types in the Main Terminal

Soil Type	*Composition*	*Drainage*	*Agricultural Use/Value*
Ramona Loam and Ramona Sandy Loam.	Ramona loam is equal parts silt, sand, and clay; sandy loam has a larger proportion of sand.	Found on nearly level to moderately steep slopes; slow to rapid runoff; moderately slow permeability.	Mostly used to grow grain, hay or for pasture; irrigated to grow citrus, olives, truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, herbaceous plants, chamise, or chaparral.
Yolo Loam and Sandy Loam.	Yolo soils comprise fine sand-silty loam.	Found on nearly level to moderate slopes. They are well-drained with slow to medium run off.	Yolo soils are used for intensive row, field, and orchard crops. Original vegetation was annual grasses, herbaceous plants, and scattered oak.

Sources: National Cooperative Soil Survey 1972, 2000.

The soils in the level northern portion of the Main Terminal property may have been farmed in the early 1900s. However, the land has not been farmed since acquisition by the Navy in 1942 (NAVWPNSTA Seal Beach 2014).

Historical disposal activities in the harbor have caused the sediment beneath and adjacent to Pier 12 to be chemically impacted. The impacted sediment could extend to approximately 9 feet below the mudline (Bechtel Environmental, Inc. 1997, 2003) and includes chemicals of ecological concern, such as metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides (e.g., dichlorodiphenyltrichloroethane, also known as DDT) (Camp, Dresser, and McKee, Inc. 2007).

3.3.2.5 Mineral Resources

The Main Terminal was never developed or used for petroleum or natural gas production (NAVWPNSTA Seal Beach 2014). According to the USGS Professional Paper 207 on the Geology and Paleontology of the Palos Verdes Hills (Woodring et. al. 1946), asphalt is abundant locally in the Altamira member of the Monterey shale and occurs at places in the Valmonte diatomite and Malaga mudstone members. Significant occurrences of asphalt have been found throughout the Palos Verdes Hills. The Wilmington Oil Field, the third largest oil field in the lower 48 states, runs from San Pedro to offshore Seal Beach (City of Long Beach 2015). There is oil field infrastructure within the Port of Long Beach, but not where the Marine Terminal is located. Two oil wells were historically drilled on the DFSP San Pedro property. One well (API: 03705537), located south of Tank 3, was drilled as a potential production well in 1924, but was not used because an inadequate amount of oil was encountered for commercial use. The well has been listed as idle (buried) as of 2000. According to the drilling log of the oil or gas well for the California State Mining Bureau, oil and gas “shows” were encountered throughout the profile down to a depth of approximately 100 feet bgs. A second exploration well was drilled within DFSP San Pedro (API: 03705766), west of the North Tank Farm Area. This well was a dry hole that was plugged in 1926. The well log notes sticky shales throughout the profile to a depth of approximately 800 feet bgs (California Department of Conservation, Division of Oil, Gas, and Geothermal Resources 2019). A very small portion of the Wilmington Oil Field adjoins San Pedro, where the onshore portion of the DFSP San Pedro pipeline is located (City of Los Angeles 2012a). Based on geologic studies of the Main and Marine Terminals, there are no potentially developable mineral deposits at either location.

3.3.3 Environmental Consequences

The evaluation of geological impacts with respect to the potential for significance considers the degree to which the following would potentially occur: soil disturbance that would result from demolition and/or rehabilitation/construction activities; changes to existing topography that could increase the potential for erosion and landslides; loss of agriculturally productive soil; risk of earthquake-related injury/damage; and loss of potentially developable mineral deposits.

3.3.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. Under the No Action Alternative, minimal surface disturbance and minor grading would occur. Through implementation of engineering measures and erosion controls identified in the geotechnical/engineering evaluation for the 2016 EA, risk for landslides and erosion would be minimized. There would be no or negligible impacts to mineral resources, bedrock, or soils. There would be no increased risk of earthquake-related hazards - ground shaking, liquefaction, tsunamis, and seiches. Partial operations would not affect geological resources.

Therefore, implementation of the No Action Alternative would not have a significant impact to geological resources.

3.3.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Alternative 1 would allow renewal of fueling operations for commercial purposes at both the Main and Marine Terminals (as well as periodic and contingency fueling of Navy ships), re-starting operations that formerly occupied and functionally characterize the terminals. This alternative would include rehabilitation of existing infrastructure as well as construction of new infrastructure on previously disturbed land. New infrastructure could include any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas, consistent with previous Navy use of the terminals. Federal, State and local building codes associated with construction near fault lines attempt to maximize life safety and avoid facilities failures. These codes were developed to provide for the public safety in hazardous fault zones. Authorities having jurisdiction, including the Navy as the landowner, would only approve plans for facilities that meet the requirements of the applicable building codes and do not create undue hazards. Flexibility, ductility and strength are to be built into soil layers, foundations and facilities as much as possible. Mat foundations, stiffer structural components in the facility, collapsible building components and other system design features and setbacks from identified faults would help to mitigate these issues. There are no planned changes to existing topography that could increase the potential for erosion and landslides. Minor earthwork would be required to create flat areas for ASTs, secondary containment areas, and access roads. Grading to construct a flat surface for construction would result in minimal alteration of existing topography and would occur on previously developed surfaces.

There is a potential for liquefaction and liquefaction-induced displacements at the Main and Marine Terminals. All low-elevation land at the Main Terminal lies within the liquefaction zone mapped by the City of Los Angeles. This includes all the land, facilities, and structures at the eastern base of the hill: the parking area, administration buildings, and fueling station. The land along the road at the bottom of the central ravine and the low area at the base of the hill in the southeastern corner of the Main Terminal are mapped in the liquefaction zone as well. The Marine Terminal and the Long Beach Pipelines on Terminal Island are also located in the liquefaction zone. Any new ASTs would be constructed by the lessee in compliance with the applicable UFC (if storing military grade fuels), or federal, state or local requirements for seismic design so that they would not pose any increased risk of earthquake-related injury/damage. Although the existing closed-in-place USTs have been filled with structural fill, the lessee would need to ensure that it is feasible to construct on top of these areas. Standard seismic engineering data would be used to minimize potential effects of seismically induced ground movement such as severe shaking, lateral spreading, or slope failure.

Construction and demolition activities would not result in disturbance to areas of previously undeveloped land with valuable soils. The Main and Marine Terminals have been extensively disturbed through excavation and undergrounding of fueling pipes, storage tanks and related infrastructure. There are no agriculturally productive soils located the Main Terminal and it has not been used for agricultural production since the early 1900s. At the Marine Terminal, the lessee would be limited in their allowed disturbance of the sediment under Pier 12, in compliance with appropriate standard operating procedures, LUCs and testing requirements.

There are no potentially developable mineral deposits on either the Main or Marine Terminals. Excavated soil would be used as fill and backfill material to the greatest extent possible. Soil material would be temporarily stockpiled in generally flat and previously developed/disturbed areas, and appropriate erosion control BMPs would be implemented in accordance with a project-specific construction SWPPP and in compliance with coverage under an NPDES Construction General Permit. Excavated areas would then be compacted to engineering standards and graded to approximate existing slope contours. Exposed areas would be revegetated to provide a surface cover to protect the soil from erosion. There would be minimal to no impact with regard to the potential for increased erosion.

The Navy notes that further environmental impact analysis may be required with respect to any proposal or portion of a proposal that would construct on either or both of the Main or Marine Terminals, depending on any unanticipated conditions that may be found. Additionally, any non-emergency ground-disturbing activities (e.g., inspection, repair, replacement, rehabilitation, reconstruction, new construction connections to pipelines, or maintenance) of the pipelines outside the boundaries of the terminals by the lessee could also potentially require additional environmental impacts analysis. The construction of ASTs, warehouse, storage, office space, or parking on top of closed USTs may or may not be feasible and would be dependent upon design and study by the lessee.

Operations

The proposed renewed fueling operations (refer to Figures 2-3 and 2-4) would potentially result in renewed use of existing infrastructure with the possible connection of new ASTs. Site use would also include two of the Long Beach Pipelines that run from the Main Terminal to the Marine Terminal, as well as the G-Line, R-Line, and possibly the 10-inch Government pipeline and Norwalk pipeline (depicted in

Figure 1-2). The lessee would be required to observe the LUCs that have been implemented to prevent disturbance of the sediment under Pier 12.

The operation of DFSP San Pedro would not impact geological resources, as only minimal surface grading would occur. No increased risk of geological hazards would occur to either the Main or Marine Terminals.

Therefore, no significant impacts to geological resources would occur with implementation of Alternative 1.

3.3.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of the On-site and Off-site Pipelines

Rehabilitation and Construction

Alternative 2 would allow commercial fueling operations at the Marine Terminal (as well as periodic and contingency fueling of Navy ships) consistent with previous Navy property uses, to include, rehabilitation of existing infrastructure as well as construction of new infrastructure on previously disturbed land. New infrastructure could include any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas. Site use would also include two of the Long Beach Pipelines that run from the Main Terminal to the Marine Terminal, as well as the G-Line, R-Line, and possibly the 10-inch Government pipeline and Norwalk pipeline (depicted in Figure 1-2).

If the lessee plans changes to existing topography that could increase the potential for erosion and landslides, appropriate erosion control BMPs would be required to be implemented in accordance with a project-specific construction SWPPP and in compliance with coverage under an NPDES Construction General Permit. There would be minimal to no impact with regard to the potential for increased erosion.

There is potential for liquefaction and liquefaction-induced displacements at the Marine Terminal. The lessee would be limited to building structures and placing new ASTs in compliance with the applicable UFC (if storing military grade fuels), or federal, state or local requirements for seismic design so that they would not pose any increased risk of earthquake-related injury/damage. Standard seismic engineering data would be used to minimize potential effects of seismically induced ground movement such as severe shaking, lateral spreading, or slope failure.

The Navy notes that further environmental impacts analysis may be required with respect to any proposal or portion of a proposal that would construct at the Marine Terminal, depending on any unanticipated conditions that may be found. Additionally, any non-emergency ground-disturbing activities (e.g., inspection, repair, replacement, rehabilitation, reconstruction, new construction connections to pipelines, or maintenance) of the pipelines outside the boundaries of the terminals by the lessee could also potentially require additional environmental impacts analysis.

Operations

The proposed renewed fueling operations would potentially result in renewed use of existing infrastructure with the possible connection of new ASTs. Renewed fuel operations would not result in significant soil disturbance at the Marine Terminal because the project involves no activities on undeveloped land. The lessee would be required to observe the LUCs that have been implemented to prevent disturbance of the sediment under Pier 12. Site use would also include two of the Long Beach

Pipelines that run from the Main Terminal to the Marine Terminal, as well as the G-Line, R-Line, and possibly the 10-inch Government pipeline and Norwalk pipeline (depicted in Figure 1-2).

The operation of Marine Terminal would not impact geological resources, as the terminal is located on artificial fill and no new significant surface disturbance would occur. No increased risk of geological hazards would occur. Under Alternative 2, proposed renewed fueling operations would result primarily in renewed use on previously developed land.

Therefore, no significant impacts to geological resources would occur with implementation of Alternative 2.

3.4 Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into two major categories: (1) vegetation and (2) wildlife. Threatened, endangered, and other special status species are discussed in their respective categories. As no in-water activities would occur under the Proposed Action, and because the Marine Terminal and any associated activities that would occur there are of negligible size and impact in regard to the vast size and impact of the Los Angeles Harbor (NAVWPNSTA Seal Beach 2014), marine resources are not analyzed in this EA.

3.4.1 Regulatory Setting

Special status species, for the purposes of this EA, are those species listed as threatened or endangered under the Endangered Species Act (ESA), species afforded federal protection under the Migratory Bird Treaty Act (MBTA), and certain state special status plant species and wildlife.

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the ESA requires action proponents to consult with the USFWS or National Oceanic and Atmospheric Administration (NOAA) Fisheries to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the DoD where an Integrated Natural Resources Management Plan (INRMP) has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186 (Migratory Bird Conservation). Under the MBTA, it is unlawful by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior authority to prescribe regulations to exempt the Armed Forces from the incidental taking of migratory birds during authorized military readiness activities; the Proposed Action, however, is not a military readiness activity. DoD responsibilities for migratory bird conservation when undertaking non-military readiness activities are identified in the DoD and USFWS (2014) Memorandum of Understanding. In particular, prior to implementing any activity that has, or is likely to have, a measurable negative effect on migratory bird populations, the NEPA analysis should assess and document the potential effects of the Proposed Action on species of concern; and steps should be taken to avoid or minimize the exposure of birds and their habitats to avian stressors that may result in the take of migratory birds.

3.4.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under biological resources at DFSP San Pedro.

3.4.2.1 Vegetation

Vegetation includes terrestrial plant communities and constituent plant species. Vegetation community descriptions presented in the DFSP San Pedro INRMP (NAVWPNSTA Seal Beach 2014), which are based on vegetation mapping efforts conducted in 1996 and subsequent updates were used to describe plant communities within the ROI. Scientific nomenclature for plants follows The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al. 2012).

No federally listed plant species are known to occur within the project area, including the Main Terminal, off-site pipelines, or Marine Terminal. Six special status plant species are known to occur or have the potential to occur in the project area (Table 3.4-1). Previously documented locations of three of these species, Peirson's morning glory (*Calystegia peirsonii*), Kellogg's horkelia (*Horkelia cuneata* var. *sericea*), and Southern California black walnut (*Juglans californica*), on the Main Terminal site are shown on Figure 3.4-1. Kellogg's horkelia does not presently occur at the Main Terminal.

The remaining approximately 104 acres provide natural resource benefits and are not subject to significant operations impacts on a regular basis (USFWS 2010; DLA 2014). These are referred to as Listed Species Management Areas/Habitat Opportunity Areas and are the focus of most biological surveys and resource management activities at the Main Terminal site. Specifically, the 2014 Biological Assessment (DLA 2014) identifies the Listed Species Management Areas as "areas that provide natural resource benefits and are not subject to significant operations impacts on a regular basis" and Habitat Opportunity Areas as "areas of the facility not routinely accessed for operation support purposes." Hereafter in this assessment, the Listed Species Management Areas (87 acres) and Habitat Opportunity Areas (17 acres) will be collectively referenced as "Habitat Areas."

Plant communities of the Main Terminal primarily consist of non-native grasslands (approximately 70 percent of the non-developed area) with patches of native coastal sage scrub, oak woodlands, and riparian corridors, as well as groves of eucalyptus and other non-native trees.

Table 3.4-2 and Figure 3.4-1 present the plant communities and other land cover types within Main Terminal. Table 3.4-2 presents the vegetation and land cover type, and the total acreage of the type that occurs on site (along with the percentage of the site that acreage represents). The table further breaks down how much of the vegetation and land cover type occurs in the designated habitat areas or operations area (refer to Figure 3.4-1 for the location of these areas throughout the Main Terminal site). The acreages and land use types used throughout the biological analysis are based on current (2015) geographic information system (GIS) data provided by NAVWPNSTA Seal Beach.

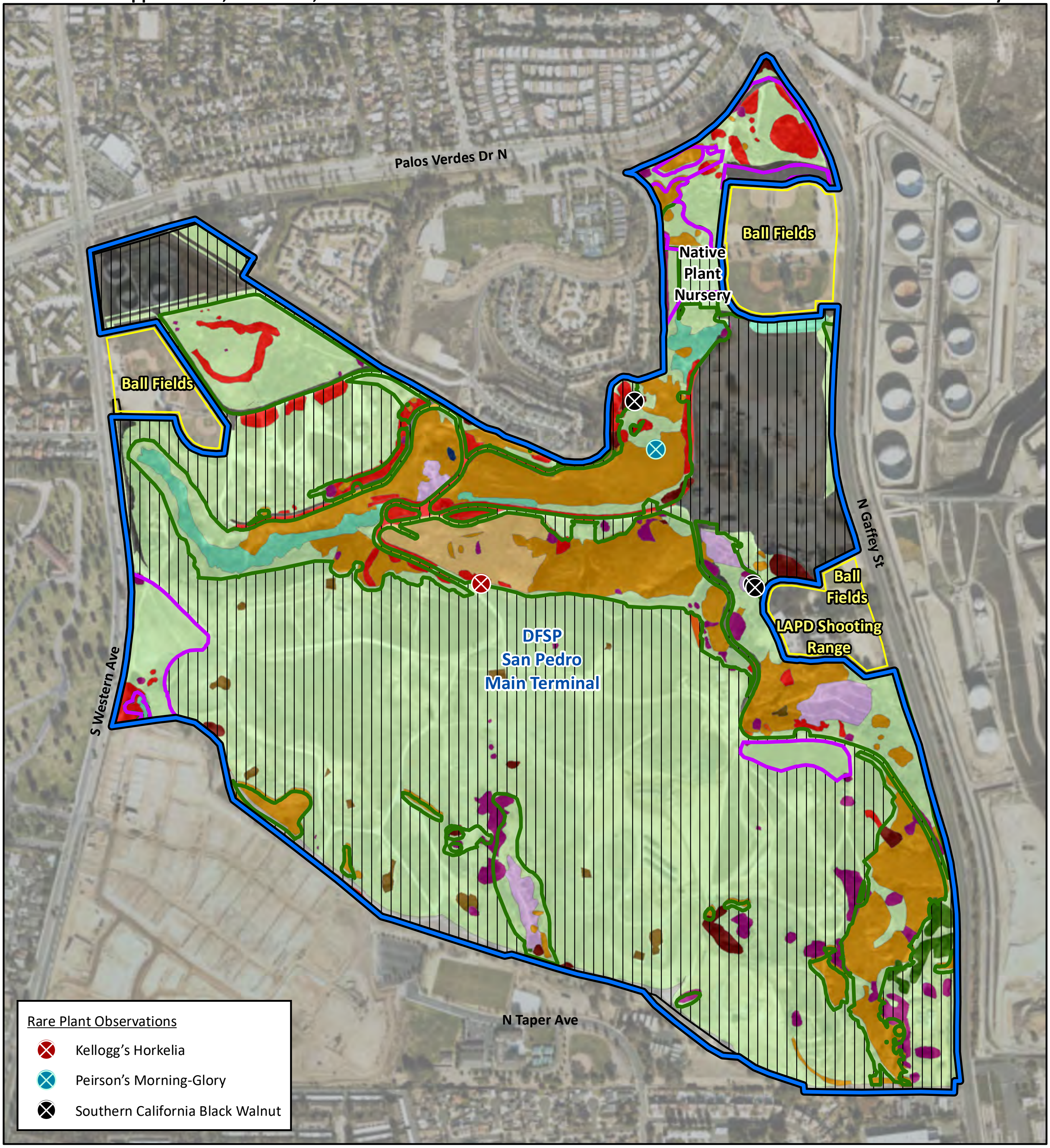
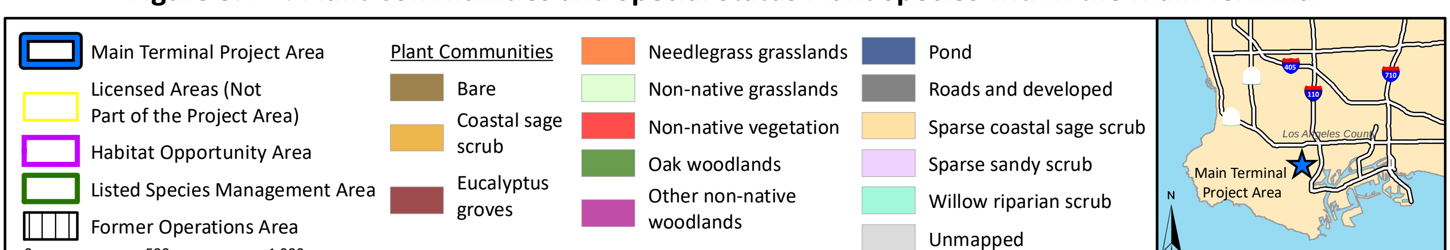


Figure 3.4-1. Plant Communities and Special Status Plant Species within the Main Terminal



Sources: NAVWPNSTA Seal Beach 2019, NAVWPNSTA Seal Beach 2015, Port of Long Beach 2017

Table 3.4-1 Special Status Plant Species Known to Occur or Potentially Occur at DFSP San Pedro Main Terminal

Species	*California Rare Plant Rank*	*Habitat/Occurrence in Project Area*
Peirson's morning glory *Calystegia peirsonii*	4.2	Peirson's morning glory is a perennial herb that is rhizomatous and occurs in coastal sage scrub, chaparral, and foothill woodlands on rocky slopes at elevations that range from 3,280 to 6,561 feet. This species is known to intergrade with *C. longipes*, *C. macrostegia* and *C. occidentalis* ssp. *occidentalis*. It blooms during May- June. Peirson's morning glory was reported in the early 1990s and is known to occur in the Main Terminal (Figure 3.4-1).
Southern tarplant *Centromadia parryi* ssp. *australis*	1B.1	An annual herb that occurs in grasslands, salt marshes, vernal pools, and coastal sage scrub communities. This species occurs at elevations below 656 feet and blooms May through November. Southern tarplant has not recently been documented on DFSP San Pedro but it has been recorded in the past and suitable habitat is present throughout the installation and to the northeast.
Kellogg's horkelia *Horkelia cuneata var. sericea*	1B.1	Kellogg's horkelia is a perennial herb that occurs in coastal sage scrub, coastal sand hills, and old dunes at elevations below 656 feet. This species blooms February through July and has been recorded in the Main Terminal (Figure 3.4-1). The plant was believed to have been accidentally introduced to the site in a seed mix used for restoration. Kellogg's horkelia does not presently occur at the Main Terminal. This is not a federally protected species.
Southern California black walnut *Juglans californica*	4.2	A deciduous large shrub or tree occurring in chaparral, cismontane woodland, and coastal scrub communities on hillsides and alluvial soils. This species is endemic to cismontane southern California. Resprouting after fires produces a shrubby growth form. Southern California black walnut occurs in a few localized areas in the eastern portion of the Main Terminal in the transition between coastal sage scrub and grassland (Figure 3.4-1).
Coulter goldfields *Lasthenia glabrata* ssp. *coulteri*	1B.1	An annual herb that occurs in alkali sink, coastal salt marsh, playas and vernal pools. This species occurs at elevations below 3,280 feet and blooms February through June. Coulter's goldfields has not been documented at the Main Terminal, but has been recorded in the vicinity to the northeast.
Mud nama *Nama stenocarpum*	2.2	An annual or perennial herb that occurs in intermittently wet areas in freshwater wetlands and wetland-riparian habitats. This species occurs at elevations below 2,657 feet and blooms January through July. Mud nama has not been documented at the Main Terminal, but has been recorded in the vicinity to the northeast.

Notes: California Rare Plant Rank (CRPR) Lists and Threat Ranks:

List 1B: Plants rare, threatened, or endangered in California and elsewhere.
List 2: Plants rare, threatened, or endangered in California but more common elsewhere.
List 3: Plant about which we need more information- (A review list).
List 4: Plants of limited distribution (A watch list).
CRPR Threat Ranks:
0.1-Seriously threatened in California
0.2-Fairly threatened in California
0.3-Not very threatened in California

The CRPR lists and threat ranks are combined to give an overall CRPR ranking listed in the table above. For example, a CRPR ranking of 1B.1 identifies a species that is rare, threatened, or endangered in California and elsewhere and is considered "seriously threatened in California," a ranking of 4.2 identifies a plant of limited distribution that is considered fairly threatened in California.

Sources: Baldwin et al. 2012; NAVWPNSTA Seal Beach 2014; Calflora 2019.

Table 3.4-2 Plant Communities and Land Cover Types within the Main Terminal

Vegetation and Land Cover Types	*Habitat Area*	*Habitat Area*	*Operations Area*	*Operations Area*	*Site Total*	*Site Total*
	Acres	*% of Total (Vegetation/ Land Cover Type)*	*Acres*	*% of Total (Vegetation/ Land Cover Type)*	*Acres*	*% of Total (Main Terminal)*
Bare	0.20	12.9%	1.36	87.1%	1.56	0.5%
Coastal sage scrub	34.36	92.9%	2.62	7.1%	36.98	11.9%
Developed	2.47	8.7%	25.78	91.3%	28.25	9.1%
Eucalyptus groves	0.74	30.3%	1.70	69.7%	2.43	0.8%
Needlegrass grasslands	0.07	29.9%	0.15	70.1%	0.22	0.1%
Non-native grasslands	40.25	20.0%	160.63	80.0%	200.88	64.5%
Non-native vegetation	7.78	67.4%	3.76	32.6%	11.53	3.7%
Oak woodlands	0.09	6.6%	1.26	93.4%	1.35	0.4%
Other non-native woodlands	3.23	47.1%	3.63	52.9%	6.87	2.2%
Pond	0.05	100.0%	0.00	0.0%	0.05	0.0%
Roads and developed area	0.67	28.1%	1.73	71.9%	2.40	0.8%
Sparse coastal sage scrub	4.71	91.6%	0.43	8.4%	5.14	1.7%
Sparse sandy scrub	3.75	99.3%	0.02	0.7%	3.77	1.2%
Undetermined plant community	0.42	9.0%	4.31	91.0%	4.74	1.5%
Willow riparian scrub	4.51	85.4%	0.77	14.6%	5.28	1.7%
Totals	**103.30**	**33.2%**	**208.15**	**66.8%**	**311.46**	**100.0%**

Non-Native Grasslands

Non-native grasslands are the dominant vegetation type on the Main Terminal. These grasslands contain primarily non-native annual grasses (e.g., bromes [*Bromus* spp.] and wild oats [*Avena* spp.]), although some native needlegrasses (*Stipa* spp.) are present (NAVWPNSTA Seal Beach 2014). Several non-native (often invasive) annual herbs are common, including: Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), broadleaf and redstem filaree (*Erodium* spp.), hedypnois (*Hedypnois cretica*), summer mustard (*Hirschfeldia incana*), bur clover (*Medicago polymorpha*), sourclover (*Melilotus* spp.), wild radish (*Raphanus sativus*), and milk thistle (*Silybum marianum*) (NAVWPNSTA Seal Beach 2014).

Native herb species occurring in this community include beach bur (*Ambrosia chamissonis*), annual bursage (*Ambrosia artemisiifolia*), western ragweed (*Ambrosia* spp.), narrowleaf milkweed (*Asclepias fascicularis*), horseweed (*Erigeron canadensis*), fascicled tarplant (*Deinandra fasciculata*), dove weed (*Eremocarpus setigerus*), telegraph weed (*Heterotheca grandiflora*), and Spanish lotus (*Acmispon americanus* var. *americanus*).

Non-native grasslands may also support some coastal sage scrub species, and in some areas encompass small patches of true coastal sage scrub, which are important corridors for birds or butterflies, wildlife and native seed sources. PVB host plants deerweed (*Acmispon glaber*) and coast locoweed (*Astragalus trichopodus lonchus*) are scattered throughout the grasslands. The majority of grassland on the Main Terminal is mowed for fire control and weed abatement.

Coastal Sage Scrub

The coastal sage scrub vegetation community is characterized by low-growing shrubs. California sagebrush (*Artemisia californica*) is dominant, and California bush sunflower (*Encelia californica*), coyote bush (*Baccharis pilularis*), California buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), and black sage (*Salvia mellifera*) are co-dominant or subdominant in areas. Some portion of coastal sage scrub also supports coast prickly pear (*Opuntia littoralis*), purple sage (*Salvia leucophylla*), toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), and sugar bush (*Rhus ovata*). Other species present include lemonade berry (*Rhus integrifolia*), thickbracted goldenbush (*Ericameria palmeri* var. *pachylepis*), Mexican elderberry (*Sambucus nigra*), narrowleaf bedstraw (*Galium angustifolium* ssp. *angustifolium*), sawtooth goldenbush (*Hazardia squarrosa*), giant wildrye (*Elymus condensatus*), sticky monkeyflower (*Diplacus aurantiacus*), and coastal cholla (*Opuntia prolifera*). Native annual and perennial herb and grass species that are common in the understory are California croton (*Croton californicus*), coyote melon (*Cucurbita foetidissima*), long-stemmed buckwheat (*Eriogonum elongatum*), green everlasting (*Pseudognaphalium californicum*), cudweed-aster (*Corethrogyne filaginifolia*), and foothill and purple needlegrass (*Stipa lepida* and *S. pulchra*, respectively).

PVB host plants deerweed and coast locoweed occur in this habitat type, but less frequently. Escaped ornamental species, such as sea fig and hottentot fig (*Carpobrotus spp.*), often occur as thick mats within the shrublands (NAVWPNSTA Seal Beach 2014).

Sparse Sandy Scrub

Sparse sandy scrub community contains seral or fringe coastal sage scrub components such as croton and deerweed. This community tends to be on sandy substrates and steep grassland slopes. Since no one species dominates these areas, they cannot be readily assigned to a more conventional vegetation community. They are identified as a separate mapping unit because they offer favorable habitat restoration sites for PVB.

Coast Live Oak Woodlands

Coast live oak woodlands are dominated by coast live oak (*Quercus agrifolia*), occasionally with non-native tree species, such as pepper trees (*Schinus spp.*). Toyon, laurel sumac, and lemonade berry are occasional throughout the woodlands. Understory species are generally composed of non-native grasses and forbs, although some natives may also occur.

Willow Riparian Scrub

Riparian vegetation consists of an assemblage of willows (black willow [*Salix gooddingii*], red willow [*S. laevigata*], and arroyo willow [*S. lasiolepis*]), coyote bush, and other species. Willow riparian scrub is associated with natural drainage features within the area.

Eucalyptus Woodland/Groves

The eucalyptus groves are dominated by gum trees (*Eucalyptus spp.*). The understory of these woodlands is generally sparse, composed of non-native grasses and forbs and some native shrubs.

Other Non-Native Woodlands

Non-native woodlands cover approximately 3.7 acres. These areas are dominated by non-native trees such as Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*S. terebenthifolia*), and acacias

(*Acacia spp.*). The understory is generally sparse, composed of non-native grasses and forbs and some native shrubs.

Undetermined Plant Community

This category applies to a narrow strip along the western and southern boundaries of the site totaling 4.75 acres that was not included in the vegetation mapping. These areas bordering the Main Terminal boundary would not be impacted by the Proposed Action.

Other Land Cover Types

Landscaping is considered an "other land cover types" and occurs in areas around the buildings, ball fields, and the entry to the Main Terminal. The category includes native, and non-native plant species. Landscaped areas of the Main Terminal constitute less than 0.1 acre located around the administration buildings. Plants incidentally observed in landscaped areas include magnolia (*Magnolia sp.*), gum trees, daylily (*Hemerocallis sp.*), Joshua tree (*Yucca brevifolia*), quince (*Chaenomeles sp.*), stone crop (*Sedum sp.*), oleander (*Nerium oleander*), loquat (*Eriobotrya japonica*), California fan palm (*Washingtonia filifera*), king palm (*Archontophoenix cunninghamiana*), juniper (*Juniperus* sp.), jade plant (*Crassula argentea*), orchid tree (*Bauhinia* sp.), and Brazilian pepper tree (NAVWPNSTA Seal Beach 2014).

Marine Terminal and Off-site Pipelines

The Marine Terminal in the Port of Long Beach consists of developed lands with buildings, paved roads, and container storage areas. Adjacent undeveloped lands are highly disturbed. No natural or sensitive plant communities are present at the Marine Terminal. Similarly, the off-site pipelines go through developed areas with little habitat value, typically along roads, and are almost entirely underground.

3.4.2.2 Wildlife

Wildlife includes all animal species (i.e., insects and other invertebrates, fish, amphibians, reptiles, birds, and mammals) focusing on the species and habitat features of greatest importance or interest.

Federally listed and other special status wildlife species that are known or have the potential to occur within the project area are listed in Tables 3.4-3 and 3.4-4, and described in the sections below.

The MBTA is an international agreement among the U.S., Canada, and Mexico that protects designated species of birds. Specifically, the MBTA controls the taking of these birds, their nests, eggs, parts, or products. Virtually all native birds are protected under the MBTA, with only a few exceptions, such as the California quail. A complete list of all species of all migratory birds protected by the MBTA is in the Federal Register (50 CFR 10.13). EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, directs federal agencies to take actions to further implement the MBTA. Whereas the MBTA protects individual migratory birds, the Memorandum of Understanding that was developed under EO 13186 between DoD and USFWS (2014) is intended to promote the conservation of migratory bird populations and their habitats.

Table 3.4-3 Special Status Wildlife Species Known to Occur or Potentially Occur at DFSP San Pedro Main Terminal

Species	***Status***	***Habitat/Occurrence in Project Area***
Palos Verdes blue butterfly *Glaucopsyche lygdamus palosverdesensis*	FE	This species is known to occur on the Main Terminal associated with its larval food plants, with estimates ranging from 35 – 214 individuals since the population's discovery in 1994 through 2013. Fewer than five individuals were detected in 2017 and 2018. The Main Terminal is believed to support the only remaining natural population of the species (assuming as this EA does that the PVB and/or its larvae or pupae in fact presently continue to occur on the installation). The other extant populations have relied on introduction of captive bred individuals originating from DFSP San Pedro.
Coastal California gnatcatcher *Polioptila californica Californica*	FT/SSC	CAGNs are present in coastal sage scrub on Main Terminal. CAGNs have been observed in the project vicinity in 1993, 1994, 1995, 2011, and during recent surveys in 2015-2018.
Southwestern willow flycatcher *Empidonax traillii extimus*	FE/SE	This species nests in dense riparian vegetation associated with streams, rivers, lakes, springs, and other watercourses and wetlands. Willow flycatchers (*E. trallii*) were observed on the Main Terminal in 1997 but these were thought to be non-breeding migratory transients belonging to the state-listed subspecies. Because of its small size and isolation, the riparian habitat at Main Terminal is probably unsuitable for nesting by this species.
Least Bell's vireo *Vireo bellii pusillus*	FE/SE	This bird occurs in riparian habitats, scrub, and thickets in coastal southern California. It typically breeds in willow riparian forest supporting a dense, shrubby understory of mulefat (*Baccharis salicifolius*) and other mesic species. Breeds 15 March – 31 August, prefers to nest in a dense shrub layer between 2 to 10 feet from the ground. A single vireo was detected at the Main Terminal in May 2017, but was believed to be a transient bird. Because of its small size and isolation, the riparian habitat at the Main Terminal is probably unsuitable for nesting by this species.
Burrowing owl *Athene cunicularia*	SSC	Distributed throughout most of California in grasslands, shrub-steppes grasslands, savannas, and open areas such as agricultural lands or vacant lots near human habitation. Burrows are usually in areas with a low, open cover that can provide good horizontal visibility. Nests are in abandoned burrows, such as those dug by prairie dogs, ground squirrels, foxes and woodchucks. Nesting begins in spring, burrows are used for breeding, nesting and brooding. The burrowing owl is a winter visitor in Los Angeles Harbor. A burrowing owl, believed to be a winter migrant, was observed at the Main Terminal in November/December 2018.
Loggerhead shrike *Lanius ludovicianus*	SSC	Occurs in open grassland and sage scrub habitats. Winter observations at the Main Terminal. Unknown if it breeds on-site. May also occur on the Marine Terminal.
Coastal cactus wren *Campylorhynchus brunneicapillus*	SSC	Occurs in thickets of chollas or prickly pear cacti tall enough to support nests. Current and historic (circa 1944) year-round range in California is restricted to disjunct patches on the westward draining coastal slope of Orange and San Diego counties. Coastal cactus wren breeds on the Palos Verdes Peninsula. In 1993, a single adult was heard on the Main Terminal; however, no breeding pairs have been documented. The closest breeding pair is 3 miles south-southwest of the Main Terminal.

Notes: Federal Status (determined by USFWS): FE = Federally Endangered; FT = Federally Threatened.
California State Status (determined by California Department of Fish and Wildlife): SE = State Endangered; ST = State Threatened; SSC = Species of Special Concern; FP = Fully Protected.

Sources: SAIC 2010; Johnson et al. 2013; NAVWPNSTA Seal Beach 2014; Longcore, pers. comm. 2015; Longcore and Osborne 2015; California Department of Fish and Wildlife 2018.

Table 3.4-4 Special Status Wildlife Species Known to Occur or Potentially Occur at DFSP San Pedro Marine Terminal

Species	*Status*	*Habitat/Occurrence in Project Area*
Brant goose *Branta bernicla*	SSC	Migrant; a few were observed in Port of Long Beach waters in 2008.
Vaux's swift *Chaetura vauxi*	SSC	Widespread migrant (aerial only); no nesting documented in the Ports of Long Beach or Los Angeles. Observed during migration over the Main Terminal.
American peregrine falcon *Falco peregrinus anatum*	FP	Resident peregrine falcons are known to nest or rest on bridges within the Ports of Long Beach and Los Angeles, and forage on birds throughout the harbor complex. The nearest nesting location is the Gerald Desmond Bridge, which is located more than 2 miles from the Marine Terminal. Have been observed at the Main Terminal.
Common loon *Gavia immer*	SSC	Occasional winter visitor; no nesting documented in the Ports of Long Beach or Los Angeles.
Loggerhead shrike *Lanius ludovicianus*	SSC	Loggerhead shrike occur in the Ports of Long Beach and Los Angeles, primarily on riprap or dock/piling habitat in the Inner Harbor; forages on birds; and is suspected of nesting on Pier 400 in 2011. Loggerhead shrike more generally occurs in grasslands and open habitat with scattered shrubs and trees. This species has been noted on Marine Terminal and has the potential to occur on the Main Terminal or along the off-site pipelines.
California brown pelican *Pelecanus occidentalis californicus*	FP	Roosts/rests on breakwaters, other structures, water; forages on fish in open waters of the Ports of Long Beach and Los Angeles. Pelicans may be observed resting or foraging in the West Basin; the nearest nesting colonies are on west Anacapa and Santa Barbara islands.
Black skimmer *Rynchops niger*	SSC	Nests at Pier 400 in Los Angeles Harbor; forages over water; present all year.
California least tern *Sternula antillarum browni*	FE/SE/FP	This bird nests at Pier 400 in Los Angeles Harbor (approximately 2 miles from the Marine Terminal and Pier 12); it forages on fish in open waters, and is migratory and present April-August.

Notes: Federal Status (determined by USFWS): FE = Federally Endangered; FT = Federally Threatened.
California State Status (determined by California Department of Fish and Wildlife): SE = State Endangered; ST = State Threatened; SSC = Species of Special Concern; FP = Fully Protected.

Sources: SAIC 2010; Johnson et al. 2013; NAVWPNSTA Seal Beach 2014; Longcore, pers. comm. 2015; Longcore and Osborne 2015; California Department of Fish and Wildlife 2018.

Main Terminal

A complete list of wildlife species documented on the Palos Verdes Peninsula is included in the INRMP; the list consists of 62 species of birds, 10 mammals, 7 reptiles and amphibians, and 83 invertebrates (NAVWPNSTA Seal Beach 2014). Most wildlife species present at the Main Terminal are species commonly found in and near urban areas, such as house finch (*Carpodacus mexicanus*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and red-tailed hawk (*Buteo jamaicensis*). Nesting by neotropical migratory birds has not been well documented. Small mammals include opossum, desert cottontail (*Sylvilagus audubonii*), Botta's pocket gopher (*Thomomys bottae*), house mouse (*Mus musculus*), black rat (*Rattus rattus*), and striped skunk (*Mephitis mephitis*). Larger mammals such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), feral dogs, and cats are also present. DLA Energy has prepared an

Integrated Pest Management Plan for several DLA sites, to include DFSP San Pedro (DLA Energy 2015). The Plan identifies pest management roles and responsibilities for preventing and controlling harmful pests.

Two animal species federally listed under the ESA as threatened or endangered occur at the Main Terminal: the PVB and CAGN. These species are discussed below. The southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*) have the potential to move through the Main Terminal as transients during migration. Both are associated with riparian habitats. Neither is expected to be more than a transient during migration.

Palos Verdes Blue Butterfly

The PVB was listed as endangered and critical habitat was designated on July 2, 1980 (USFWS 1980) because all known populations were small, limited in range, and threatened by urban development and/or weed control practices. A Recovery Plan was finalized in 1984 (USFWS 1984), and the most recent 5-year review was completed in 2014 (USFWS 2014). Critical habitat has been designated on the Palos Verdes Peninsula; however, no critical habitat occurs on the Main Terminal. A complete description of the regulatory and natural history for this species can be found in the *Federal Register* (45 Federal Register 129 44939; USFWS 1980) and at www.ecos.fws.gov.

Figure 3.4-2 shows the location of potential PVB habitat within habitat areas at the Main Terminal. The PVB was discovered on DFSP San Pedro in 1994, and it was the only known population in existence from 1994-1999. In 1994, a captive breeding program was established using the population on DFSP San Pedro as the genetic source, and the species has been repeatedly reintroduced to nearby historic locations as well as on DFSP San Pedro. Captive and wild butterfly populations are considered essential to the existence of this species. Surveys on DFSP San Pedro have been conducted annually since 1994. The population size has fluctuated dramatically from year to year (Table 3.4-3).

In 1994, estimates were at 69, in 2003, the population was estimated at 30 adults, and in 2004, the number of individuals increased to 282 adults (NAVWPNSTA Seal Beach 2014). In 2012, the PVB population was estimated at 148 adults, and in 2013 numbers decreased to 35 individuals; the second lowest since monitoring started (Longcore and Osborne 2015).

No adult PVB were detected during surveys in 2014, 2015, and 2016 (Schallmann 2019); and estimated adult populations were zero. However, the butterflies likely survive on site because the mature larvae drop off plants, burrow into the plant litter, and become pupae, which are believed to be capable of multi-year diapause before emerging as adults (NAVWPNSTA Seal Beach 2014). Surveys at the Main Terminal in 2017 and 2018 detected fewer than five individuals in the wild (Schallmann 2019).

The recent decline in PVB numbers has been attributed to a number of factors, including (1) the severe, nearly unprecedented 5-year drought that lasted from 2011 to 2016, and (2) the gradual maturation of vegetation with associated declines of the two major food plants, which are relatively short-lived subshrubs that tend to proliferate after certain types of disturbance and gradually die out as the vegetation matures. Dramatic decreases in deerweed cover have been documented over most of the site, including both designated Operations and Habitat Areas over the periods 2006-2014 and 2012-2014. The total cover of deerweed in 2014 was approximately 14 percent of that present in 2006 (Longcore and Osborne 2015).

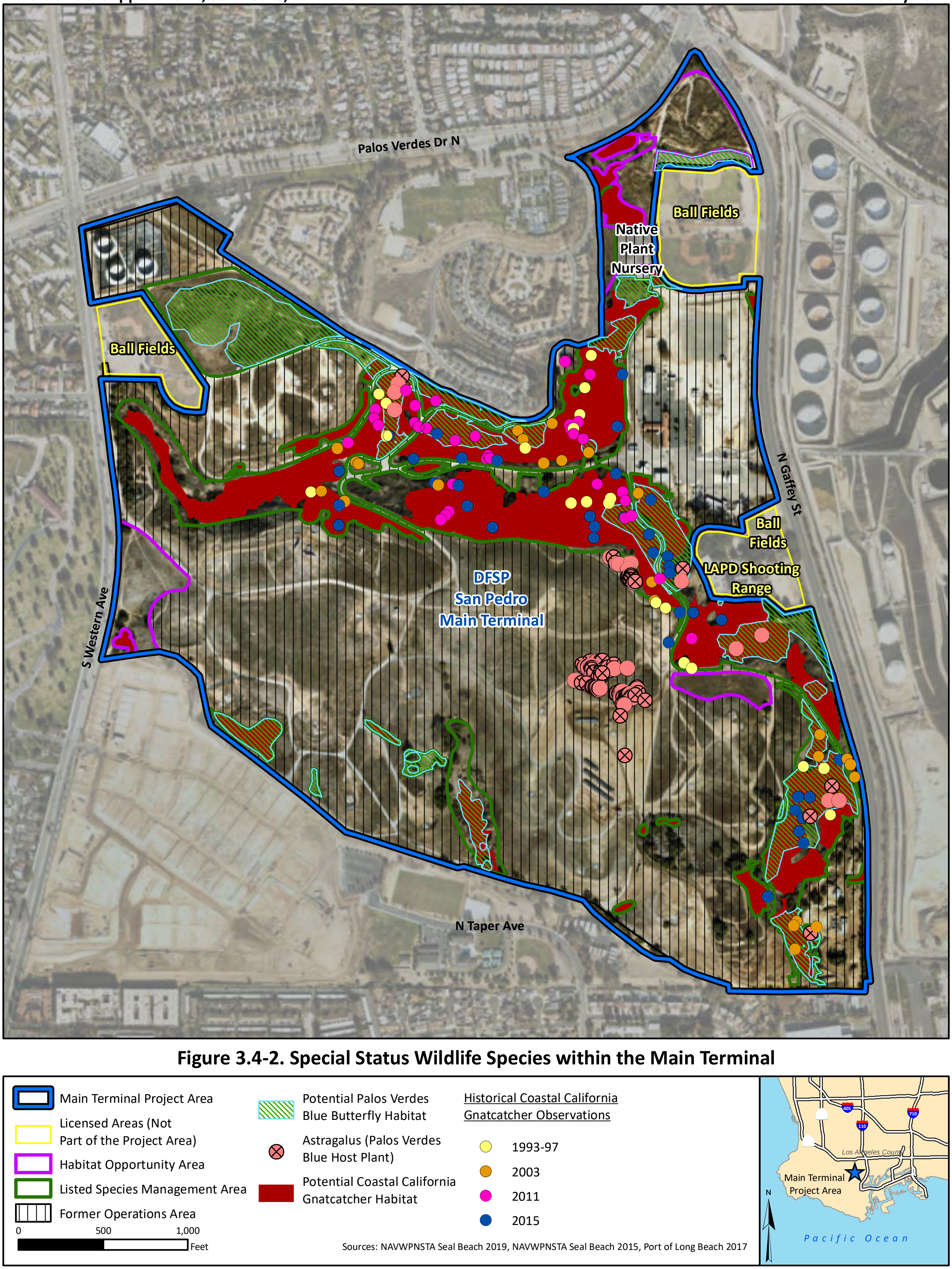


Figure 3.4-2. Special Status Wildlife Species within the Main Terminal

Habitat for this species is related mainly to presence of food plants. At the Main Terminal, the PVB occurs primarily in open coastal sage scrub that includes coast locoweed and deerweed. Larvae feed primarily on deerweed and coast locoweed, which naturally occur on site and are found in revegetated coastal sage scrub habitat (Johnson et al. 2013). The larvae feed through the spring and seem to prefer the micro-crevasses in the litter beneath its deerweed and locoweed food plants (DLA 2014).

During the last two larval stages, the larvae appear to form an important association with native carpenter ants in the genus *Camponotus* and sometimes the exotic Argentine ant (*Linepithema humile*). At the Main Terminal, the PVB usually begins to emerge from its pupal case (i.e., eclosion) in late January through early March, depending upon weather conditions.

Based on GIS data provided by NAVWPNSTA Seal Beach in 2015, approximately 28.32 acres of PVB habitat occurs at the Main Terminal. The majority of potentially occupied PVB habitat at the Main Terminal is along the northern portion of the installation. Potential habitat and host plants occur throughout the installation; however, much of this potential habitat is of relatively poor quality, and is not managed as PVB habitat under the terms of the 2010 and 2015 BOs (USFWS 2010; 2015). Non-native grasslands within the Operational Area contain potential habitat, but it is poor quality habitat because it has been and continues to be subjected to operationally-required mowing (outside PVB flight season) in accordance with the 2010 Biological Opinion (BO) (USFWS 2010; 2015). As shown on Figure 3.4-2, essentially all potentially occupied PVB habitat is within designated Listed Species Management/Habitat Opportunity Areas.

The 2010 BO (USFWS 2010) specifies that disturbance of suitable PVB habitat related to operations and maintenance activities at DFSP San Pedro shall not exceed 0.5 acre in any 1-year period, and no more than 1 acre will be impacted over any 3-year period. The 2010 BO (USFWS 2010) was prepared to address operations and maintenance during the (at the time) full operational status of DFSP San Pedro, and established PVB habitat impact limits that were carried forward in the 2015 BO (USFWS 2015). Because the 2010 BO covered more actions than the 2015 BO, the habitat impact limits for PVB in the 2015 BO are the same as those described in the 2010 BO (USFWS 2015).

Coastal California Gnatcatcher

The CAGN was federally listed as threatened on March 30, 1993 in response to habitat loss and degradation from development, fragmentation, invasive weed establishment, and brood parasitism by brown-headed cowbirds (*Molothrus ater*) (USFWS 1993, 2010). The completed federal listing and detailed information on the CAGN regulatory history, range, life history, habitat, and abundance can be found in *Federal Register* 58(59):16742 (USFWS 1993). Occupied CAGN habitat occurs on the Main Terminal within Listed Species Management/Habitat Opportunity Areas (Figure 3.4-2); however, CAGN habitat areas on the Main Terminal are not included in the critical habitat designation. The 2007 CAGN critical habitat designation excluded DFSP San Pedro because "the habitat on and around DFSP [San Pedro] does not currently have the spatial configuration and quantity of the PCEs [primary constituent elements] essential to the conservation of the species." (USFWS 2007; Federal Register 72:72010-72213).

CAGNs have been known to occupy the Main Terminal since surveys began in 1993. Subsequent surveys were conducted in 1997, 2003, 2011, and 2015-2018 (NAVWPNSTA Seal Beach 2014; Cardno 2015; Schallmann 2019). Over the years, the number of breeding CAGN pairs observed on the Main Terminal has fluctuated between 2 and 7 pairs, with more recent surveys showing a decline in pairs, likely due to drought and habitat changes (Schallmann 2019).

Based on 2015 GIS habitat data, potential CAGN habitat covers 56.85 acres. The 2010 BO (USFWS 2010) specifies that disturbance of suitable CAGN habitat related to operations and maintenance activities at the Main Terminal shall not exceed 0.5 acre in any 1-year period, and no more than 1 acre will be impacted over any 3-year period. The CAGN was not addressed in the 2015 BO (not likely to adversely affect determination); therefore, the 2010 BO CAGN measures are still applicable.

Marine Terminal

Marine-associated birds may occur on piers, wharfs, other structures, and waters within the Port complex. The most commonly observed species within the West Basin area are Brandt's cormorant (*Phalacrocorax penicillatus*), mew gull (*Larus canus*), western gull (*L. occidentalis*), surf scoter (*Melanitta perspicillata*), and western grebe (*Aechmophorus occidentalis*) (SAIC 2010). Upland species present at the Marine Terminal and adjacent disturbed areas are similar to those described below for off-site pipelines.

The federally endangered California least tern (*Sternula antillarum browni*) (CLT) could forage in waters near Pier 12, which is part of the Marine Terminal. The CLT has nested for several years at Pier 400 in the Port of Los Angeles, located more than 2 miles from the Marine Terminal. It forages in open waters within San Pedro Bay and the Ports of Los Angeles and Long Beach, primarily adjacent to the nest site and in shallow water habitats. CLTs were observed in low numbers foraging in the West Basin in 2008 (SAIC 2010).

Off-site Pipelines

Wildlife use of developed and undeveloped disturbed areas that are traversed by off-site pipelines within the Ports of Los Angeles and Long Beach is dominated by common species that are adapted to human-disturbed landscapes. These include various insects, native lizards, a variety of resident and migratory birds, and native and non-native small mammals. A number of terrestrial and marine-associated birds may occur on the piers, wharfs, structures, developed lands, and waters of the ports. The most commonly observed upland species within the West Basin area during the 2007-2008 harbor-wide surveys included the non-native, rock pigeon (*Columba livia*) and, to a lesser extent, American crow (*Corvus brachyrhynchos*), common raven (*C. corax*), European starling, and house finch. Upland species occur in low abundances in the survey area and are adapted to urban and disturbed habitats.

3.4.3 Environmental Consequences

This analysis focuses on vegetation or wildlife types that are important to the function of the ecosystem or are protected under federal or state law or statute.

3.4.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure; therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

3.4.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

The study area for the analysis of effects to biological resources associated with Alternative 1 includes the project area components (Main Terminal, Marine Terminal, and pipelines) and adjacent lands that could be impacted by Alternative 1.

Potential impacts to biological resources under Alternative 1 would be generally limited to rehabilitation and construction related impacts from potential development scenarios, including noise, visual, non-native plant dispersal, and fugitive dust impacts. Development under Alternative 1 would avoid areas with known sensitive natural resources; disturbance would be limited to areas historically used for operations.

Vegetation

As stated above, the outlease would limit development under Alternative 1 to avoid areas with known sensitive natural resource issues. Therefore, native habitats and areas that potentially contain special status plant species would not be directly impacted.

Indirect, adverse impacts to vegetation could occur as a result of the establishment of invasive plants. Construction equipment and activities can introduce and spread invasive plant seeds. Invasive plants decrease the overall quality of habitat by out-competing native species, contributing to reduced diversity and structure, and reduced habitat functions and values. The potential for establishment of invasive plants would be minimized through implementation of measures listed in Appendix B should the lessee choose to develop the property, including cleaning construction equipment before arriving to the project site and invasive weed control (e.g., hand removal, mechanical, and herbicide control) in and around construction areas. Therefore, impacts to vegetation under Alternative 1 would be less than significant.

Wildlife

Under Alternative 1, no native habitats would be directly impacted. Temporary impacts to wildlife would occur within adjacent habitat due to an increase in dust, noise, or visual disturbances. Temporary disturbances due to noise associated with rehabilitation/construction activities, as well as an increase in the general activity and human presence could mask bird vocalizations, invoke stress in birds/wildlife and reduce breeding success, and cause common bird and wildlife species to avoid the work area during construction periods. Bird species foraging, perching, or flying in the vicinity of the Main and Marine Terminals would likely be temporarily flushed during construction activities. However, individuals would likely return during or following construction. Because the adjacent lands primarily consist of developed areas, the common species in the vicinity of the project area have likely adapted to ongoing human activity and elevated noise associated with humans. Therefore, impacts to wildlife under Alternative 1 would be less than significant.

Special Status Species

Two threatened and endangered species are likely to occur within the study area of Alternative 1. Suitable habitat exists within the Alternative 1 area for the PVB and CAGN. The previously developed habitats are not suitable areas to support threatened and endangered species on the Main Terminal.

Temporary impacts to CAGN would be similar to those described above for wildlife. Because CAGN can occur year-round at the Main Terminal, they would potentially be exposed to increased dust, noise, or visual disturbances during rehabilitation/construction activities. However, dust control measures, as described in Section 3.1, would continue to be implemented under Alternative 1 to reduce dust migration into native habitats. Additionally, as described in the 2016 EA and associated BO (USFWS 2015), surveys for CAGN and their nests would occur if construction activities occur within 100 feet of CAGN habitat. Under Alternative 1, no direct impacts to CAGN habitat would occur. Therefore, Alternative 1 may affect, but is not likely to adversely affect the CAGN.

Under Alternative 1, no construction activities would occur within the Listed Species Management/Habitat Opportunity Areas, where essentially all potentially occupied PVB habitat occurs at the Main Terminal (Figure 3.4-2). Additionally, only previously disturbed sites would be subject to construction activities under Alternative 1, so no PVB habitat would be directly impacted. Dust control measures, as described in Sections 3.1, Air Quality and 3.2, Water Quality, would continue to be implemented under Alternative 1 to reduce dust migration into potential PVB habitat. Additionally, the lessee would be required to comply with all measures agreed to in the 2015 BO (USFWS 2015) to protect PVB. Because the captive breeding program would continue to introduce individual PVBs to the Main Terminal area, Alternative 1 is not expected to have an impact on the PVB population at DFSP San Pedro. Therefore, Alternative 1 may affect, but is not likely to adversely affect the PVB.

The Marine Terminal is over 2 miles from the CLT nest area on the end of Pier 400. While most CLT foraging occurs within 2 miles of nests, CLTs often forage more than 2 miles from nest sites (Atwood and Minsky 1983). Although the CLT could fly by or forage in the vicinity of the Marine Terminal, it is unlikely to be affected by potential construction activities which would be localized and similar to other, ongoing activities in the industrialized area of the harbor complex. Therefore, Alternative 1 may affect, but is not likely to adversely affect the CLT.

Other special status species, including black skimmer, loggerhead shrike, California brown pelican, and American peregrine falcon are not likely to be more than minimally impacted by the activity at the Marine Terminal for similar reasons. Listed and sensitive species are unlikely to occur along the interconnecting pipeline routes because they pass through heavily developed mostly industrial or commercial areas that provide little or no habitat for sensitive native species.

All conditions and measures that were mandated by the 2010 and 2015 BOs (USFWS 2010; 2015), and which are applicable under the Proposed Action, would still apply under Alternative 1. There would be no significant impact on threatened and endangered species, and no formal consultation between the U.S. Navy and USFWS or NOAA Fisheries was required.

Therefore, implementation of Alternative 1 would not result in significant impacts to biological resources.

3.4.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

The study area for the analysis of effects to biological resources associated with Alternative 2 includes the Marine Terminal and pipelines, and adjacent lands that could be impacted by Alternative 2. The Alternative 2 project area does not include the Main Terminal.

As with Alternative 1, potential impacts to biological resources under Alternative 2 would be generally limited to rehabilitation/construction related impacts from potential development scenarios, including noise, visual, non-native plant dispersal, and fugitive dust impacts. Any development under Alternative 2 would avoid areas with known sensitive natural resources; disturbance would be limited to areas historically used for operations.

Vegetation

Under Alternative 2, vegetation would not be impacted, as there is no vegetation at the Marine Terminal.

Wildlife

The types of potential impacts to wildlife under Alternative 2 would be similar to those under Alternative 1, but at a smaller scale and affecting fewer species and individuals, as potential rehabilitation/construction activities would only occur at the Marine Terminal. Bird species foraging, perching, or flying in the vicinity of the Marine Terminal would likely be temporarily flushed during construction activities. However, individuals would likely return during or following construction. Therefore, impacts to wildlife under Alternative 2 would be less than significant.

Special Status Species

The PVB and CAGN would not be impacted by Alternative 2 because the species do not occur within the study area of Alternative 2.

Under Alternative 2, impacts to the CLT and other special status species that may occur at the Marine Terminal would be identical to those described under Alternative 1. Therefore, Alternative 2 may affect, but is not likely to adversely affect the CLT.

All conditions and measures that were mandated by the 2010 and 2015 BOs (USFWS 2010; 2015), and which are applicable under the Proposed Action, would still apply under Alternative 2. There would be no significant impact on threatened and endangered species, and no formal consultation between the U.S. Navy and USFWS or NOAA Fisheries was required.

Therefore, implementation of Alternative 2 would not result in significant impacts to biological resources.

3.5 Land Use and Coastal Resources

This discussion of land use includes current and planned uses and the regulations, policies, or zoning that may control the proposed land use. The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area (visual resources are discussed in Section 3.6). There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

3.5.1 Regulatory Setting

In many cases, land use descriptions are codified in installation master planning and local zoning laws. Office of the Chief of Naval Operations Instruction (OPNAVINST) 11010.40 establishes an encroachment management program to ensure operational sustainment that has direct bearing on land use planning on installations.

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. §1451 et seq., as amended) provides assistance for states, in cooperation with federal and local agencies, to develop land use and water use programs in coastal zones. The State of California has developed and implemented a federally approved California Coastal Management Program describing current coastal legislation and enforceable policies. When a state coastal management program is federally approved, federally proposed actions with the potential to affect the state's coastal uses or resources are subject to state review under the CZMA Section 307 federal consistency determination requirement. Section 307 mandates that federal actions within a state's coastal zone (or outside of the coastal zone, if the action affects land or water uses or natural resources within the coastal zone) be consistent, to the maximum extent practicable, with the enforceable policies of the state's coastal management program. The enforceable policies of the California Coastal Management Program are included in Chapter 3 of the California Coastal Act of 1976. The enforceable policies apply to the following coastal uses or resources: public access, recreation, marine environment, land resources, development, and industrial development (California Public 29 Resources Code §30200–30265.5).

3.5.2 Affected Environment

The following discussion provides a description of the existing conditions at the Main and Marine Terminals, and the surrounding communities.

3.5.2.1 Main Terminal

The Main Terminal is located in the City of Los Angeles, approximately 20 miles southwest of the city's urban center, in the Wilmington – Harbor City community planning area. The Main Terminal is U.S. Government property, and is noted on the City of Los Angeles' zoning map as such. Per the zoning map, the City of Los Angeles intends to zone the property as open space if the Government leaves the property (City of Los Angeles 2014). Similarly, a small portion of the Main Terminal's northwestern corner falls within the City of Lomita, and the City shows this area to be zoned as R1-6000 (single-family residential, 7.3 dwelling units per acre) (City of Lomita 2018). As a federally-owned property, DFSP San Pedro is not subject to local planning and zoning requirements; therefore, this indicates the zoning the City of Lomita would intend to apply to the property if vacated by the Government. The land surrounding the Main Terminal is densely developed with industrial, commercial, and urban and suburban residential uses. A cemetery lies directly west of the Main Terminal across South Western Avenue. Land uses directly south of the Main Terminal include a multi-family residential development that is currently under construction, existing single-and multi-family residential neighborhoods, a high school, and a commercial shopping center. The area directly north of the Main Terminal contains a small commercial shopping center, residential neighborhoods, a local community college, and a middle/high school campus. Commercial fueling operations are located east of the Main Terminal, across North Gaffey Street. Refer to Figure 3.5-1 for a view of the developed areas immediately surrounding the Main Terminal.

The Main Terminal has been used as an industrial fuel facility that receives, stores, and distributes petroleum products for military use since 1943. Portions of the property have been leased for other uses such as ball fields on the northwest and northeast areas of the property, and a shooting range for the LAPD, just south of the Administration Area on the western border of the property. Various utility easements and right-of-way have also been granted to the City and County of Los Angeles, the Palos Verdes Water Company, and Standard Oil of California (Navy 2014). The Palos Verdes Peninsula Land Conservancy manages a native plant nursery and habitat for the endangered PVB (*Glaucopsyche* *lygdamus palosverdesensis*) within the Main Terminal, as part of a multi-organizational partnership since 1994 (Palos Verdes Peninsula Land Conservancy 2018). Figure 2-1 shows the interspersed locations of the Habitat Opportunity Areas and Listed Species Management Areas that are protected from development on the Main Terminal.

In 2014, DFSP San Pedro entered into a state of temporary closure, where the facility was placed in a non-active status and fuel was removed from the tanks and pipelines at both the Main and Marine Terminals. In 2016, the Navy and DLA chose to pursue a partial permanent closure alternative (Alternative 4) that was analyzed in an EA, resulting in the closure in place of all USTs on the Main Terminal property. Construction activities related to the partial permanent closure began in 2016, and all closure activities associated with the 2016 EA have been completed on the Main and Marine Terminals. Remediation activities that were not part of the Proposed Action analyzed in the 2016 EA but are otherwise required are ongoing at various sites at the Main Terminal. Refer to Section 3.11, Hazardous Materials and Wastes, for a description of the remediation activities.

3.5.2.2 Marine Terminal

The Marine Terminal is located within the City of Long Beach, in the Port of Long Beach's Harbor District. Fueling operations have occurred at the Marine Terminal and Pier 12 since 1986. The City of Long Beach has the area zoned as IP, or Port-related Industrial. While the Navy is not formally subject to the Port of Long Beach's Master Plan, it acts—and would require any lessee to act—in substantive compliance with the plan (City of Long Beach 2018) to the extent practicable. The Port's Master Plan designates the area where the Marine Terminal is located as a Federal Use Planning District where Navy shipyard and base operations occur. The Master Plan notes, "as federal land, development within this district is excluded from coastal permit requirements. However, state review of federal consistency with Coastal Act policies is required for Naval projects. This has resulted in cooperation and consultation with the Port on matters of mutual concern such as vessel traffic patterns and proposed landside development (Port of Long Beach 1990)." The Port of Long Beach is currently undergoing an update to its Master Plan, which was last certified in 1990 (Port of Long Beach 1990, 2018). Review of available documentation on the proposed plan updates indicates the land use designation for the Marine Terminal area is not planned to change. In 1998, the Navy and City of Long Beach officials developed an agreement allowing the Harbor Department to lease a 500-acre complex for a new container terminal (Pier T) in the Federal Use Planning District that had formerly been part of the Long Beach Naval Station and Naval Shipyard on Terminal Island.

Over time, the Navy has transferred ownership of the land to the Harbor Department in stages. The Maritime Administration, which works to complete the transfer of surplus federal property for the development of seaports, has facilitated this process under its Port Conveyance Program with support from Navy Base Realignment and Closure program. Official transfer of ownership on the land began in 2001, when approximately half of the acreage was deeded to the City of Long Beach. Another 125 acres was transferred in 2016, and only two small parcels remain to be transferred in the future, once they are deemed environmentally suitable for transfer and continued port-related reuse (Port of Long Beach 2016). All immediate surrounding land uses fall within the Port-related Industrial Zone, as they are located in the Port of Long Beach's middle harbor area. Refer to Figure 1-1 for a view of the developed area immediately surrounding the Marine Terminal.

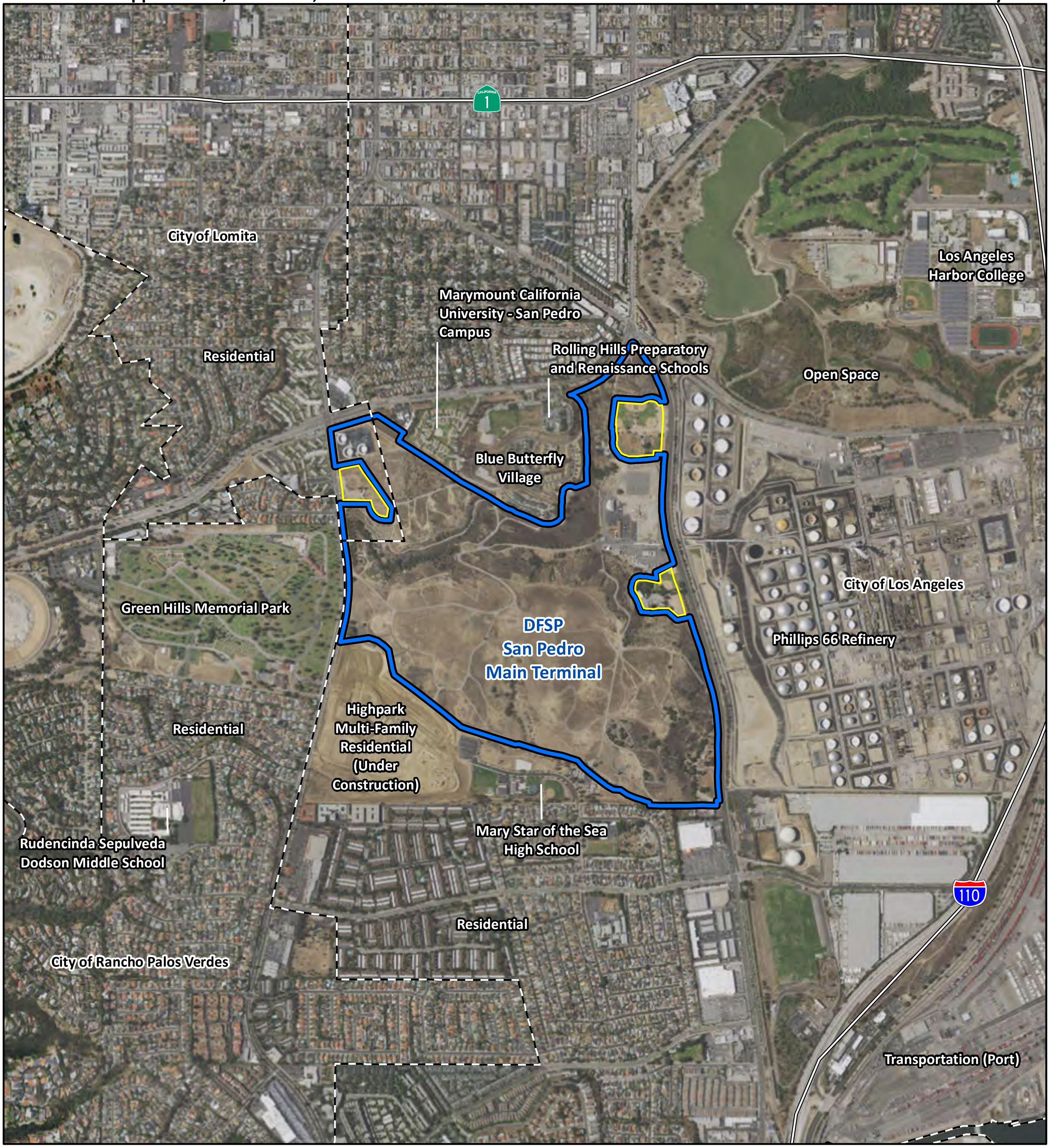
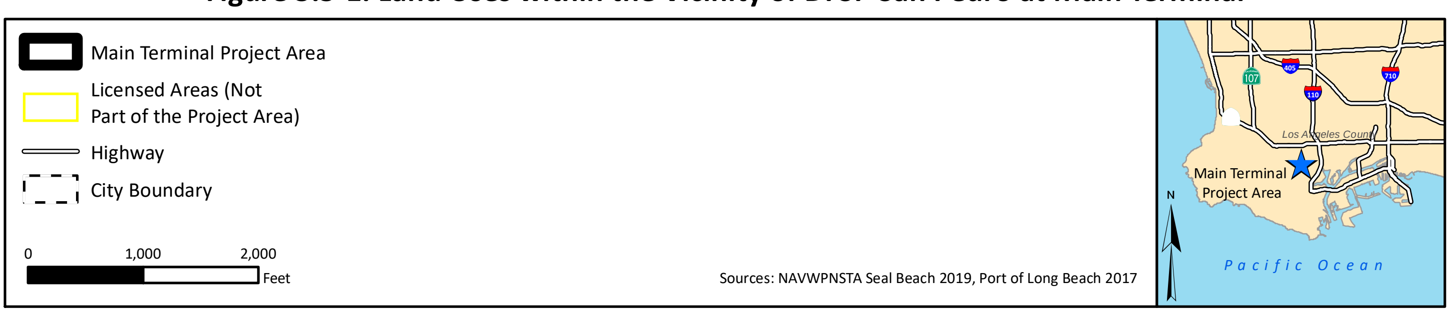


Figure 3.5-1. Land Uses within the Vicinity of DFSP San Pedro at Main Terminal



3.5.3 Environmental Consequences

The location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. Factors affecting a proposed action in terms of land use include its compatibility with on-site and adjacent land uses, or change in an existing land use that is valued by the community. Other considerations are given to proximity to a proposed action, the duration of a proposed activity, and its permanence.

3.5.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure and there would be no change to land use.

Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.5.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

The DFSP San Pedro Main Terminal, Marine Terminal and adjacent lands define the study area for land use analyses under Alternative 1. Under this alternative, 311 acres at the Main Terminal would be leased, with approximately 207 acres being suitable for development of infrastructure required to support commercial fueling operations, including ASTs, administrative or warehouse buildings, new and/or upgraded pipelines, outdoor storage or parking. Areas not available for development include the Listed Species Management Areas, the native plant nursery, and Habitat Opportunity Areas, which would remain in their current states. The majority of the Marine Terminal (including Pier 12) could also be redeveloped in a similar manner (i.e., approximately 11.1 acres). Refer to Figures 2-3 and 2-4 for the areas where this development may occur on the Main and Marine Terminals, respectively. Although facilities built on federal property are exempt from state and local building codes, the Navy would require the lessee to follow state and local building codes to the maximum extent practicable. Rehabilitation/construction activities under Alternative 1 would be contained within the property boundaries of the Main and Marine Terminals.

Operations

Both the Main and Marine Terminals have historically been used for military fueling operations, and the addition of commercial fueling operations to the terminals would not change, but may intensify, the existing land uses once operations resume. The lessee would need to obtain permits for their operations, similar to those obtained by the DLA during their operations at DFSP San Pedro. The areas where the commercial fueling operations may occur on the Main Terminal are largely buffered by the areas that would remain undeveloped on the site, especially development in the old UST Areas at the center of the property. Potential development and operations at both the Main and Marine Terminals under Alternative 1 would be managed by the commercial lessee, but the property would remain under the control of the Navy, and operations consistent with the current land use and with past military fueling operations would be allowed. Thus, there would be no change in land use, as the lessee would only be allowed to use the site for fueling activities (e.g., new ASTs or fueling infrastructure) and activities that support fueling (e.g., parking, storage, administrative space, maintenance space, energy generation to support operations).

Coastal Resources

Excluded from any coastal zone are lands, the use of which by law is subject solely to the discretion of the federal government or which is held in trust by the federal government (16 U.S.C. §1453). Alternative 1 is entirely contained within the boundaries of DFSP San Pedro and is federal government property, thus specifically excluded from the coastal zone. Under the CZMA, federal agency actions within or outside the coastal zone that may affect any land or water use or natural resource within the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs.

The Navy conducted an effects analysis as part of its determination of the Proposed Action's effects to coastal uses or resources for purposes of federal consistency review under the CZMA. This was done to factually determine whether the action (even if conducted entirely within a federal enclave) would affect any coastal use or resource. Alternative 1 would not have any effects on public access to or public recreation in the coastal zone since the sites are restricted access. Although the Main Terminal does contain sensitive species and habitats, the Proposed Action would not adversely affect those species and those resources are not considered within the coastal zone. The Marine Terminal site is devoid of endangered or threatened species and any sensitive habitats or species because it is located in heavily developed and industrialized area. Therefore, Alternative 1 would not result in appreciable impacts to coastal uses and resources and no further consultation with the California Coastal Commission is required.

Therefore, implementation of Alternative 1 would not result in significant impacts to land use and coastal resources.

3.5.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

The Marine Terminal and adjacent lands define the study area for land use analyses under Alternative 2. As described under Alternative 1, the land use at the Marine Terminal and surrounding areas have historically been industrial and related to Port operations, which include fueling. The rehabilitation of the Marine Terminal to support commercial and military fueling operations would be consistent with the existing land use of the site, as well as the industrial and commercial shipping operations that are currently surrounding the area at the Ports of Long Beach and Los Angeles. No residential, commercial, or recreational land uses occur near the Marine Terminal, and thus surrounding land uses would not be impacted by either construction or operations under Alternative 2. Potential effects related to coastal resources would be the same as those described under Alternative 1, but only with respect to the Marine Terminal.

Therefore, implementation of Alternative 2 would not result in significant impacts to land use.

3.6 Visual Resources

This discussion of visual resources includes the natural and built features of the landscape visible from public views that contribute to an area's visual quality. Visual perception is an important component of environmental quality that can be impacted through changes created by various projects. Visual impacts occur as a result of the relationship between people and the physical environment.

3.6.1 Regulatory Setting

NEPA provides general direction on the analysis of visual impacts by establishing that the federal government use all practicable means to ensure all Americans safe, healthful, productive, aesthetically and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). Thus, the visual analysis should determine if and how the Proposed Action's visual appearance would substantially affect the public's view of the area, especially when those views are associated with important scenic, recreational, historic, and cultural resource values.

3.6.2 Affected Environment

3.6.2.1 DFSP San Pedro Main Terminal

The Main Terminal consists of buildings, ASTs, pipelines, and open areas of vegetation. Approximately one-fifth of the site is currently developed with either structures or roads, while the remainder of the site contains non-native grasslands, non-native and native trees, and some areas of coastal sage scrub (Navy 2014). The site is characterized by a rolling topography, with the lowest portion of the site being located on the eastern edge of the property along North Gaffey Street. The Administration Area is located on the eastern edge of the site, and this is where the majority of the buildings and structures are located. Ball fields are located directly north of the Administration Area on the east of the Main Terminal, and an LAPD shooting range and another ball field are located south of the Administration Area. From these viewpoints, the developed area of the Main Terminal, including administrative buildings, a parking lot, and a paved road are visible. However, trees and topography otherwise obscure direct lines of sight to the Main Terminal. The elevation increases moving in a northwesterly direction, with the highest portion of the site located at the corner of South Western Avenue and Palos Verdes Drive North. However, the topography of the site is irregular, with elevations ranging from approximately 20 to 286 feet.

The northwestern portion of the site, where steel and concrete USTs were formerly located, levels off to a mesa (refer to Figure 2-1), providing views of the surrounding area on all four sides. Several small drainage ravines bisect the Main Terminal, and paved and dirt access roads traverse the site. Electrical infrastructure, including poles and transmission lines, are present throughout the Main Terminal, along with small concrete structures, pipes, and valve pits that are scattered throughout. Construction equipment and staging areas related to ongoing remediation activities are also visible throughout portions of the site.

Views on to the site from external locations are broken up by the hilly topography, trees, and fencing that surrounds the Main Terminal. Figure 3.6-1 shows views from the community looking on to the Main Terminal that are typical. A native plant nursery operated by the Palos Verdes Peninsula Land Conservancy, which grows locally sourced plant species, is located near the Administration Area of the Main Terminal. In 2000, as part of a joint Navy-Community beautification project, trees were planted along the eastern border of the Main Terminal, within Navy property adjacent to North Gaffey Street. These trees are currently managed consistent with available resources.

**Figure 3.6-1.
Views of DFSP San Pedro
Main Terminal from Adjacent Locations**

Sources: NAVWPNSTA Seal Beach 2019, Port of Long Beach 2017

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Surrounding Viewshed

The region surrounding the Main Terminal is densely developed with industrial, commercial, and residential uses. There are no designated scenic highways in the area surrounding DFSP San Pedro's Main Terminal. Figure 3.6-1 presents a satellite image of the Main Terminal with select street level photos looking in at the Main Terminal from various points on the street where the public would transit or reside. From most directions, trees and vegetation along the fence line and the uneven topography obscure direct lines of sight on to the Main Terminal.

Directly to the east of the site, across North Gaffey Street, is a large industrial fuel facility with ASTs, pipelines, and other equipment visible from the street level. Along the northern edge of the property, the area north of Palos Verdes Drive North, the viewshed comprises primarily single-family residential homes. Photo 1 in Figure 3.6-1 shows a view looking southeast across the Main Terminal. Views from this viewpoint primarily consist of trees and fencing, as the property then slopes downward, and some ASTs from the commercial fuel facility are visible in the distance. Trees partially mask direct views onto the northern boundary of the Main Terminal, and the topography further obscures direct lines of sight. From certain points along Palos Verdes Drive North or South Western Avenue looking southeast, cranes located at the Port of Los Angeles and Port of Long Beach and the Vincent Thomas Bridge are visible, with the industrial fueling facility ASTs appearing in the foreground east of North Gaffey Street.

North and west from the Main Terminal, there is commercial development that transitions into single-family residential areas. The most visible part of the Main Terminal looking south and east from South Western Avenue are the three existing ASTs, which are partially obscured by the commercial development located at the corner of South Western Avenue and Palos Verdes Drive North. Photo 2 shows the ASTs looking northeast across South Western Avenue, and Photo 3 illustrates a typical view of the Main Terminal looking east across South Western Avenue. From the street level, fencing and trees are immediately visible in the foreground, but the topography of the site obscures most views across the site.

At the southeastern edge of the property, there is commercial development that transitions into residential development moving west along Westmont Drive. Looking north from this area, views of the Main Terminal are interrupted by the built structures in the neighborhoods and the hilly nature of the Main Terminal property itself. Mary Star of the Sea High School is located directly south from the center of the Main Terminal's southern border, though the separating slope is steep and tall. A two-lane road (North Taper Avenue) and a small area of undeveloped land separate the school from the Main Terminal fence, and trees located directly north of the fence and the topography of the area obscure direct views looking north from the school into the Main Terminal. Photo 4 in Figure 3.6-1 shows a typical view from this vantage point.

3.6.2.2 DFSP San Pedro Marine Terminal

The Marine Terminal and Pier 12 are located on a strip of land that extends into the water in the Port of Long Beach area. There are no designated scenic highways in the area surrounding DFSP San Pedro's Marine Terminal. The administrative portion of the Marine Terminal lies along Nimitz Road at street level and is surrounded by a chain-link fence, and all four sides of the property are visible from the street. One-story metal buildings, concrete structures and piping, and ASTs are visible on the property through the fencing. Access to Pier 12 is restricted by a chain-link fence and concrete jersey barriers, which are free-standing modular structures used to separate lanes of traffic or block vehicular access, whose typical dimensions are 32-inches high and 8- to 12-feet in length. Pier 12 extends into Port of

Long Beach waters from the roadway. A small boathouse and other small shack structures and boom arms for offloading and onloading fuel from ships docked next to the pier are visible from the roadway.

Surrounding development includes the Port of Long Beach's Pier T container terminal directly north across the West Basin, and directly west of Pier 12 on Nimitz Road are two other piers where federal ships are docked. Stacked container storage and a rail yard related to the Port of Long Beach's commercial shipping operations are located directly east of Pier 12 along Nimitz Road. The area where Pier 12 is located is designated as the Federal Use Planning District in the Port of Long Beach's Master Plan, which was last certified in 1990. The Master Plan notes this area is "principally used by the U.S. Navy for shipyard and base operations. The Port of Long Beach does not have permitting authority in the district (Port of Long Beach 1990)." Existing development at the Marine Terminal is consistent with visual quality standards described in the Master Plan. An update to the Port's Master Plan is ongoing and the draft of the revised plan was released to the public in July 2019. In the plan, Federal Use and Non-Port Related Areas are consolidated into a new category that includes activities associated with federal, state, regional, and local public agencies called Institutional Facilities. The Marine Terminal and Pier 12 are consistent with the visual environment of the surrounding area, which is industrial and devoted to commercial shipping and Naval operations. The Marine Terminal is relatively isolated; Nimitz Road is accessible to the public, but one would not need to drive past the Marine Terminal unless traveling out to another commercial or industrial area of the Port. Photos 3.6-1 and 3.6-2 depict views of Pier 12 and the Marine Terminal.

3.6.3 Environmental Consequences

The evaluation of visual resources in the context of environmental analysis typically addresses the contrast between visible landscape elements. Collectively, these elements comprise the aesthetic environment, or landscape character. The landscape character is compared to the Proposed Action's visual qualities to determine the compatibility or contrast resulting from the buildout and demolition activities associated with the Proposed Action.

3.6.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure and there would be no change to visual resources.

Therefore, no significant impacts would occur with implementation of the No Action Alternative.

Photo 3.6-1 Pier 12

Photo 3.6-2 Marine Terminal

3.6.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

The Main and Marine Terminals and surrounding areas define the study area for visual resources analyses. Under Alternative 1, construction of infrastructure required to support commercial fueling operations, including ASTs, administrative or warehouse buildings, new and/or upgraded pipelines, outdoor storage or parking, could occur on portions of the Main Terminal and on the entire Marine Terminal property. The areas where this construction could occur on the Main Terminal are shown in Figure 2-3. Fueling infrastructure associated with the former operations at the Main Terminal was located primarily below ground in USTs, with some buildings, ASTs, and piping being visible. Under Alternative 1, some of the visible infrastructure would be demolished and new facilities of a similar nature would be constructed by the lessee. The lessee would be encouraged to consider the visual impacts of the facilities and infrastructure they are proposing to construct to consider visual screening and landscaping improvements where practicable. Constructing new infrastructure aboveground would change the visual environment of the Main Terminal, but it would remain largely consistent with the types of structures that are currently present on the Main Terminal. The lessee would be required to develop structures and facilities at the Marine Terminal that would be of a similar size, mass, and height of those existing to the maximum extent practicable, to ensure no dramatic change to visual setting.

Construction equipment has been present periodically at the Main Terminal since closure activities began in 2016, and visual impacts from construction of Alternative 1 would be temporary. In accordance with UFC 3-460-01 guidelines, any new ASTs would be painted white (DoD 2015). Although the color white may not blend into the surrounding environment and other colors or patterns would, white has the lowest solar absorbance effect and the fuel in the ASTs would remain at a more constant temperature (Navy 2007). New ASTs and other structures constructed on the site would be visible from certain areas in the surrounding community. To the extent practicable, the lessee would be required by the Navy to preserve existing vegetation and trees on the Main Terminal to reduce visual impacts to the surrounding viewshed. Additionally, existing trees on the eastern side of the property would continue to be maintained by the Navy, a contractor to the Navy, and/or the commercial lessee. Development of ASTs and associated structures would be most visible to the surrounding community in the AST area, steel UST area, and concrete UST Areas (refer to Figure 2-3). However, the new facilities would be generally consistent with the industrial fueling operations located in the vicinity of the DFSP San Pedro Main Terminal. Given the existing visual setting of the area, the viewshed would not be substantially degraded because views would still be largely consistent with the marine-industrial area when looking east across the Main Terminal towards the Port of Long Beach and Port of Los Angeles. Where ASTs would rise above local topography and be visible from certain vantage points in the surrounding community, the overall views would continue to be comparable with the existing visual setting associated with industrial uses directly surrounding DFSP San Pedro.

Therefore, implementation of the Alternative 1 would result in less than significant impacts to visual resources.

3.6.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

The Marine Terminal and adjacent lands define the study area for visual resources analyses under Alternative 2. Construction activities would be largely the same as under Alternative 1, but would not occur at the Main Terminal. Existing ASTs, buildings, pipelines and other infrastructure that are currently visible could be demolished and replaced with similar types of structures. The configuration and number of the ASTs, buildings, and storage spaces may result in more land coverage of the approximately 11.1 acres available for development at the Marine Terminal. The redevelopment of the Marine Terminal to support commercial fueling operations would be consistent with the existing nature of the site as well as the surrounding visual environment of the Port of Long Beach middle harbor area. The lessee would be required to develop structures and facilities at the Marine Terminal that would be of a similar size, mass, and height of those existing to the maximum extent practicable, to ensure no dramatic change to visual setting.

Therefore, implementation of Alternative 2 would not result in significant impacts to visual resources.

3.7 Noise

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment. Noise in relation to biological resources and wildlife species would be temporary in nature and, due to the industrial nature of the project area, would not adversely impact wildlife.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB)
- Frequency – the number of cycles per second the air vibrates, in Hertz
- Duration – the length of time the sound can be detected

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual.

3.7.1 Basics of Sound and A-weighted Sound Level

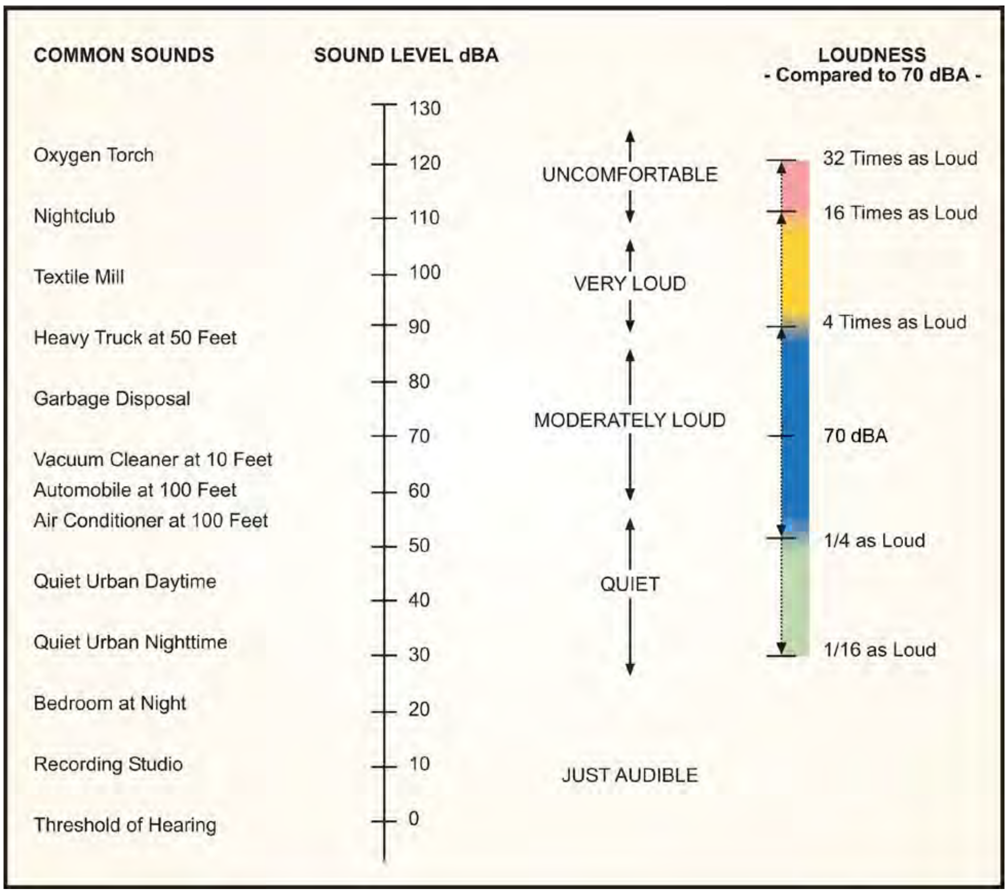
The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times greater than those of sounds that can barely be detected. This vast range means renders a linear scale impractical to represent sound intensity. The dB is a unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 microPascals (approximate threshold of human audibility). Table 3.7-1 provides a comparison of how the human ear perceives changes in sound level on the logarithmic scale.

Table 3.7-1 Subjective Responses to Changes in Sound Level Measured in A-Weighted Decibels

Change	*Change in Perceived Loudness*
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic – twice or half as loud
20 dB	Striking – fourfold change

All sounds have a spectral component, which describes the magnitude or level across varying frequencies measured in cycles per second or hertz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually presented on an "A-weighted" scale that de-emphasizes very low and very high frequencies in order to approximate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels.

Figure 3.7-1 provides a chart of A-weighted sound levels from typical noise sources. Some noise sources (e.g., air conditioner, vacuum cleaner) generate continuous sounds that maintain a constant sound level for some period of time. Some sources (e.g., automobile, heavy truck) listed in Figure 3.7-1 represent the maximum sound that occurs for events with sound levels that vary over time, such as a vehicle pass-by and other sounds (e.g., urban daytime, urban nighttime) represent averages taken over extended periods of time. A variety of noise metrics have been developed to describe noise over different time periods, as discussed in the following section.



Sources: Derived from Harris (1979) and Federal Interagency Committee on Aviation Noise (1997).

Figure 3.7-1 A-Weighted Sound Levels from Typical Sources

3.7.2 Noise Metrics

A metric is a system for measuring or quantifying a particular characteristic of a subject. Since noise is a complex physical phenomenon, different noise metrics help to quantify the noise environment. The noise metrics used in this EA are described in summary format below. The Day-Night Average Sound

Level (DNL) used in 49 states and the related Community Noise Equivalent Level (CNEL) applicable to the State of California are the most commonly used metrics for analyzing noise generated at Navy installations.

3.7.2.1 Equivalent Sound Level

A cumulative noise metric useful in describing noise is the Equivalent Sound Level (L_{eq}). L_{eq} is the continuous sound level that would be present if all of the variations in sound level occurring over a specified time period were averaged to contain the same total sound energy. The Equivalent Sound Level is often presented for time periods of 24 hours L_{eq}, abbreviated $L_{eq(24hr).}$ Other common periods include 1-hour and 8-hour time periods written as $L_{eq(1hr)}$ and $L_{eq(8hr)}$, respectively. Noises from activities that do not vary significantly throughout the day may use $L_{eq(1hr)}$ where noise in a 1-hour period is roughly the same as any other 1-hour period in the same day. In this case, $L_{eq(1hr}$) and $L_{eq(8hr)}$ are exactly equal and is denoted as dBA L_{eq} in this analysis.

3.7.2.2 Day-Night Average Sound Level

The DNL metric, based upon L_{eq} provides the energy-averaged sound level measured over a 24-hour period, mathematically representing the continuous sound level that would be present if all of the variations in sound level were averaged to have the same total sound energy. DNL applies a 10 dB penalty to events occurring during the nighttime period (10 P.M. to 7 A.M.) to account for the added intrusiveness while people are most likely to be relaxing at home or sleeping. Because the DNL metric represents a cumulative measure that quantifies the total sound energy received, it does not provide specific information on the number of noise events or the individual sound levels that occur during the 24-hour day.

DNL is the standard noise metric used by the U.S. Department of Housing and Urban Development, Federal Aviation Administration, USEPA, and DoD. Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments; there is a consistent relationship between DNL and the level of annoyance. Many people are exposed to sound levels of 50 to 55 DNL or higher on a daily basis and research has indicated that the majority of the population is not highly annoyed by outdoor sound levels below 65 dB DNL (Federal Interagency Committee on Urban Noise 1980).

3.7.2.3 Community Noise Equivalent Level

CNEL is a noise metric adopted as a standard by the State of California. The CNEL metric is similar to the DNL metric except CNEL includes an evening period (7 P.M. to 10 P.M.) where events are counted three times which corresponds to an approximate 5 dB penalty. Both DNL and CNEL share the same nighttime penalty period. Due to the definition of CNEL, the resulting level for a given environmental condition will either equal or exceed by several dB the computed DNL value.

CNEL is the standard noise metric used by the U.S. Department of Housing and Urban Development, Federal Aviation Administration, USEPA, and DoD for locations within the State of California to conform with state standards.

3.7.2.4 Sound Exposure Level

Sound Exposure Level (SEL) combines both the intensity of a sound and its duration by providing the sound level that contains the same sound energy of an event if occurring over 1 second. Although SEL provides a measure of total sound energy of the entire acoustic event, it does not directly represent the sound level heard at any given time. The SEL has proven to be a good metric to compare the relative exposure of transient sounds, such as hammer blows, and is used for sleep disturbance analysis (DoD Noise Working Group 2009).

Maximum Sound Level

The highest A-weighted sound level measured during a single event where the sound level changes value with time (e.g., construction noise) is called the maximum A-weighted sound level or root mean squared maximum level of a noise (L_{max}). During construction, equipment operation noise levels would increase from ambient levels during construction hours and generally return to ambient at the end of each work day. The maximum sound level would typically occur when the sound source and observer are closest to each other. L_{max} defines the maximum sound level occurring for a fraction of a second. For construction noise, the "fraction of a second" over which the maximum level is defined is generally one-eighth of a second (American National Standards Institute 1988). For sound from construction, the SEL is usually greater than the L_{max} because an individual construction event may occur over several hours while L_{max} occurs instantaneously. In this EA, L_{max} is used in the analysis of construction noise comparison and impact analysis.

Annoyance

The primary effect of unwanted noise exposure on exposed communities is long-term annoyance, defined by USEPA as any negative subjective reaction on the part of an individual or group. The scientific community has adopted the use of long-term annoyance as a primary indicator of community response and there is a consistent relationship between DNL/CNEL and the level of community annoyance (Federal Interagency Committee on Noise 1992).

Potential Hearing Loss

People living in high noise environments for an extended period of time (40 years) can be at risk for hearing loss called Noise Induced Permanent Threshold Shift (NIPTS). The NIPTS defines a permanent change in hearing level, or threshold, caused by exposure to noise (USEPA 1982). According to USEPA (1974), changes in hearing level of less than 5 dB are generally not considered noticeable. There is no known evidence that an NIPTS of less than 5 dB is perceptible or has any practical significance for the individual affected. Furthermore, the variability in audiometric testing is generally assumed to be plus or minus 5 dB. The preponderance of available information on hearing loss risk is from the workplace with continuous exposure throughout the day for many years.

Based on a report by Ludlow and Sixsmith (1999), there were no major differences in audiometric test results between military personnel, who as children, had lived in or near installations where fast jet operations were based, and a similar group who had no such exposure as children. Hence, for the purposes of this EA, the limited data are considered applicable to the general population, including children, and are used to provide a conservative estimate of the risk of potential hearing loss.

DoD policy directive requires that hearing loss risk be estimated for the at risk population, defined as the population exposed to DNL greater than or equal to 80 dB (DoD 2009). To assess the potential for NIPTS, the Navy generally uses the 80 dB DNL noise contour (or in California 80 dB CNEL) as a threshold to identify the exposed population who may be at the most risk of possible hearing loss from excessive noise (USEPA, 1982; DoD Noise Working Group, 2009). However, it should be recognized that characterizing noise exposure in terms of DNL and CNEL overestimates hearing loss risk but suffices when nighttime operations are 5 percent or less than the total operations. When nighttime operations are greater than 5 percent, $L_{eq(24hr)}$ is recommended for calculating potential hearing loss since hearing loss is a physical phenomenon due to the sound level and independent of annoyance. Thus, the additional penalties applied by CNEL for evening and nighttime operations do not accurately portray the NIPTS. This EA calculates potential hearing loss using $L_{eq(24hr)}$ to get the accuracy necessary for the larger amount of nighttime and evening operations.

Workplace Noise

In 1972, the National Institute for Occupational Safety and Health (NIOSH) published a criteria document with a recommended exposure limit of 85 dBA as an 8-hour time-weighted average. This exposure limit was reevaluated in 1998 when NIOSH made recommendations that went beyond conserving hearing by focusing on the prevention of occupational hearing loss. Following the reevaluation using a new risk assessment technique, NIOSH published another criteria document in 1998, which reaffirmed the 85 dB recommended exposure limit (NIOSH 1998).

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace in 29 CFR 1910.95, based on a weighted average over an 8-hour day. The permissible exposure limit is set at 90 dBA for an 8-hour work day. The OSHA standard uses a 5 dBA exchange rate (meaning when a noise level increases by 5 dBA, the amount of time a person can be exposed to a noise level is cut in half), while NIOSH recommends a 3 dBA exchange rate (meaning when a noise level increases by 3 dBA, NIOSH recommends the time spent exposed to that sound level should be cut in half). For example, OSHA allows for 8 hours of exposure at 90 dBA. If the noise level increases to 100 dBA, OSHA allows for 2 hours of exposure, where NIOSH would recommend less than 15 minutes of exposure per day at 100 dBA (OSHA 2019).

3.7.3 Affected Environment

Many components may generate noise and warrant analysis as contributors to the total noise impact. The Main Terminal, situated west of North Gaffey Street, includes various buildings related to the storage of fuel. There are ballparks located on the northeast and northwest boundaries of the Main Terminal that are licensed land outside of the Main Terminal fence line. In addition, the LAPD shooting range in the east along North Gaffey Street currently is located within the Main Terminal property but outside of the fence line area. The Marine Terminal is located within the Port of Long Beach in an industrial area of Terminal Island.

The federal government supports conditions free from noise that threaten human health and welfare and the environment. To better describe the noise environment and analyze the potential for impacts, this EA considers noise sensitive receptors that are most likely to be adversely impacted by the proposed DFSP San Pedro outlease and potential development. Noise sensitive receptors include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise sensitive cultural practices, some domestic animals, or certain wildlife species. There are residential areas to the north, west and south of the Main Terminal. The schools nearest the Main Terminal include Rolling Hills Preparatory School located to the north, and Mary Star of the Sea High School to the south. The Marine Terminal, located far from noise sensitive receptors, is over 2 miles from the nearest residential area, which is the nearest known noise sensitive receptor. The CLT has been observed nesting in the Port of Los Angeles more than 2 miles from the Marine Terminal but could forage closer to the proposed site.

Background noise levels include all sounds present in an environment dependent upon existing land use. Very rural areas with little human activity often have the lowest levels of background noise, typically on the order of 15 to 20 dB (USEPA 1974). Noise levels generally increase with increased population density, as demonstrated in Table 3.7-2. The population density of San Pedro would correspond to 'Noisy Urban' with a typical sound level of 60 dB. The residential area north of the Main Terminal and the Rolling Hills Preparatory School are currently exposed to road traffic noise along a relatively heavily used Palos Verdes Drive North, with two lanes in each direction of travel, and the ball park approximately 600 feet away to the east. After the closure of the DFSP San Pedro facility in 2016, installation-generated noise is not currently a noteworthy factor in the existing noise environment at any of the noise sensitive receptors.

Table 3.7-2 Sound Levels Estimated by Population Density

Description	*Population Density (people per square mile)*	*Sound Level (dB)*
Rural (undeveloped)	20	35
Quiet suburban	60	45
Normal suburban	600	50
Urban	2,000	55
Noisy urban	6,000	60
Very Noisy Urban	20,000	65

Source: USEPA 1982.

3.7.4 Environmental Consequences

Analysis of potential noise impacts includes estimating likely noise levels from Alternative 1 and determining potential effects to noise sensitive receptor sites. Alternative 2 includes only the Marine Terminal, which is located in an industrial area over 2 miles from known noise sensitive receptors. The CLT has been observed nesting in the Port of Los Angeles more than 2 miles from the Marine Terminal but could forage closer to the proposed site. According to OSHA standards (29 CFR 1910.95), employees should not be subjected to continuous noise exceeding 90 dBA for durations lasting more than 8 hours per day.

Analysis of potential noise impacts includes estimating likely noise levels from the Proposed Action and determining potential effects to sensitive receptor sites.

3.7.4.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure and there would be no change to baseline noise levels.

Therefore, no significant impacts due to the noise environment would occur with implementation of the No Action Alternative.

3.7.4.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

This alternative would allow commercial and military fueling operations at both the Main and Marine Terminals and potentially includes the construction of new infrastructure that could comprise any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas.

Rehabilitation and Construction

The potential for noise impacts from implementing Alternative 1 would come from the noise generated by construction equipment during rehabilitation and construction activities. No standardized criteria have been developed at a federal or state level for assessing temporary construction noise impacts. Local noise ordinances address the nuisance of typical construction activity by limiting the allowable maximum sound levels and time periods at which activity can occur. San Pedro (City of Los Angeles Department of Building and Safety) permits construction activity between 7 A.M. and 9 P.M., Monday through Friday; 8 A.M. to 6 P.M. on Saturdays or holidays; and no work allowed on Sunday. The City of Long Beach has enacted similar municipal requirements. All construction activity proposed under Alternative 1 would substantively comply with local requirements and would be conducted within the specified construction window whenever possible. The lessee would provide notice to San Pedro and the City of Long Beach with respect to any anticipated activities outside municipally-designated hours.

The operation of heavy equipment, including bulldozers and trucks during rehabilitation and construction could result in intermittent, daytime noise impacts. The noise from construction equipment would be localized and intermittent during machinery operations. Heavy construction equipment would be used periodically during rehabilitation and construction activities, and noise levels from the equipment would fluctuate throughout the day. Construction related noise emissions data gathered by the Federal Highway Administration (FHWA) for common types of equipment would range from 74 to 96 dBA when measured 50 feet from the respective piece of equipment, as listed in Table 3.7-3 (FHWA 2006). Although not listed in Table 3.7-3, graders and pavers would typically generate similar sound levels as a scraper at 84 dBA.

Table 3.7-3 Airborne Construction Related Noise Emissions

Equipment Description	*Measured L_{max} At 50 feet (dBA)*
Demolition Sheers (on backhoe)	96
Concrete Saw	90
Mounted Impact Hammer (hoe ram)	90
Jackhammer	89
Vibrating Hopper	87
Pneumatic Tools	85
Vacuum Excavator	85
Auger Drill Rig	84
Scraper	84
Boring Jack Power Unit	83
Warning Horn	83
Dozer	82
Concrete Pump Truck	81
Crane	81
Generator	81
Pumps	81

Table 3.7-3 Airborne Construction Related Noise Emissions (continued)

Equipment Description	*Measured L_{max} At 50 feet (dBA)*
Drum Mixer	80
Vibratory Concrete Mixer	80
Concrete Mixer Truck	79
Drill Rig Truck	79
Front End Loader	79
Rivet Buster / Chipping Gun	79
Ventilation Fan	79
Backhoe	78
Compressor (air)	78
Dump Truck	76
Man Lift	75
Flat Bed Truck	74
Welder / Torch	74

Legend: L_{max} = maximum sound level.
Source: FHWA 2006.

To characterize construction activity noise levels, the FHWA incorporated the data shown in Table 3.7-3 into their Road Construction Noise Model. Because noise from construction activity varies with the types of equipment used and the duration of use, the model takes into consideration the usage factor, or percent of time a piece of equipment is used at the maximum noise level for that equipment. The model calculates noise levels at different receptor distances for multiple pieces of construction equipment. Generally, heavy equipment would generate the highest noise levels throughout the construction phase, but such noise would be temporary in nature, and would diminish as it travels further from the construction site. The sound level can be estimated at longer distance by applying the 6 dB drop for each doubling of distance, which would result in a jackhammer generating 77 dB at 200 feet. The types of equipment most likely used for site preparation would be graders, pavers, dump trucks, and concrete mixers and their use would tail off as construction of the structures begin. Minor adverse effects on the noise environment would be expected during the rehabilitation and construction activities associated with Alternative 1, but activity would conform to local noise ordinances and therefore, no significant impacts are anticipated.

Operations

The exact noise footprint under the outlease cannot be known at this time but the former Main Terminal UST Areas, the Main Terminal Administration Area, South Control Area, and the Marine Terminal Administration Area represent the locations most likely to be used for development. Other areas could be impacted by proposed repair of pipelines and the potential addition of new pipeline segments. Given the uncertainty in development, the noise can be characterized in more general terms and compared with the existing noise environment to determine if there would be a significant difference from current conditions. Figure 2-3 depicts potential development locations on the Main Terminal that can be used for the construction of bulk fuel storage tanks and the corresponding office or industrial buildings necessary for fuel storage operations. Day to day activities most likely to generate noise would include truck traffic within the proposed lease boundary as well as periodic maintenance in support of pipeline operation that could include heavy trucks similar to construction activity. A dozer generates a maximum sound level of 82 dBA at 50 feet, which corresponds to 70 dBA at 200 feet. Given the existing traffic along the roads surrounding the Main Terminal, noise from truck traffic inside the facility would generate only a negligible increase to the surrounding communities.

Although fuel is expected to be routed by pipeline, the maximum development scenario could include an estimated 41 tanker trucks per day traveling to and from the Main Terminal. Existing traffic along North Gaffey Street was recorded at 623 northbound and 965 southbound trips per hour in 2012 with a listed capacity at 1,600 vehicles (City of Los Angeles 2012a). This maximum development scenario of 41 additional tanker trucks per day under Alternative 1 would represent only a negligible increase in terms of additional traffic noise.

Given the schools' and residential areas' proximity to major roads within the area (South Western Avenue and Palos Verdes Drive North), as well as the ball parks and the LAPD shooting range, existing noise sources would continue to be major noise contributors. The proposed outlease of the Main Terminal and future development under Alternative 1 would not significantly change those conditions. Noise generated at the Marine Terminal, under Alternative 1, would not change significantly from existing activity and would be consistent with the current industrial land uses surrounding the facility.

Therefore, implementation of Alternative 1 would not result in significant impacts to the noise environment at either terminal location.

3.7.4.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

Under Alternative 2, only the action at the Marine Terminal would be pursued to potentially include rehabilitation of existing infrastructure and construction of new infrastructure within the previously disturbed land. The Marine Terminal is located in an industrial area over 2 miles from noise sensitive receptors.

Therefore, implementation of Alternative 2 would not result in significant impacts to the noise environment.

3.8 Infrastructure

This section discusses infrastructure including utilities and facilities (including water distribution, wastewater collection, stormwater collection, solid waste management, energy, and communications). Transportation systems and traffic are addressed separately in Section 3.9, Transportation. Stormwater infrastructure is addressed separately in Section 3.2, Water Resources.

3.8.1 Regulatory Setting

EO 13834, Efficient Federal Operations, requires federal departments and agencies to enact specific actions and operations outlined within the EO to increase efficiency, optimize performance, eliminate unnecessary use of resources and protect the environment. Improved environmental performance and federal sustainability will be achieved by reducing waste, cutting costs, enhancing the resilience of Federal infrastructure and operations, and enabling more effective accomplishment of its mission.

Office of the Chief of Naval Operations Instruction 4100.5E outlines the Secretary of the Navy's vision for shore energy management. The focus of this instruction is establishing the energy goals and implementing strategy to achieve energy efficiency.

3.8.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under infrastructure at DFSP San Pedro: potable water, wastewater, stormwater, solid waste management, electricity, natural gas, and communications.

3.8.2.1 Potable Water

The City of Los Angeles Department of Water and Power provides water to DFSP San Pedro. There is on-site storage and a distribution system at the Main Terminal, which serves all major operational areas on site with the exception of the northeast ordnance magazine, located directly north of the former concrete UST area and east of the former steel UST area (refer to Figure 2-1). Water is stored in this zone for firefighting purposes. Maintenance of the water distribution system, including backflow prevention, hydrant flushing, valve maintenance, water quality sampling, line repair, and maintenance are performed by DFSP San Pedro Public Works staff. Domestic administrators and personnel support areas, industrial personnel in assembly and operations areas, and fire protection areas all use water (NAVFAC SW 2016). It is estimated that the maximum development scenario would use 20,500 hundred-cubic feet of potable water, provided by Los Angeles Department of Water and Power (LADWP).

3.8.2.2 Wastewater

The City of Los Angeles Department of Public Works Bureau of Sanitation (LASAN) provides sewer conveyance infrastructure and wastewater treatment services to the City of Los Angeles and the San Pedro Community Planning Area. The Terminal Island Water Reclamation Plant treats sewer flow from DFSP San Pedro. The LADWP pumping facilities deliver the flow to the Terminal Island Water Reclamation Plant. The harbor area is projected to generate 20 million gallons per day of wastewater by 2020 (Los Angeles Department of City Planning 2017). The Terminal Island Water Reclamation Plant that serves San Pedro has the capacity for 30 million gallons per day and is currently operating below its capacity. Future advance treatment process modifications at Terminal Island Water Reclamation Plant would allow the plant to recycle more wastewater.

For a discussion of stormwater, see Section 3.2, Water Resources.

3.8.2.3 Solid Waste Management

LASAN also provides solid waste management services to DFSP San Pedro. Within the San Pedro Community Planning Area, LASAN currently operates a Solvents, Automotive, Flammables and Electronics center, Yard Trimming Facility and mulch give-away site at 1400 North Gaffey Street, a former landfill site that has been reclaimed for recreational and mulching use. The City of Los Angeles Solid Waste Management Policy Plan is the current long-range solid waste management policy plan for the City. LASAN collects, disposes, and recycles over 1.7 million tons per year of solid waste, collecting refuse, recyclables, yard trimmings, and bulky items (Los Angeles Department of City Planning 2017).

3.8.2.4 Electricity

Southern California Edison provides electric service to the Main Terminal via the N.N. Harbor City 33 kilovolt/92-kilovolt Substation. LADWP also provides power to the local area via 33 kilovolt/99 kilovolt Substation Q. The terminal is fed by two 12-kilovolt transmission lines off North Gaffey Street. The LADWP maintains more than 6,000 miles of overhead distribution lines and 4,200 miles of underground distribution lines. Existing LADWP facilities in San Pedro consist of Distributing Station 3 and Distributing

Station 89. All receiving stations are connected to the belt line that supplies power to the City. Capacity to support renewed operations at DFSP San Pedro is available.

3.8.2.5 Natural Gas

In the past, natural gas was purchased from Southern California Gas Company by DFSP San Pedro and was used for heating offices and operations, and other habitable buildings. Natural gas lines on the site range in size from 2 to 6 inches. All of the natural gas lines are underground within or adjacent to roadways (NAVFAC SW 2016). There is currently no natural gas service at DFSP San Pedro used for heating offices and operations; however, natural gas is being installed for the ongoing remediation activities at the former UST Areas on the Main Terminal.

3.8.2.6 Communications

The telephone system at DFSP San Pedro includes Navy-owned underground and overhead lines. A Distributed Information System that consists of a broadband cable (fiber optic/coaxial) supports the computer-based communication system at DFSP San Pedro. Cellular phones, vehicle radio transceivers, maritime transmissions, and other hand-held devices make up the other communication devices that are used at DFSP San Pedro. Navy communications have historically included satellite-based systems, including exterior mounted dishes and hand-held devices.

3.8.3 Environmental Consequences

This section analyzes the magnitude of anticipated increases or decreases in public works infrastructure demands considering historic levels, existing management practices, and storage capacity, and evaluates potential impacts to public works infrastructure associated with implementation of the alternatives. Impacts are evaluated by whether they would result in the use of a substantial proportion of the remaining system capacity, reach or exceed the current capacity of the system, or require development of facilities and sources beyond those existing or currently planned.

3.8.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. Some of the off-site pipelines would be placed back into service and others would be abandoned in-place. The No Action Alternative would result in diminished use of utilities and services relative to historical levels, consistent with one-third of historic use. The No Action Alternative would not use a substantial amount of existing capacity for infrastructure and services available to the Main and Marine Terminals.

Therefore, no significant impacts to infrastructure would occur with implementation of the No Action Alternative.

3.8.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Alternative 1 would allow renewal of fueling operations at both the Main and Marine Terminals (including periodic and contingency fueling of Navy ships), thereby re-starting operations that formerly occupied and functionally characterize the site. This alternative would include rehabilitation of existing facilities as well as construction of new infrastructure on previously disturbed areas of the fueling facility. New construction could include any combination of ASTs; office, industrial, warehouse or storage buildings; new and/or upgraded pipelines; outdoor storage areas; and parking areas, consistent with previous Navy use of the site. Site use would also include two of the Long Beach Pipelines that run from the Main Terminal to the Marine Terminal, as well as the G-Line, R-Line, and possibly the 10-inch Government pipeline and Norwalk pipeline (if they are transferred to the Navy from their current DoD owners and assigned via separate assignment documents). The location of the pipelines are depicted in Figure 1-2.

Generation of solid wastes would be expected to increase over historic levels. However, as rehabilitation and construction activities are completed, solid wastes would be reduced to operational levels. Generation of solid wastes would not exceed existing capacity of LASAN. Removal of solid waste materials would be achieved in accordance with applicable plans and regulations. The lessee would divert as much demolition waste from landfills as possible using demolition deconstruction techniques to reduce, reuse, or recycle the various types of waste. Demolition material would be recycled to the maximum extent practicable and when not feasible, the material would be categorized and sent to an appropriate disposal facility. Buildings containing hazardous materials such as asbestos-containing materials (ACMs) and/or lead based paints (LBP) may also be encountered during demolition or rehabilitation of the project facilities. All hazardous materials would be removed in accordance with applicable regulations and sent to appropriate landfills. For a complete discussion of hazardous materials and wastes, refer to Section 3.11.

Operations

The proposed renewed fueling operations (refer to Figures 2-3 and 2-4) would potentially result in renewed use of existing infrastructure with the possible connection of new ASTs. Site use would also include two of the Long Beach Pipelines that run from the Main Terminal to the Marine Terminal, as well as the G-Line, R-Line, and possibly the 10-inch Government pipeline and Norwalk pipeline (if they are transferred to the Navy from their current DoD owners and assigned via separate assignment documents). Modifications and/or replacement of pipelines would not affect public utilities and facilities, and would occur within existing rights-of-way. Currently, utility connections run to support existing structures with lighting, potable water, sewer, storm drainage, fire protection, lightning protection, and communications (fiber optics, satellite, or coaxial, or a combination). No new utility corridors or transmission facilities are anticipated by the Proposed Action, although some utility connections may be modified to accommodate newly constructed facilities.

Operations under a maximum development scenario would increase energy use over historic levels. Historical petroleum throughput was approximately 4 million barrels per year, while projected use could reach 30 million barrels per year. It is estimated that this increase in operations could demand up to 3,000 megawatt hours of electricity per year. This estimate is based on a doubling of historic demand in terms of the electricity required to handle the projected usage under the maximum development scenario. Additionally, electricity demand would be increased relative to new structures and equipment added under the maximum development scenario. New construction may include potential energy generation and storage facilities (e.g., solar farms, battery storage) to support on-site energy requirements. While the energy produced could help offset energy use on site, it is not likely to be enough energy to add power to the grid or decrease their demand footprint compared to historic use. It is possible that, due to improved energy efficiency and new technology, a reduction of incremental demand for electricity under the Proposed Action could be achieved, although it is unlikely to decrease the demand footprint enough to keep the electricity demand at or below historic levels. Water use is also likely to increase compared to historic use. Projected potable water use under the maximum development scenario is approximately 20,500 hundred-cubic feet per year.

Under Alternative 1, utilities that were disconnected during the temporary closure would be reconnected to the Main and Marine Terminals without any significant changes anticipated. The lessee may be required to provide their own long distance and data infrastructure related to communication. New connections to utilities may be added as part of the construction of new infrastructure. Any potential increases in utility use related to the commercial outlease would be expected to be minor and would not significantly impact utility capacities of Southern California Edison or LADWP. During operations there would be an increase in use of lighting, potable water, sewer, storm drainage, and communication at the DFSP San Pedro facilities over the level of usage during the temporary closure. Fueling operations at DFSP San Pedro are not anticipated to be water intensive. The level of demand for utilities under Alternative 1 would be expected to exceed historic demand at the site; however, the overall level of use would not result in the use of a substantial proportion of the remaining system capacity, reach or exceed the current capacity of the system, or require development of facilities and sources beyond those existing or currently planned.

Therefore, implementation of the Alternative 1 would not result in significant impacts to infrastructure.

3.8.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of the On-site and Off-site Pipelines

Rehabilitation and Construction

Alternative 2 would include rehabilitation of existing infrastructure as well as construction of new infrastructure at the Marine Terminal. Potential for impacts under Alternative 2 would be similar to what is described above for Alternative 1, but would accordingly be reduced relative to what has been described for Alternative 1, as Alternative 2 would involve only the Marine Terminal.

Removal of solid waste materials would occur in accordance with applicable plans and regulations. Solid wastes would increase over the level of usage during the temporary closure. However, solid waste production would not exceed historic use. As remediation and rehabilitation activities are completed, solid wastes would be reduced. The Navy would divert as much demolition waste from landfills as possible using demolition deconstruction techniques to reduce, reuse, or recycle the various types of waste. Demolition material would be recycled as feasible and if not, categorized and sent to an appropriate disposal facility. Buildings containing ACMs or LBP may also be encountered during demolition or rehabilitation of the project facilities. All hazardous materials would be removed in accordance with applicable regulations and sent to appropriate landfills. For a complete discussion of hazardous materials and wastes, refer to Section 3.11.

Operations

Similar to Alternative 1, the level of demand for utilities would be expected to increase energy use over historic levels under Alternative 2, but would involve only the Marine Terminal. During operations there would be an increase in use of lighting, potable water, sewer, storm drainage, and communication at the Marine Terminal facilities over the level of usage during the temporary closure. However, the overall level of use would not result in the use of a substantial proportion of the remaining system capacity, reach or exceed the current capacity of the system, or require development of facilities and sources beyond those existing or currently planned.

Therefore, implementation of the Alternative 2 would not result in significant impacts to infrastructure.

3.9 Transportation

Transportation includes all of the air, land, and sea routes with the means of moving passengers and goods. A transportation system can consist of any or all of the following: roadways, waterways bus routes, railways, subways, bikeways, trails, airports, and taxis. The system can be looked at on a local or regional scale.

For the purposes of this analysis, transportation refers to the movement of traffic (i.e., passenger vehicles, trucks and vessels) on both public and private roadways and waterways. Implementation of the Proposed Action is anticipated to incrementally increase traffic in waterways related to fueling operations, but be of negligible size and impact in regard to the vast size and impact of the Los Angeles Harbor. Up to 2 ships per day could be accommodated at the Marine Terminal (Pier 12), and this traffic would not represent an appreciable increase in the intensity or type of ships present in the area. Additionally, it is anticipated the commercial operations at Pier 12 would not create a new customer base of ships, barges, and vessels visiting the area, but would redistribute some trips from existing fueling operations in the Port of Long Beach and Port of Los Angeles. Thus, the analysis in the following sections primarily considers potential impacts to existing roadways from implementation of the Proposed Action.

Roadway operating conditions are described in terms of Level of Service (LOS) ratings, which have been developed by the Transportation Research Board. LOS is rated on a scale of A to F, with LOS A reflecting free-flowing traffic conditions and LOS F representing heavily congested conditions (Transportation Research Board 2010). Generally, LOS C or better is considered an acceptable operating condition during peak traffic periods in more rural contexts, while LOS D is considered adequate in more urbanized areas.

3.9.1 Regulatory Setting

Interstates, U.S. highways, and state routes fall under the jurisdiction of the California Department of Transportation. Other roadways in the area are managed by local entities, such as the City of Los Angeles and the Los Angeles Department of Transportation.

3.9.2 Affected Environment

Interstate (I)-110, I-710, I-405, State Route (SR) 47, and SR 213 (Western Avenue) provide regional access to the Main Terminal and surrounding areas, including the Marine Terminal located off of Nimitz Road in the Port of Long Beach Harbor. North Gaffey Street provides direct access to the Main Terminal via a stop-sign controlled intersection with a private road, which extends westward through a security gate into the interior of the Main Terminal. Entrance through the security gate is the only means of accessing the Main Terminal. The segment of North Gaffey Street adjacent to the Main Terminal provides two lanes in each direction, separated by a two-way left turn lane.

Under existing conditions, the segment of North Gaffey Street that spans the eastern boundary of the Main Terminal experiences LOS A conditions in the afternoon peak hours northbound, and LOS B southbound (City of Los Angeles 2012a). Peak hourly volume traffic along this segment has been recorded at 623 northbound and 965 southbound trips. The capacity for this segment is listed at 1,600 vehicles per hour in each direction (City of Los Angeles 2012a).

The Marine Terminal is accessed from Nimitz Road, a two-lane road with one lane of travel going in each direction. The fenced Marine Terminal is located adjacent to and south of Nimitz Road, and Pier 12 is located across the street to the north. Under existing conditions, this segment of Nimitz Road carries an average daily traffic of 400 vehicles per day (Port of Long Beach 2010a).

DFSP San Pedro is currently in a state of closure; therefore, no fuel delivery trips occur to either the Main or Marine Terminals. Current vehicle trips associated with DFSP San Pedro are limited to the commuting of workers (approximately 15) conducting remediation activities at the Main Terminal, security patrols, native plant nursery staff/volunteers, and occasional visitors. On average, the estimated number of daily (Monday through Friday) trips to the Main Terminal via the Main Gate is approximately 20. No regularly scheduled daily trips occur to/from the Marine Terminal.

3.9.3 Environmental Consequences

For transportation, a significant impact would occur if a proposed action alternative were to result in a substantial increase in peak hour traffic such that roadway segment LOS would deteriorate from LOS D or better conditions without the alternative, to LOS E or F conditions with the alternative. The impact determination is based on a qualitative analysis that considers the number of additional trips generated by the alternative, and the degree to which these trips would be concentrated in peak commuting periods (i.e., generally from 7:00 to 9:00 A.M. and 4:00 to 6:00 P.M.). The number of daily trips associated with the Proposed Action was estimated using survey data collected by the SCAQMD that has been incorporated into the California Emissions Estimator Model (California Air Pollution Control Officers Association 2016), which was used to estimate the criteria pollutant emissions for the Proposed Action (refer to Section 3.1, Air Quality).

3.9.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure and approximately 6 passenger car equivalent trips would occur per day for fuel deliveries, but worker trips are anticipated to remain the same.

Therefore, no significant impacts would occur to transportation with implementation of the No Action Alternative.

3.9.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Under Alternative 1, rehabilitation and construction activities would generate up to 60 daily construction worker trips, 12 vendor trips for delivering construction materials and supplies, and 15 trips for hauling away construction debris, for a combined total of 87 trips. These assumptions have been developed based on the acreage and nature of construction activities that could occur at both the Main and Marine Terminals under Alternative 1, with 58 trips generating from activities on the Main Terminal and the remaining 29 trips from the Marine Terminal. Rehabilitation and construction under Alternative 1 is estimated to occur between 2022 and 2025. In order to conservatively consider a maximum development scenario and its potential impacts on traffic, it is estimated the 87 trips would be added to local roadways during the entire construction period. Construction under Alternative 1 would occur at both the Main and Marine Terminals, but it assumed that all construction workers would be all traveling to either one location or the other, and the full construction workforce and delivery trips are analyzed for those local roadways. For this analysis, a trip is defined as each time a vehicle moves (a vehicle entering and later leaving the Main Terminal would constitute two trips). Construction worker trips would be made using automobiles and light-duty trucks, delivery trips would involve medium- and heavy-duty trucks (i.e., having a gross vehicle weight of between 10,001 pounds and 26,000 pounds), and debris removal trips would be made in very large heavy-duty trucks (i.e., having a gross vehicle weight of between 33,000 and 60,000 pounds). Almost all of these trips would occur Monday through Friday; however, it is possible that occasional trips would occur on Saturdays. This analysis assumes no trips would occur on Sundays or holidays.

Of these trip types, only worker trips are likely to involve a substantial recurring traffic increase during weekday peak commuting periods (i.e., generally from 7:00 to 9:00 A.M. and 4:00 to 6:00 P.M.). Given that it currently operates at LOS A, North Gaffey Street can accommodate a substantial increase in traffic and remain at LOS D or better. Nimitz Road, which is the primary road serving the Marine Terminal and Pier 12, also has sufficient capacity to accommodate this increase in daily traffic during peak commuting hours. This assumes all commuting trips would be in single occupancy vehicles, and that all trips would coincide with the peak commuting hours (with half of the 60 trips being inbound during the morning peak hour and half being outbound during the afternoon peak hour). The number of worker trips would be minor when added to existing traffic volumes, and would be limited to the duration of construction activities. Delivery trips and debris removal trips would occur throughout the workday, and would not be expected to be concentrated in peak commuting periods. Heavy-duty truck traffic related to Alternative 1 debris removal would follow local haul routes and restrictions, as applicable.

Operations

Once rehabilitation/construction is complete, fuel delivery and distribution operations would occur at DFSP San Pedro. There would be a recurring increase in traffic associated with workers and the delivery of fuel by trucks to various customers. For this analysis, it is assumed that annual fuel throughput of 30 million barrels would occur, as described in Section 2.1.2. Based on historic delivery and shipment methods, approximately 10 percent of this total volume would be transported by fuel truck annually. This would result in an estimated maximum of 41 truck trips per day occurring at the Main Terminal, assuming that deliveries would occur primarily on weekdays (or approximately 260 days per year).

Operations under Alternative 1 could occur 24 hours per day, 7 days per week; however, it is anticipated the highest operational tempo would be during standard commercial hours. Each truck trip would consist of one inbound and one outbound trip, for a total of 82 trips per day. The Marine Terminal does not currently have a method to load fuel onto trucks, and therefore it is likely the majority of truck trips would be generated at the Main Terminal.

Fuel deliveries would use 11,600-gallon tanker trucks. Trucks have a disproportionate impact on roadway capacity due to their large size and generally sluggish performance. The Highway Capacity Manual includes factors used to convert trucks to an equivalent number of passenger vehicles. On level terrain, this factor is 1.5 passenger vehicles per truck (Transportation Research Board 2010). Applying this factor to the average daily traffic generation described above results in an increase of approximately 125 passenger car equivalent trips per day. Truck trips would be distributed throughout the work day and are not expected to be concentrated during peak commuting hours. The Navy would require the commercial lessee to prepare a transportation management plan for its commercial trucking operations. The purpose of the plan would be to ensure the safe and efficient movement of trucks and workers to and from the terminal facilities and would include detail on construction and operational vehicle routes, access arrangements and coordination with local transportation and emergency response agencies.

It is estimated no more than 120 employees would commute to DFSP San Pedro on a daily basis under normal operating conditions. Assuming one inbound and one outbound trip per employee per day, there would be 240 daily employee trips added to local roadways. Unlike fuel truck trips, worker trips are likely to coincide with weekday peak commuting hours. Based on current conditions, there is substantial capacity on North Gaffey Street and Nimitz Road to accommodate the estimated average increase in daily fuel truck and worker community trips. Thus, the increase of approximately 125 average daily passenger car equivalent trips for fuel delivery and 240 worker trips would be less than significant when added to existing conditions.

Therefore, implementation of Alternative 1 would not result in significant impacts to transportation.

3.9.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

Rehabilitation and construction activities under Alternative 2 would be similar as those described under Alternative 1, but construction activities would occur only at the Marine Terminal. Under Alternative 2, rehabilitation and construction activities would generate up to 20 daily construction worker trips, 4 vendor trips for delivering construction materials and supplies, and 5 trips for hauling away construction debris, for a combined total of 29 trips. Similar to Alternative 1, only worker trips are likely to involve a substantial recurring traffic increase during weekday peak commuting periods (i.e., generally from 7:00 to 9:00 A.M. and 4:00 to 6:00 P.M.). Nimitz Road has sufficient capacity to accommodate this increase in daily traffic during peak commuting hours. This assumes all commuting trips would be in single occupancy vehicles, and that all trips would coincide with the peak commuting hours (with half of the trips being inbound during the morning peak hour and half being outbound during the afternoon peak hour). The number of worker trips would be minor when added to existing traffic volumes, and would be limited to the duration of rehabilitation/construction activities. Delivery trips and debris removal trips would occur throughout the workday, and would not be expected to be concentrated in peak commuting periods. Heavy-duty truck traffic related to Alternative 2 debris removal would follow local haul routes and restrictions, as applicable.

Operations

Under Alternative 2, the number of workers at the Marine Terminal is estimated at 40 people. Fuel delivery trips by truck are less likely to occur at the Marine Terminal, as a truck rack system would need to be constructed in order to allow for commercial fuel trucks to on- and off-load fuel. The total annual throughput of fuel would be the same under Alternative 2, at 30 million barrels, but only 5 percent of the annual amount would be anticipated to be distributed via 11,600-gallon tanker truck. Anticipated demand at the Marine Terminal was derived proportionally from the demand at the Main Terminal, (assumed to be approximately 10 percent, based on historic methods of fuel shipments during operations). Thus, approximately 20 trucks would travel to and from the Marine Terminal for fuel deliveries daily (40 daily trips, or 63 passenger car equivalent trips per day). Nimitz Road has sufficient capacity to accommodate the additional estimated operational traffic.

Therefore, implementation of Alternative 2 would not result in significant impacts to transportation.

3.10 Public Health and Safety

This discussion of public health and safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. The primary goal is to identify and prevent potential accidents or impacts on the general public.

A safe environment is one in which there is either no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Public health and safety addresses human safety during construction, demolition, and renovation activities; and during subsequent operations utilizing the facilities in question. Various stressors in the environment can adversely affect human health and safety. Identification and control or elimination of these stressors can reduce risks to health and safety to acceptable levels or eliminate risk entirely.

Emergency services are organizations which ensure public safety and health by addressing different emergencies. The three main emergency services include police, fire and rescue service, and emergency medical service.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

Additional information relevant to public health and safety is contained in Section 3.1, Air Quality; Section 3.2, Water Resources; Section 3.7, Noise; Section 3.11, Hazardous Materials and Waste; and Section 3.13, Environmental Justice.

3.10.1 Regulatory Setting

In this EA, hazardous materials and wastes refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), which amended the Solid Waste Disposal Act. Please refer to Section 3.11.1 for a detailed description of the federal laws and regulations related to hazardous substances and/or hazardous wastes that the DoD must comply with.

The Oil Pollution Act of 1990 amended the CWA and requires oil storage facilities and vessels to submit Facility Response Plans to the federal government detailing response measures in place in the event of a large discharge. The DoD is subject to Oil Pollution Act requirements and must report spills and releases to applicable regulators, and implement measures to properly contain, control, and remediate all spills or releases. Facilities in California that store more than 1,320 gallons of petroleum in tanks and containers that are aboveground are subject to the Aboveground Petroleum Storage Act, implemented by the California Department of Forestry and Fire Protection Office of the State Fire Marshal. Owners or operators of facilities that are subject to the Act are required to submit a tank facility statement or a business plan annually that identifies the name and address of tank facility; the contact person; the total storage capacity; and the location, size, age and contents of each AST that exceeds 10,000 gallons in storage capacity. Additionally, the tank facility is required to implement a Spill Prevention Control and Countermeasure Plan, in accordance with 40 CFR 112.7.

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires federal agencies to "make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

3.10.2 Affected Environment

The Main and Marine Terminals comprise the ROI for public health and safety. Human health and safety concerns relate to the construction workers on the project and within the project site, the DFSP San Pedro staff, visitors (including inspectors and project-related consultants), other federal personnel within the project area, and adjacent residences and businesses. The Main and Marine Terminals are only accessed via security gates, and public access is restricted at both terminals.

An Environmental Condition of Property report was prepared for DFSP San Pedro (NAVFAC SW 2019). At both the Main and Marine Terminals, media of potential concern identified in the report include contaminated soil, soil vapor, and groundwater from petroleum spills or leaks during operations; and suspected ACM and LBP at structures in the Administration Area, and coating on piping used throughout the facilities. Remediation actions are ongoing at sites on DFSP San Pedro, and these actions are separate from the Proposed Action. According to DFSP San Pedro personnel, several leaks have occurred from various pump seals in the older, out-of-service pump buildings, from a diesel pipeline in 1991; from a 10-inch pipeline in September 1999; and from an underground storage tank. All known releases have been remediated or are in the process of being remediated. Further information regarding hazardous materials and wastes can be found in Section 3.11, Hazardous Materials and Waste.

The Navy has historically maintained health and safety programs to protect its personnel and property, such as the Navy Occupational Safety and Health program. DFSP San Pedro currently operates under an Operation, Maintenance, Environmental, and Safety (OMES) Plan, which is used by personnel with facility management responsibilities, the operating contractor, and regulators (USACE 2018). The OMES Plan satisfies the requirements of 49 CFR 195.402, *Transportation of Hazardous liquids by Pipeline, Procedural Manual for Operations and Maintenance*, and 33 CFR 154.300, *Facilities Transferring Oil or Hazardous Materials in Bulk, Operations Manual, General*, and complies with federal regulations regarding transfer of bulk oil and hazardous materials, marine terminal operations, marine terminal pipelines, and OSHA standards. Additionally, the OMES Plan provides measures related to safety, security, fire prevention, and environmental protection.

3.10.3 Environmental Consequences

The safety and environmental health analysis contained in the respective sections addresses issues related to the health and well-being of military personnel and civilians working on or living in the vicinity of DFSP San Pedro. Specifically, this section provides information on hazards associated with construction activities, resumption of fueling operations, and associated hazardous materials and wastes at the Main and Marine Terminals of DFSP San Pedro. Additionally, this section addresses environmental health and safety risks to children.

3.10.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure and there would be no change to public health and safety.

Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.10.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

The study area for Alternative 1 includes the Main and Marine Terminals of DFSP San Pedro, and the community immediately surrounding DFSP San Pedro. Implementation of Alternative 1 would occur within the boundaries of Main and Marine Terminals, which are areas with restricted public access.

Rehabilitation and Construction

Under Alternative 1, construction workers could potentially be exposed to subsurface soil, ACM, and LBP due to demolition and rehabilitation/construction activities at both the Main and Marine Terminals. Safety regulations and procedures, as described in Section 3.11.3, would be followed during construction to minimize exposure to workers and to reduce the potential for accidental releases of petroleum, oil, and lubricants during construction. Additionally, dust suppression procedures would be used as described in Sections 3.1, Air Quality and 3.2, Water Resources. The commercial lessee would work closely with local agencies and adhere to all applicable safety requirements during construction activities. The rehabilitation/construction contractor(s) would implement a construction health and safety program that would comply with local and federal health and safety regulations. With the implementation of a construction health and safety program and the exclusion of the public from the construction area, potential impacts from construction to public health and safety would be less than significant.

Operations

Operations at the Main and Marine Terminals would involve the use of pipelines capable of containing fuels consisting of F-76 and JP-5 (jet fuel) required for military use, and pipelines and ASTs for delivery of other commercial fuels as required by the lessee's proposed operations. Other products may be added to the site, based on the needs of the commercial lessee, and so the installed system must be capable of being purged and checked to confirm the quality of fuel at fuel delivery points at Pier 12 to verify delivered products are meeting customer quality requirements. The lessee shall be responsible for ensuring the capability to deliver the fuels needed for military use. Both F-76 and JP-5 fuels are generally classified as Class IIIA liquids based on a classification system used by the National Fire Protection Association (NFPA), with Class III being the least flammable, and Class A being more flammable than Class B. Class IIIA liquids have a flash point equal to or greater than 140 degrees Fahrenheit, but less than 200 degrees Fahrenheit (NFPA 2018). New ASTs installed on DFSP San Pedro would be designed according to NFPA standards for the appropriate class of liquids they would store, in order to reduce vapor formation. The ASTs would be required to follow the SCAQMD permit requirements for the proposed operations, with one possible requirement being the application of Best Available Control Technology, which may include SCAQMD-approved vapor control seals on floating roofs or geodesic dome roofs. All new and refurbished fuel-related infrastructure would be installed with leak detection equipment and other spill prevention measures to protect the environment, which are described further below. Monitoring and inspections required by applicable regulations and permits would be conducted by both the commercial lessee and regulatory agencies.

Operations would resume at the Main and Marine Terminals under Alterative 1 once the facilities and infrastructure are confirmed to be code compliant and safe. All required Permits to Operate would be obtained and all fueling operations, including operations over water, would meet or exceed all federal, state, and local requirements. Once operations resume at the Main and Marine Terminals under Alternative 1, operations would be conducted in accordance with applicable commercial and Navy policies and procedures for safe storage and transfer of bulk fuels. If a potential lessee proposes an activity or use that would involve anticipated environmental impacts, including those to public health and safety, beyond those analyzed in the EA, and the Navy wishes to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.

All applicable rules and regulations governing safety, access, hazardous materials, and hazardous waste would continue to be followed, including measures to minimize safety and environmental health risks. These include the regulations and procedures described in Section 3.11.1 related to the presence of hazardous materials and wastes at DFSP San Pedro, and the ongoing remediation activities that are not part of this Proposed Action. The use of fuels inventory reconciliation (which involves monitoring inventory and identifying inventory discrepancies potentially caused by leaks), leak detection methods and systems, current code requirements, such as double-walled piping and sealed containment berms capable of holding 110 percent of an AST’s maximum capacity, would minimize risks. The off-site pipeline system has been in use for several decades, with no known impact to the surrounding community. Required pipeline integrity management plans would help minimize risks by preventing future releases through systematic inspections, testing, repairs, and operations maintenance. The implementation of site-specific health and safety plans, spill and contingency plans, and compliance with all applicable safety requirements would also minimize potential impacts during operations.

Under operations, public access to both the Main and Marine Terminals would continue to be restricted, but current security standards and requirements may be modified slightly to allow for commercial fueling personnel to access the locations. The lessee would be required to comply with security requirements as a commercial fuels operator. By complying with these codes and standards, the lessee would satisfy the Navy’s requirements for security. The Main and Marine Terminal properties would still remain under the ultimate control of the Navy, and the lessee would need to gain approval from the Navy for any changes to security procedures. The Navy would be responsible for providing security on Pier 12 for visiting Navy vessels and ships. The Navy conducts threat assessments on an as needed basis. Based on the results of ongoing follow-on security vulnerability analyses, the Force Protection Condition could be raised or lowered over time as necessary, resulting in greater or lesser specific protective measures at a given time. For the lessee, they would follow a similar process using security guidelines for the petroleum industry. The lessee would be required to seek out assistance and coordinate efforts with federal, state and local law enforcement agencies, and with the local emergency services and Local Emergency Planning Committee, as applicable. The Navy and the lessee would also share intelligence, coordinate training and use other resources to help deter attacks and to manage emergencies. The lessee would also be required to be aware of and comply with applicable local and national laws and regulations regarding security.

In the event of an earthquake or other potential threat of damage to the facility, operators would take measures to limit potential releases of fuel. Integrated Contingency Plan procedures would be implemented to quickly contain, cleanup, and properly dispose of any accidental releases of fuel, including coordination with local emergency responders.

During operations, fuel products would be transported on local streets by lessee fuel trucks or customer fuel trucks. The lessee would be required to develop a transportation management plan and emergency access/contingency plan. The purpose of these plans would be to ensure the safe and efficient movement of trucks and workers to and from the terminal facilities. Detail on construction and operational vehicle routes (with the lessee ensuring appropriately rated roads are to be used by tankers, and that tankers would not be traveling on public roads at times of major traffic congestion in the local community), access arrangements and coordination with local transportation and emergency response agencies would be addressed in these plans. The plans would also include details of driver training awareness to minimize noise (including from reversing alarms and compression braking), and procedures for managing operational traffic, including adherence to Department of Transportation regulations for transporting hazardous materials. Air emissions and the potential impacts to human health from operations are described in Section 3.1.3, Air Quality. Fuel transport at both the Main and Marine Terminals would adhere to Department of Transportation regulations for transporting hazardous materials, including required training, which would minimize the risk to the community from the transport of fuels on local roads. Thus, potential impacts from operations to public health and safety would be less than significant.

Under Alternative 1, existing infrastructure at the Main and Marine Terminals would be required to be rehabilitated to current environmental codes and safety standards prior to being returned to use, as well as any new infrastructure or equipment added to the site. This includes ensuring infrastructure meets the current earthquake and spill containment requirements per applicable regulations. This would likely result in improve safety conditions when compared to historical operations. The commercial lessee would be required to follow all federal, state and local environmental and safety regulations, as the Navy and DLA have done while operating the site. Inspections and oversight from applicable agencies would still occur as mandated by pertinent regulations and laws. The commercial lessee would be required to obtain all necessary permits from the applicable agencies.

Therefore, implementation of Alternative 1 would not result in significant impacts to public health and safety.

Potential Impacts to Children

Rehabilitation and Construction

Potential impacts to children from the implementation of Alternative 1 have been evaluated. No schools, day care centers, or areas where large numbers of children would congregate are located near the Marine Terminal. There is a high school located directly south of the Main Terminal and a middle school and high school located directly north of the Main Terminal. Residences where children may live are present in these areas. As described in Section 3.1, Air Quality, estimated air emissions related to rehabilitation/construction and operations under Alternative 1 would comply with federal air quality standards, and dust suppression methods would be applied during rehabilitation/construction. Any hazardous waste generated during rehabilitation/construction or operations would be managed and disposed of off-site in accordance with all applicable federal and state regulations. Likewise, materials that are suspected of containing ACM or LBP that may be encountered during rehabilitation/construction activities would be handled and disposed of in accordance with applicable regulations.

Operations

Operations at the Main Terminal would not cause a disproportionate risk of exposure of hazardous substances to children because operations would be conducted in accordance with all applicable federal, state, local, and Navy regulations and procedures for the safe storage and transfer of bulk fuels. The lessee would be required to implement inspection, testing, and monitoring procedures as well as safety measures at least as stringent as those that DFSP San Pedro was functioning under during historical fully operational conditions. Therefore, implementation of Alternative 1 would not result in significant environmental health and safety risks to children.

Therefore, implementation of Alternative 1 would not result in significant impacts to children’s health and safety.

3.10.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

The study area for Alternative 2 includes the Marine Terminal of DFSP San Pedro, and the areas immediately surrounding the Marine Terminal. Implementation of Alternative 2 would occur solely within the boundaries of DFSP San Pedro’s Marine Terminal, which is an area with restricted public access. Impacts to public health and safety would generally be the same as described under Alternative 1, but would be limited to the Marine Terminal. The Marine Terminal is located in an area devoted to industrial uses at the Port of Long Beach, and thus the potential for public health and safety impacts, including potential impacts to children, would accordingly be reduced relative to what has been described for Alternative 1.

Therefore, implementation of Alternative 2 would not result in significant impacts to public health and safety.

3.11 Hazardous Materials and Wastes

This section discusses hazardous materials, hazardous wastes, toxic substances, and contaminated sites. The affected environment for hazardous materials and wastes is related to past and present hazardous materials and petroleum product storage/use; soil and groundwater contamination issues; and hazardous waste and petroleum waste disposal practices within the project area.

Hazardous materials are defined as chemical substances that pose a substantial hazard to human health or the environment. Hazardous materials include hazardous substances, extremely hazardous substances, hazardous chemicals, and toxic chemicals. In general, these materials pose hazards because of their quantity, concentration, physical, chemical, or infections characteristics. Hazardous materials may be found in the form of a solid, liquid, semi-solid, or contained gaseous material that alone or in combination may: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

3.11.1 Regulatory Setting

On a federal level, hazardous materials are defined by 49 CFR section 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations.

Hazardous waste is regulated under RCRA, which provides the USEPA with authority to control hazardous waste from “cradle-to-grave,” including its generation, transportation, treatment, storage, and disposal. RCRA identifies hazardous sites with lists of specific wastes, and categorizes wastes that exhibit a specific characteristic (e.g., ignitable, corrosive, reactive, or toxic) in accordance with RCRA-specific definitions. The USEPA uses the term “hazardous substance” for chemicals that, if released into the environment above a certain amount, must be reported and, depending on the threat to the environment, federal involvement in handling the incident can be authorized under CERCLA.

Hazardous wastes are defined by RCRA, as amended by the Hazardous and Solid Waste Amendments, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR part 273. Four types of waste are currently covered under the universal wastes regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include ACM, polychlorinated biphenyls (PCBs), and LBP (see below for additional information regarding ACMs and LBPs). The USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act. Asbestos is also regulated by USEPA pursuant to the CAA and CERCLA.

Petroleum products are defined for the purpose of this analysis as those substances included within the petroleum exclusion to CERCLA, as interpreted by the courts and USEPA, including crude oil or any fraction thereof that is not otherwise listed or designated as a hazardous substance, such as gasoline, kerosene, diesel oil, jet fuels, and fuel oil. Natural gas, natural gas liquids, and synthetic gas usable for fuel are also considered petroleum products. Cleanup of releases exclusively comprising petroleum products is conducted pursuant to RCRA or RCRA-based state laws and regulations.

On a state level, the California Hazardous Waste Control Law, codified in Title 22, Chapter 6.5 of the California Code of Regulations is the basic hazardous waste regulation in the State of California. The Hazardous Waste Control Law implements the RCRA waste management system in California and specifies that generators have the primary duty to determine whether their wastes are hazardous and to ensure its proper management and disposal. The Department of Toxic Substances Control is the State agency primarily responsible for enforcing the Hazardous Waste Control Law. In 1992, California was granted authorization by the USEPA to also enforce the federal RCRA hazardous waste laws and regulations.

Asbestos in Structures and Buildings

Asbestos is regulated both as a hazardous air pollutant under the federal CAA regulations and as a potential worker safety hazard under the authority of the California Department of OSHA. These regulations prohibit emissions of asbestos from asbestos related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb ACMs; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies before beginning renovation or demolition that could disturb ACMs. The agencies with primary responsibility for asbestos safety are the SCAQMD, California Department of OSHA, OSHA and the USEPA.

Lead Based Paint

Federal, state, and local laws and regulations govern handling of building materials that contain LBP. OSHA Lead Construction Standards establish a maximum safe exposure level for the following types of construction work where lead exposure may occur: demolition or salvage of structures where lead or materials containing lead are present; removal or encapsulation of materials containing lead; and new construction, alteration, repair, or renovation of structures or materials containing lead. Typically, building material debris with LBP is considered hazardous waste (California Code of Regulations, Title 22, Division 4.5, Chapter 2) unless the paint is chemically or physically removed from the building debris.

3.11.2 Affected Environment

3.11.2.1 Past and Present Hazardous Materials and Petroleum Product Use

The DFSP San Pedro Main Terminal contains 28 USTs (closed-in-place) and 10 ASTs (empty and marked out-of-service), distributed throughout the facility. Fuels stored and distributed at the facility have changed over the years. Tanks at the facility have been used to store various petroleum products, such as JP-5, JP-8, and F-76 diesel fuel. Other diesel fuels handled at the facility since the 1940s have included bunker fuel, Navy Special, Navy distillate, and DFM. Other jet fuels have included aviation gas and JP-4 (DLA 2011).

Three pipelines (Long Beach Pipelines) provided a dedicated line to transfer JP-5, JP-8, and DFM between the Main Terminal and Marine Terminal. The DFM line has been taken out-of-service and abandoned in-place. The line has been cleaned of product and filled with concrete slurry between the Main Terminal and the Harbor-Regan (West) Valve Station. The remainder of the line has been filled with nitrogen to provide an internal inert atmosphere and to prevent internal corrosion of the line from occurring. The JP-5 and JP-8 pipelines were operational until August 2013 when they were cleaned, filled with nitrogen gas, and placed into temporary closure (NAVFAC SW 2016).

None of the off-site pipelines would be demolished under any of the alternatives; therefore, no potentially contaminated soil would be disturbed or excavated. As a result, no impacts would occur with respect to hazardous materials and waste. As such, the off-site pipeline segments are not discussed or analyzed in this section.

The Marine Terminal contains 13 ASTs (empty and marked out-of-service), only a portion of which were routinely used for the temporary reception and holding of products, waste fuel, and slop. Aqueous film forming foam, for use in a firefighting system, was stored in bulk containers within a storage building. Booster pumps were used to pump fuel to the Main Terminal. A separate UST and associated piping was previously used for the storage and transfer of diesel fuel for use in an emergency generator. The UST was removed under oversight of the City of Long Beach Certified Unified Program Agency on December 15, 2010. A no further action status was issued by the Certified Unified Program Agency on March 2011 (DLA 2011).

3.11.2.2 Hazardous Materials and Petroleum Product Releases

Inadvertent releases of petroleum products and hazardous materials have resulted in subsurface contamination of soil and groundwater in several areas within the Main Terminal, including the Administration Area, the South Control Area (Pump House Area), and the Tank Farm Area (AST and former UST Areas). ACMs and LBPs have been identified in Buildings 107 and 108, located at the Main Terminal, and are suspected to be present in other buildings at the Main and Marine Terminals. At present, Buildings 107 and 108 are cordoned off and access is prohibited due to the presence of LBP, ACMs, and other safety issues. These two buildings have been recommended for demolition by the Navy and are not available for use by a potential lessee. Several ACMs have also been found to be present in Buildings 100 and 103. Buried pipelines contained within the Main Terminal are likely to be coated with 1-inch thick bituminous-based vinyl tape that is assumed to be impregnated with asbestos (NAVFAC SW 2019).

Administration Area

In the Administration Area, five locations were identified where the soil and groundwater were potentially contaminated with total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylene compounds. Petroleum products released included diesel, jet fuel, and gasoline, which leaked from a truck fill stand, fuel line, main manifold pit, and former UST. In addition, sampling has indicated the presence of dissolved fuel oxygenates, including tertiary-butyl alcohol in groundwater, which are not attributed to on-site operations, but are suspected to have originated from the refinery located to the east or from the multiple pipelines underlying North Gaffey Street (DLA 2011).

A soil gas survey was completed along a commercial pipeline easement that traverses the Administration Area and extends northwestward and upslope of the area. The objective of this survey was to evaluate whether historical documented or undocumented releases from the commercial pipelines have affected groundwater in the Administration Area. The results of the survey indicated some history of fuel releases in the pipeline easement, but no evidence of any significant fuel releases (DLA 2012).

Adsorbed-, dissolved-, and liquid phase hydrocarbons have been identified during subsurface investigations in the Administration Area. Fifty wells, including groundwater monitoring, vapor extraction, and air sparging wells, have been installed in this area. The Los Angeles RWQCB required remedial action to address elevated concentrations of benzene in Administration Area soil and groundwater (DLA 2011). The remediation system was installed in late 2007, tested in early 2008, and is granted coverage by the Los Angeles RWQCB under General Water Discharge Requirements (WDRs) Order No. 90-148 to treat petroleum hydrocarbon contaminated soils (Los Angeles RWQCB 2018).

Extracted soil vapors are treated in an electrically-fired, thermal oxidizer, with emissions governed by a SCAQMD permit. Quarterly remediation operation and performance progress reports and semiannual groundwater monitoring reports are submitted to the Los Angeles RWQCB; SCAQMD monitoring records are maintained per conditions of the permit, and quarterly status reports are submitted to the SCAQMD (Los Angeles RWQCB 2018). In October 2012, an additional field investigation indicated that a northwest/southeast-trending fault in the southern Administration Area appears to act as a pathway for groundwater movement to deeper depths. Groundwater gradients are toward this fault zone and groundwater is present at much greater depths south of the fault zone. Benzene concentrations reported in samples from discreet depth intervals indicate a general decline with increasing depth. In every case, the highest concentrations were reported in the samples from the shallowest depth interval (60 to 65 feet bgs), in comparison to the middle depths (80 to 85 feet bgs) and the deepest interval (100 to 105 feet bgs) (The Source Group [SGI] 2017).

South Control Area (Pump House Area)

The South Control Area (also known as the Pump House Area) occupies approximately 15 acres and is located in the southeast corner of the facility. Several subsurface investigations have revealed the presence of adsorbed-, dissolved-, and liquid phase hydrocarbons in the South Control Area. Liquid phase hydrocarbons, also known as floating product, are petroleum hydrocarbons, such as fuel, which have leaked into the subsurface and are floating on the groundwater. Several source areas have contributed to the hydrocarbons present in soil and groundwater within the South Control Area. Cleanup of liquid phase hydrocarbons, impacted soil, and groundwater is currently ongoing in the South Control Area of the Main Terminal described in the 2016 Interim Remedial Action Plan for the Pump House Area and the latest Los Angeles RWQCB WDRs for On-site Treatment of Contaminated Soil (File No. 90-60-148, Order No. 90-148, CI-10314, Geotracker Global ID. T10000010232) issued on 6 April 2018 (Los Angeles RWQCB 2018). The South Control Area contains active DLA groundwater and soil cleanup/remediation areas including two soil excavation areas, a clean soil staging area, an existing groundwater treatment system compound, a discharge infiltration line and contractor storage and parking areas (NAVFAC SW 2019). Additionally, this area contains the North Gaffey Street Release Site.

Monitoring wells were installed in the South Control Area to identify and characterize the extent of contamination. The resulting hydrocarbon plumes from these release areas have been grouped into three distinct plumes:

The Northern Pump House Area Plume is located within the northernmost extreme of the Pump House Area. The hydrocarbons present in soil and groundwater are attributed to a historical release of diesel that occurred from a government-owned pipeline located beneath Gaffey Street. Ongoing remedial efforts have resulted in the reduction of the thickness of liquid phase hydrocarbons. However, the source area soils are present beneath the extremely busy Gaffey Street traffic corridor. Thus, the past and future remedial efforts will be focused on the recovery of liquid phase hydrocarbons as it occurs beneath the Pump House Area land.

The North-Central Pump House Area Plume is defined by the commingling of petroleum releases that are believed to have originated at the formerly used pump houses (Buildings 205 and 204) located on the western side of the Pump House Area access road, within the north-central part of the Pump House

Area. Assessment and product recovery efforts have demonstrated that the hydrocarbon mass associated with the valve pits and pump houses is modest and well defined.

Central Pump House Area Plume is due to historical fuel releases from formerly used valve pits and pump houses (including, Buildings 202 and 203 and valve pits 112 and 113) that resulted in the release of hydrocarbons into the underlying soil and groundwater. Liquid phase hydrocarbons in Central Pump House Area Plume wells ranged up to 15 feet thick. Although the liquid phase hydrocarbons thickness has been substantially reduced through the efforts of nearly 20 years of product recovery and vapor extraction, with the majority of the Central Pump House Area wells free of product and the remaining wells containing less than 6 inches of product, there remains a significant hydrocarbon mass in the subsurface – both in vadose zone and water-saturated soils.

Remediation and monitoring efforts are under the regulatory oversight of the Los Angeles RWQCB (Los Angeles RWQCB 2018). The remediation system entails total fluid recovery wells, which extract both liquid phase and dissolved-phase petroleum hydrocarbons, bioventing wells, and vapor extraction wells. Treated groundwater is re-injected into the shallow aquifer in the South Control Area through a series of infiltration wells. The current remediation system became fully functional in 1996 and has been modified and expanded in the intervening years. The principal remediation objective was the recovery of liquid phase hydrocarbons from areas with pre-remedial thicknesses ranging up to 15 feet. As of 2015, monitoring/extraction wells in the South Control Area indicated that greater than 95 percent of liquid phase petroleum product had been removed from the aquifer. Product recovery efforts would continue in this area and would be focused on the wells with the greatest product thicknesses and wells with the lowest percent reduction from historical highs (SGI 2015).

Re-injection of the treated groundwater, which began in February 2004, continues under the WDR permits issued by the Los Angeles RWQCB. Extracted soil vapors are treated in activated carbon vessels, with emissions governed by a SCAQMD permit. An annual remediation operation and performance progress report and semiannual groundwater monitoring reports are submitted to the Los Angeles RWQCB. Although monitoring records are maintained per conditions of the permit, reporting to the SCAQMD is not required. In the second quarter of 2019, approximately 71,923gallons of groundwater were extracted, treated, and re-injected into the aquifer (SGI 2019a). Since the startup of the remediation system in January 1996 through the end of 2015, approximately 62,128 gallons (434,896 pounds) of petroleum hydrocarbons have been recovered or destroyed (SGI 2019b).

An Interim Remedial Action Plan was submitted in December 2016 for the petroleum contaminated vadose (unsaturated) and saturated soils and groundwater still present within the South Control Area (or Pump House Area). Soil from contaminated areas within two areas are being excavated, groundwater accumulating in the excavations is being extracted and treated, and soil is being treated on-site using biological processes (SGI 2019b). Up to 87,000 cubic yards of soil will be excavated, of which 30,000 cubic yards are expected to be petroleum hydrocarbon impacted soil and will be excavated and treated on-site via bioremediation using Bulldog Green Remediation's technology. Due to delays related to a longer than estimated biotreatment time, technical difficulties with the water treatment system, and inclement weather, the treatment of the contaminated soil performed under the current WDR permit has not been completed and a new application was submitted on 19 March 2019 (SGI 2019b). During the second quarter 2019 reporting period, 3,392 cubic yards of new petroleum hydrocarbon impacted soil was treated (SGI 2019c). The cumulative volume of soil treated from the start of this project in October 2017 through the end of this reporting period was 27,502 cubic yards.

The Soil Vapor Extraction/Air Sparge system and a groundwater extraction system mentioned above are planned to remain in operation until the end of fiscal year (FY) 2021. The systems are scheduled to be decommissioned by the end of FY 2022. In addition, the soil excavation and biotreatment remediation project located on another portion of the South Control Area is planned to continue until the end of FY 2020. Due to the active remediation efforts, the entire South Control Area is encumbered, not accessible or available for use, until the active remediation efforts are completed at the end of FY 2021. Note these estimated dates of completion are subject to change depending upon the status of the remediation efforts.

Post-remediation, access for periodic groundwater monitoring will be required in the South Control Area through the end of FY 2023 and access for groundwater monitoring well decommissioning will be required until the end of FY 2024.

Tank Farm Area (former UST Areas)

The Tank Farm Area at DFSP San Pedro has been divided into the North Tank Farm and the South Tank Farm. Releases of stored fuel via tank overfill, tank leakage, and pipeline leaks have been documented in both Tank Farm Areas. Additional materials stored on site have included fuel additives (such as Fuel System Icing Inhibitor and anti-static additives) and transmix, and off-specification product[3]. There are 26 USTs within the Tank Farm Area that have been permanently closed-in-place in accordance with City of Los Angeles Fire Department Division 5 permits when they were filled with low-density cellular concrete in 2017. Los Angeles Fire Department Inspectors conducted the UST closure inspections. Permanent closure activities were conducted by Chicago Bridge & Iron Federal Services LLC. The Navy and DLA are separately responsible for the environmental characterization and restoration of soil and groundwater at the site. The Navy work is conducted under the auspices of their Installation Restoration (IR) Program and is largely focused toward non-petroleum related contaminants. DLA has the responsibility for assessment and remediation of contamination originating from leaking fuel storage tanks and conveyance piping containing capitalized fuel. Detailed information as to hydrogeologic conditions underlying the Tank Farm Area is provided by groundwater monitoring wells. The wells selected for sampling in the Tank Farm Area were selected to evaluate groundwater quality at each South Tank Farm UST and in the vicinity of known historical releases (NAFVAC SW 2019). Interim remediation and monitoring efforts are under the regulatory oversight of the Los Angeles RWQCB.

The North Tank Farm contains six former (and filled-in-place) USTs (Tanks 42-47). A release at Tank 43 has created a plume that underlies a large portion of the North Tank Farm, resulting in approximately 4 acres of impacted soil. Additionally, this area overlaps a portion of the Navy's active IR Site 31, which is currently undergoing investigation (see the Installation Restoration Program Sites section below for more details). The DLA will conduct active soil remediation efforts in the North Tank Farm Area, including operating a Soil Vapor Extraction remediation system that will involve the construction of aboveground Soil Vapor Extraction conveyance pipelines and the presence of work crews. Due to these active remediation efforts, the entire North Tank Farm Area is encumbered and may not be used or accessed until the active remediation efforts are completed at the end of FY 2021. Note this estimated date of completion is subject to change depending upon the status of the remediation efforts.

[3] Oil product or gas that does not meet specification. Refers either to contract specification or those benchmark specifications generally used in the physical market (https://www.risk.net/definition/specification).

The South Tank Farm occupies approximately 170 acres and extends to the southern perimeter of the Main Terminal Site. The South Tank Farm contains twenty 50,000-barrel former USTs and associated underground fuel pipelines that have been filled with foamcrete and abandoned in-place. This area also contains active IR Sites 6 and 32, which are currently undergoing investigation (see the Installation Restoration Program Sites section below for more details). Additionally, this area contains active and proposed DLA cleanup/remediation areas, proposed aboveground pipelines for remediation projects, a large soil treatment area, various underground utility lines, and areas for DLA remediation project contractor trailers and parking. The initial phases of remediation of JP-8 impacted soil and groundwater are currently ongoing.

Due to the active remediation efforts, the entire South Tank Farm Area is encumbered and not accessible for available for use until the active remediation efforts are completed at the end of FY 2021. Note this estimated date of completion is subject to change depending upon the status of the remediation efforts. The DLA will conduct active soil remediation efforts in the South Tank Farm Area due to a suspected fuel releases from 19 of the 20 USTs in this area. Tank 14 has no remediation actions planned. A description of the remediation efforts and the associated tanks is summarized below:

- Contamination at six tanks (1, 3, 5, 7, 11 and 12) will be actively remediated using Electrical Resistivity Heating Remediation.
- Contamination at 10 tanks (2, 6, 8, 9, 10, 13, 16, 17, 18, and 19) will be actively remediated using Soil Vapor Extraction/Bioventing.
- Contamination at three tanks (4, 15 and 20) will be actively remediated using Steam Thermal Remediation.
- Remediation of these tanks will involve the construction of aboveground Soil Vapor Extraction conveyance pipelines, power poles, gas stubouts, gas meters and power drops. Additionally, the active remediation will require the presence of multiple work crews and drilling crews in the area. The active remediation efforts are currently scheduled to operate until the end of FY 2021 with decommissioning of remediation equipment to be completed by the end of FY 2022.

Post-remediation, access for periodic groundwater monitoring will be required in the South Tank Farm Area through the end of FY 2023 and access for groundwater monitoring well decommissioning will be required until the end of FY 2024.

Installation Restoration Program Sites

The DoD established the Defense Environmental Restoration Program to facilitate thorough investigation and cleanup of contaminated sites on military installations (active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The IR Program and the Military Munitions Response Program are components of the Defense Environmental Restoration Program. The IR Program requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The Military Munitions Response Program addresses nonoperational rangelands that are suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituent contamination. The Environmental Restoration Program is the Navy’s initiative to address the Defense Environmental Restoration Program.

In the early 1980s, the Navy IR Program was established to search for, investigate, and remediate Navy sites that were contaminated with chemicals and hazardous substances in the years before safe handling and waste management practices were established. In addition, sites with munitions and explosives-related contaminants were investigated. These investigations were completed in compliance with CERCLA. Areas with potential for known contamination at the DFSP San Pedro Main Terminal have been identified as legacy sites and these are being evaluated as Navy IR sites. There are four active sites currently undergoing remediation, and one site with no further action status, for a total of five on the Main Terminal: IR Sites 4, 6, 31, 32 and 33. These five IR sites—each of which has or is expected to have Land Use Controls (LUCs)—are anticipated to be available for development in FY 2023 when the remediation activities are estimated to be completed unless the LUCs require limited use or prohibit use of certain areas going into the future. Note this estimated date of completion is subject to change depending upon the status of the remediation efforts. The five sites are described in the following paragraphs and depicted on Figure 3.11-1.

IR Site 4, is located within the Tank Farm Area of the Main Terminal and has been identified with potential impacts to surface soil near Tank 5. This site consists of approximately 3 acres located in the south-central portion of the Main Terminal. In 1954, a release of approximately 147,000 gallons of Navy Special Fuel Oil occurred because of an overflow of Tank 5. Cleanup of this release was limited and only a small portion of the spill was recovered. A second release of between 4,200 and 23,000 gallons occurred in the early 1960s; no cleanup was conducted. A soil boring investigation by Woodward Clyde, Inc. in 1990 revealed no fuel contamination within soil samples collected from beneath the surficial asphalt-like surface cover that is a remnant of the fuel release (SGI 2011). The Jacobs Engineering Group Inc. (Jacobs) investigation of IR Site 4 concluded that the detection of heavy fuel and inorganic lead was limited to near-surface samples and indicated no significant migration downward or laterally in the 30 years since the time of the spills.

Two identified chemicals of potential concern were benzo(a)pyrene and heavy petroleum hydrocarbons. The Jacobs report stated: “this site may not pose an immediate risk to potential receptors due to institutional control barriers.” Conservatively, removal action was recommended because of the elevated levels of contaminant near the surface and the exposed nature of the spill material. However, the Navy has subsequently been granted no further action status for this area with the constraints of LUCs (SGI 2011).

IR Site 6, with impacts to soil in the South Ravine, is a 5-acre area in the south-central portion of the Main Terminal. The ravine at IR Site 6 has been filled almost to grade and is also referred to as Gully 10, a former disposal area. Objects observed in the fill material by Jacobs included paint spills, rusted 55-gallon drums, 5-gallon and 1-gallon cans of unknown content, wooden debris, furniture, metal pipe, concrete, and tires. An investigation conducted by Jacobs consisted of borings and soil sampling, which identified the following contaminants of potential concern in the northwestern portion of the ravine: heavy fuels, organic and inorganic lead, and semivolatile organic compounds. The Jacobs report indicated that data obtained from the investigation were insufficient to conclude with certainty, which chemical classes are present or absent at the site (SGI 2011).

A remedial investigation for IR Site 6 is being planned and scheduled. The remedial investigation will provide additional sampling and analysis information, and human health and ecological risks would be assessed to enable decision makers to evaluate remedial action options. The remedial investigation is likely to result in the establishment of LUCs due to the low human health and low ecological risk associated with the site and the physical limitations of performing cleanup activities. IR Site 6 is located in a deep ravine making it difficult to get equipment on-site to remove any of the existing debris or contaminated soil. The LUCs would most likely limit access and ground disturbance (NAVFAC SW 2019).

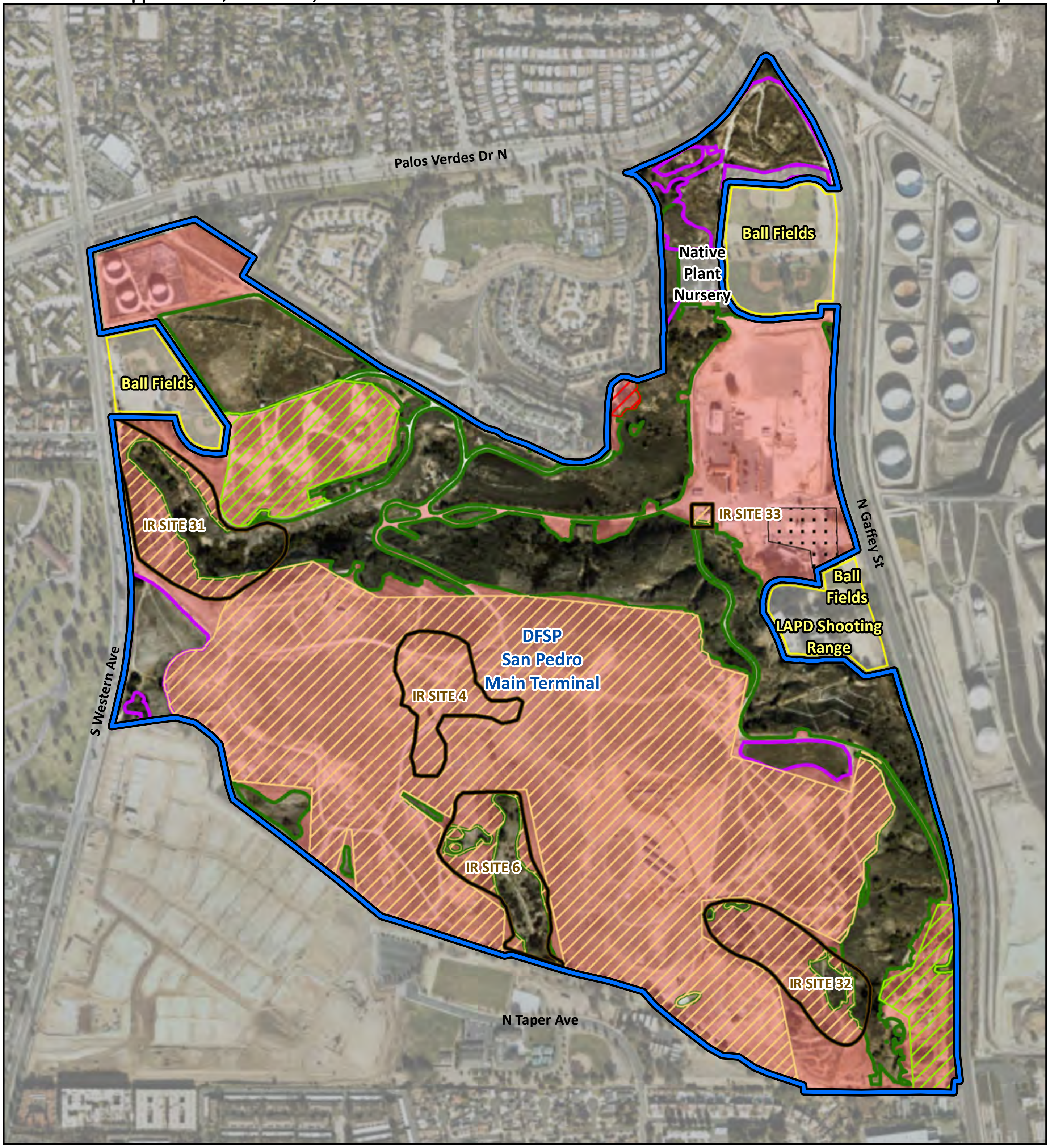
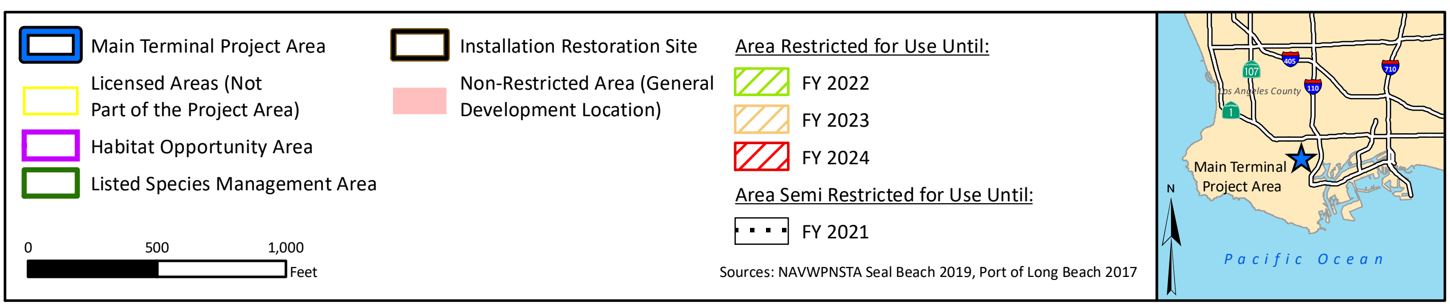


Figure 3.11-1. Installation Restoration Sites at the Main Terminal



IR Site 31, formerly known as Site 3A, is a ravine located in the northwestern corner of the Main Terminal that was partially filled with construction debris and mixed wastes in the 1970s and 1980s. The site consists of 9.4 acres and a portion of IR Site 31 lies within the North Tank Farm Area. The remainder of the site lies outside any of the industrial Tank Farm Areas. A site investigation was completed in 1992 at IR Site 31 and seven other sites in the Long Beach and San Pedro area (NAVFAC SW 2019). Chemicals of potential concern were detected in site investigation samples at levels that exceeded applicable screening criteria. The site investigation recommended additional sampling to fully characterize chemicals of potential concern at the site (NAVFAC SW 2019). An extended site investigation is currently ongoing and will likely result in the establishment of LUCs due to the low human health and low ecological risk associated with each site and the physical limitations of performing cleanup activities. This site is located in a deep ravine making it difficult to get equipment on-site to remove any of the existing debris or contaminated soil. The LUCs would most likely limit access and ground disturbance (NAVFAC SW 2019).

IR Site 32, with impacts to soil in the Southeast Ravine, is located at the southeastern area of the Main Terminal. This area has been historically referred to as Site 3B. It consists of an almost completely filled-in ravine, approximately 6 acres, located within the southeastern corner of the Main Terminal. The ravine was filled with construction debris around the same time period that debris was placed in the Central Ravine. Material present in the ravine includes concrete blocks, asphalt, brick, wood, plastic materials, rebar, chain-link fencing, and steel and tin sheeting. Also reported is a previous diesel fuel release of 100,000 gallons from an overflow of Tank 20 that occurred on March 20, 1979 (Tank 20 is west of the Southeast Ravine). An estimated 62,000 gallons were recovered at the time of the release. Woodward Clyde, Inc. conducted an assessment in 1990 to determine the impact of the fuel spill. Soil borings were installed in the probable path of the spill. Analytical results did not indicate any total fuel hydrocarbons. In 1991, a groundwater monitoring well (WCW-VII) was installed adjacent to and east of the site in conjunction with extensive investigations in the Pump House Area (SGI 2011).

The second investigation of the Southeast Ravine area, conducted by Jacobs, consisted of installation of soil borings and soil sampling in and around the ravine and groundwater sampling from groundwater monitoring well WCW-VII. Analytical results of soil sampling revealed the presence of heavy metals, heavy petroleum hydrocarbons, semivolatile organic compounds, PCBs, and organic lead. The Jacobs investigation concluded that, because of the heterogeneity of fill material contributing to increased permeability and largely varying void spaces, a remedial investigation/feasibility study was warranted to better determine the extent and nature of contamination in and around the Southeast Ravine (SGI 2011).

Beginning in January 2009, ChaduxTt conducted a Phase I remedial investigation of IRP Site 32. The objective was to characterize IR Site 32, including identifying whether off-site contamination, such as the historical fuel spill from Tank 20, has migrated or is migrating on-site and affecting IR Site 32 (SGI 2011).

Results of the Phase I remedial investigation indicated that most of the soil impacts are in shallow soil, to a maximum depth of 2 feet bgs. Organic lead, benzo(a)pyrene, and several metals were detected at concentrations that exceeded screening criteria. In addition, pesticides and total petroleum hydrocarbons, characterized as bunker fuel, were detected in samples from 7 of the 10 borings. Concentrations of total petroleum hydrocarbons as bunker fuel were greater than 1,000 milligram per kilogram (mg/kg) in samples from three of the borings. Except for one sample (TT32-SB09), which contained 13.1 mg/kg of arsenic, all arsenic results were below the 12-mg/kg background level established by the California Environmental Protection Agency Department of Toxic Substances Control for the Los Angeles Basin. Soil samples collected just above the depth of groundwater contained no VOCs or PAHs (SGI 2011).

Chemicals detected in groundwater samples included PAHs, VOCs, gasoline-range organics, and metals. Organic chemicals associated with petroleum-based fuels were detected in a single well; the presence of these compounds was attributed to fuel releases at Tank 20 (SGI 2011).

Based on the results of the Phase I remedial investigation, a second phase of investigation was completed in 2011, including additional soil sampling, limited groundwater sampling to fill remaining data gaps and to further delineate the nature and extent of contaminants detected during the Phase I remedial investigation, and preparation of a human health risk assessment and a screening-level ecological risk assessment (SGI 2011).

The findings of the Phase I and II remedial investigations indicate that releases from building materials disposed of at IR Site 32, and/or from other site historical activities, including fuel operations in the area surrounding IR Site 32, may have contributed low levels of metals to soil and groundwater at the Main Terminal. However, the organic constituents detected in soil and groundwater are generally petroleum related and were attributed to activities at the surrounding tank farm and pump house areas of the Main Terminal (SGI 2011). The human health risk assessment identified four metals as chemicals of concern and the screening-level ecological risk assessment identified three metals as chemicals of ecological concern. Metals contamination in soil was proposed to be further delineated during a planned feasibility study to select or refine remedial alternatives (SGI 2011).

The Navy’s ongoing investigation is likely to result in the establishment of LUCs due to the low human health and low ecological risk associated with the site and the physical limitations of performing cleanup activities. The LUCs would most likely limit access and ground disturbance (NAVFAC SW 2019).

IR Site 33, is known as the Tar Area and currently occupies a small blacktop area near the water tank south west of Building 100 in the Administration Area. A Preliminary Assessment/Site Investigation to investigate a tar-like substance that is daylighting at the water tank was initiated in February 2017 and is ongoing. Additionally, there are some spots along the east-west road between the Administration Area and the North Tank Farm Area that will also be investigated for potential tar seepage. These areas are encumbered, and may not be used or accessed, until the investigation is completed. The current investigation and reporting process may extend to the end of FY 2023 (NAVFAC SW 2019).

Ongoing Monitoring and Remediation

In-situ soil and groundwater remediation is ongoing at the Main Terminal. In the Administration Area, 50 wells, including groundwater monitoring, vapor extraction, and air sparging wells, have been installed. In the South Control Area, 81 monitoring wells have been installed. Cleanup of liquid phase petroleum product, impacted soil, and groundwater is currently ongoing in this area. In the Tank Farm Area, 25 monitoring wells have been installed and in-situ soil and groundwater remediation is ongoing. The remediation systems in these three areas include thermal oxidizers and other aboveground equipment. Groundwater monitoring will continue, and more wells could be added, or conversely the number of monitoring wells could be reduced, depending on remediation activity needs.

Pipeline Corridor

Three fuel releases were reported from the DFM pipeline in 1982, 1983, and 1990/1991. Site investigations at the 1990/1991 release site indicated soil and groundwater contamination, including liquid phase hydrocarbons floating on groundwater. Groundwater remediation, primarily consisting of removal of liquid phase hydrocarbons on groundwater, was completed as of 2011 (DLA 2011, 2012).

Operations at the ConocoPhillips refinery and tank farm, located east and across North Gaffey Street from DFSP San Pedro, have resulted in the release of petroleum fuel contaminants to soil and groundwater. Groundwater impacted by petroleum constituents and additives, including tertiary-butyl alcohol, a gasoline additive present in South Control Area monitoring wells, extends westward to at least North Gaffey Street and onto the South Control Area of the Main Terminal. Thus, the dissolved-phase groundwater plume extends under the pipelines in North Gaffey Street (DLA 2011).

Borings drilled on the west side of the Main Channel, in the vicinity of the pipelines, indicated the presence of crude oil soil contamination, which was apparently related to a former Chevron Marine Terminal at that location. Excavations revealed visible free product (i.e., brown liquid petroleum) among the contaminated soil (DLA 2011).

Research indicated no historical storage or use of chlorinated solvents or other hazardous substances in association with the pipelines, and no hazardous wastes appear to have been generated. The State Fire Marshall, the pipeline oversight regulatory agency, reported that the pipelines are compliant and have complied with applicable federal, state, and local regulations. The pipelines are coated with a 1-inch thick, bituminous-based vinyl tape and tar (bitumen) that is impregnated with asbestos. No sampling data identifying the type and concentration of asbestos present in the pipeline coating were available. The exposed portions of the pipelines do not contain LBP (DLA 2011).

Marine Terminal

Two fuel releases have been reported from the Marine Terminal, primarily into marine waters. However, one of the releases, a 50-gallon waste fuel release, may have resulted in contaminated soil. A record search did not indicate releases of hazardous substances on-site. There are no known groundwater quality issues pertaining to released fuels or chemicals associated with the Marine Terminal. Although there are no groundwater monitoring wells on-site, the underlying groundwater would be expected to be saline and not fit for human consumption or other beneficial uses (DLA 2011).

IR Site 7, Former Naval Station Long Beach, comprises the West Basin of Long Beach Harbor, and is bound on the south and the west by Pier 12 and on the north by the former Naval Station Long Beach and the former Long Beach Naval Shipyard properties (NAVFAC SW 2019). IR Site 7 is approximately 700 acres with water depths of approximately 45 feet. Pier 12 was one of seven areas of ecological concern designated within IR Site 7. Results from investigations conducted at IRP Site 7 indicate that sediment below Pier 12 poses no risk to human health or the environment under its current use; however, LUCs are required to prevent disturbance of the sediment to protect the ecologically productive and diverse benthic community from future exposures to sediment that may pose a risk (NAVFAC SW 2016).

There are no known ACM present at the Pier 12 Marine Terminal. Given the age of the Marine Terminal, it is likely that ACM were used in facility building materials, such as tiles, floor mastic, and insulation. Suspected ACMs in buildings at the Marine Terminal should be treated as ACM until testing proves otherwise. LBP was discovered at the Marine Terminal, which would subject these surfaces to California Department of OSHA exposure assessment requirements when disturbed for construction or demolition purposes (DLA 2011).

3.11.2.3 Management of Hazardous Materials and Wastes and Petroleum, Oil, and Lubricants

DFSP San Pedro operates in accordance with an OMES Plan (USACE 2018), which satisfies the requirements for a manual required by 49 CFR 195., *Transportation of Hazardous liquids by Pipeline, Section 195.402 Procedural Manual for Operations, Maintenance, and Emergencies* and 33 CFR 154, *Facilities Transferring Oil or Hazardous Materials in Bulk, Section 154.300, Operations Manual: General, and 154.310, Operations Manual: Contents.* The OMES Plan is designed to comply with federal regulations regarding transfer of bulk oil and hazardous materials, marine terminal operations, marine terminal pipelines, and OSHA standards. The OMES Plan also includes U.S. Government and DoD directives regarding operation and maintenance of petroleum systems, operation and maintenance of cathodic protection systems, and quality assurance/surveillance for petroleum products. The OMES Plan includes environmental protection management protocols, including spill response, stormwater and NPDES permit monitoring, hazardous materials/waste management, compliance cleanup, discharge containment, and emergency response actions.

In addition, DFSP San Pedro operates in accordance with site-specific SWPPPs for the Main and Marine Terminals (DLA 2017a) and Oil and Hazardous Substance Integrated Contingency Plan (NAVFAC SW 2016). The SWPPPs are designed to address water quality issues associated with industrial discharges and stormwater discharges. The Oil and Hazardous Substance Integrated Contingency Plan is an operational, single source document designed to meet the combined regulatory requirements for an USEPA Facility Response Plan. The plan also addresses the emergency planning, notification, and response actions directed by RCRA; CERCLA; the Emergency Planning and Community Right-to-Know Act; and the OSHA. The plan is consistent with the National Contingency Plan and the Area Contingency Plan.

DFSP San Pedro also operates in accordance with a Hazardous Material, Hazardous Waste, and Universal Waste Management Plan (SGI 2017). This plan establishes uniform policies, procedures, and responsibilities for the receipt, management, storage, labeling, disposal, and handling of hazardous materials, hazardous wastes, and universal waste and includes the requirements for environmental compliance with hazardous waste regulations. This plan applies to the Main Terminal and the Marine Terminal including Pier 12 and must be followed by all Government, contractor, and tenant personnel that handle hazardous materials, hazardous waste, or universal waste on these premises.

The Navy diverts as much demolition waste from landfills as possible using demolition deconstruction techniques to reduce, reuse, or recycle the various types of waste. Demolition material is recycled as feasible and, if not, categorized and sent to an appropriate disposal facility. Any required asbestos, lead, or PCB abatement is conducted before demolition activities begin. The removal methods, health and safety procedures, and disposal methods conform to the applicable regulations of federal, state, and local regulatory agencies.

3.11.3 Environmental Consequences

Hazardous materials and waste impacts are primarily related to the health and safety of workers. Hazardous materials and waste impacts would be considered significant in the event that workers would be exposed to contaminated soil, petroleum products, petroleum waste, ACMs, LBP, PCBs, or other hazardous waste. The hazardous materials and wastes analysis contained in the respective sections addresses issues related to the use and management of hazardous materials and wastes as well as the presence and management of specific cleanup sites at DFSP San Pedro. Hazardous materials and waste related impacts would also be considered significant in the event that actions taken during renewed fueling operations would damage or destroy monitoring wells, remediation wells, or aboveground remediation infrastructure.

3.11.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. Operations would continue to be conducted in accordance with protocols established in the existing OMES Plan, SWPPPs, Oil and Hazardous Substance Integrated Contingency Plan, and Hazardous Material, Hazardous Waste, and Universal Waste Management Plan. Ongoing site assessments, monitoring, and remediation activities would continue. Under the No Action Alternative, petroleum, oil, and lubricants would be used during reinstallation, repair, and upgrades of various infrastructure. Inadvertent releases of such substances could result in localized soil contamination; however, repair and reactivation activities would be implemented in accordance with applicable plans (e.g., OMES Plan, the SWPPPs and the Hazardous Material, Hazardous Waste, and Universal Waste Management Plan) to minimize the potential for an inadvertent release.

Therefore, implementation of the No Action Alternative would not result in significant impacts related to hazardous materials and wastes.

3.11.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines.

Rehabilitation and Construction

Under Alternative 1, fueling operations at Main and Marine Terminals would be renewed under an outlease. The lessee would be required to strictly comply with all applicable hazardous waste management and permitting requirements under RCRA and/or its applicable state equivalent. Due to historic use, soil contamination has been detected at multiple locations across the site. No new sources of contaminants that could threaten worker safety have been identified since those reported in the Draft Final Environmental Condition of Property for Pier 12, Defense Fuel Support Point San Pedro, and Associated Pipelines (NAVFAC SW 2019). The Navy notes that none of the cleanup sites within the project area impact groundwater utilized for the public or otherwise poses any risk to the public generally. Accordingly, as noted in Section 3.11.3 above, this EA's analysis with respect to hazardous materials or hazardous wastes is primarily related to the health and safety of workers.

The Proposed Action would avoid contamination associated with existing DLA restoration sites and/or Navy IR sites and thus would not begin development until remediation activities are completed. Any new construction would avoid Listed Species Management Areas, Habitat Opportunity Areas, USTs and pipelines that have been decommissioned. In the absence of proper controls, exposure of on-site workers to contaminated soil could result in adverse health and safety impacts. However, the potential for adverse impacts would be addressed by impact avoidance and minimization measures identified in Appendix B. The lessee would also be required to implement new plans specific to the proposed activities, but these plans would meet the same requirements as the plans/procedures currently in place (i.e., OMES Plan, the SWPPPs, Oil and Hazardous Substance Integrated Contingency Plan, and the Hazardous Material, Hazardous Waste, and Universal Waste Management Plan).

Implementation of the identified impact avoidance and minimization measures, in conjunction with compliance with all applicable legal requirements and the development of the applicable management plans, would prevent risk of human exposure to contamination and would protect equipment and facilities associated with ongoing environmental remediation efforts at the Main and Marine Terminals.

Petroleum, oil, and lubricants would be used by the lessee during reinstallation, repair, and upgrades of various infrastructure. Inadvertent releases of such substances could result in localized soil contamination; however, repair and reactivation activities performed by the lessee would be implemented in accordance with applicable legal requirements (as set forth in applicable planning documents) to minimize the potential for an inadvertent release.

The project would avoid species management areas shown in Figure 3.11-1. Ongoing site assessments and remediation activities would continue until the appropriate authority deems the remediation activities complete, at which point the sites would be available for development with LUCs implemented, if required. Groundwater monitoring would continue, and more wells could be added, or conversely the number of monitoring wells could be reduced, depending on remediation activity needs. Hazardous wastes may be present in soils at IR Sites 4, 6, 31, 32, and 33. Petroleum contaminated soil, groundwater, or soil vapor might be encountered during ground-disturbing activities. Construction or placement of ASTs would avoid known contaminated sites. If contaminated soils are found, then they would be handled in accordance with applicable plans (e.g., spill contingency plans) and regulatory requirements. Petroleum contaminated soil is typically disposed of in Class II landfills; however, in the event that laboratory results characterize the soil as hazardous waste, the soil would likely be disposed of at a Class I landfill.

At Pier 12, there are LUCs in place intended to protect benthic organisms from exposure to contaminated subsurface sediment (NAVFAC SW 2016). Ships fueling at the pier are not allowed to anchor in place, and must tie up to the pier to avoid disturbance of the bottom. The lessee would be required to observe the LUCs to avoid sediment disturbing activities and all refueling procedures would avoid bottom disturbance. If a potential lessee proposes an activity or use that would involve anticipated environmental impacts to sediments beyond those analyzed in the EA, and the Navy wishes to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.

There are known ACMs present in Buildings 100, 103, 107 and 108 at the Main Terminal and suspected ACMs located at Marine Terminal buildings. Buildings 107 and 108 are off limits and any lessee would not be able to use these structures. Testing would be completed before demolition of any structures to determine whether ACMs are present. Suspected ACMs in buildings at the Marine Terminal should be treated as ACM until testing proves otherwise. In the event that ACMs are present, abatement work would be completed in accordance with the DFSP San Pedro Hazardous Material, Hazardous Waste, and Universal Waste Management Plan, as well as applicable SCAQMD, Cal/OSHA, OSHA, and USEPA regulations. ACMs are also present in pipeline coating along the Pipeline Corridor.

The exterior of Buildings 107 and 108 have been painted with LBP in the past and it is assumed that other structures are likely to contain LBPs at Main and Marine Terminals. Testing would be completed before demolition of all structures to determine whether LBP is present. The presence of LBP would subject these surfaces to applicable exposure assessment requirements when disturbed for demolition purposes. The presence of other types of hazardous materials, such as discarded mercury switches, at the Main Terminal is unknown. If hazardous materials are encountered during demolition activities at the Main Terminal, they would be handled and disposed of in accordance with the DFSP San Pedro Hazardous Material, Hazardous Waste, and Universal Waste Management Plan and applicable regulations. The Navy would divert as much demolition waste from landfills as possible using demolition deconstruction techniques to reduce, reuse, or recycle the various types of waste. Demolition material would be recycled as feasible, and if not, categorized and sent to an appropriate disposal facility. Buildings containing ACMs or LBPs may also be encountered during rehabilitation and renewal of the project facilities. Removal of these materials would be achieved in accordance with applicable plans and regulations.

Operations

Renewed operations would be conducted in accordance with applicable plans (i.e., the SWPPPs, spill contingency plans) and regulatory requirements (i.e., *Transportation of Hazardous liquids by Pipeline* [49 CFR Part 195]*; Facilities Transferring Oil or Hazardous Materials in Bulk* [33 CFR Part 154]*; Oil and Hazardous Material Transfer Operations* [33 CFR Part 156]). Impacts to hazardous materials and wastes could be expected to be similar to those associated with the DFSP San Pedro prior to partial temporary closure. Resumed operations would involve similar use of petroleum and petroleum related products consistent with former Navy use of the site as a fueling station. Controls that are currently in place to protect marine sediments under Pier 12 from disturbance would remain in place.

Operating at maximum capacity, there could be up to 41 fuel delivery trucks entering/leaving the Main Terminal each day. Fuel deliveries would be anticipated to use 11,600-gallon tanker trucks. Fuel would be transported in compliance with federal and state regulations, including the Federal Motor Carrier Safety Administration, and the Department of Transportation regulations on the transport of Hazardous Materials.

Petroleum, oil, and lubricants would be used during reinstallation, repair, and upgrades of various infrastructure, as well as fueling operations. Inadvertent releases of such substances could result in localized soil contamination; however, repair and reactivation activities would be implemented in accordance with applicable plans (i.e., the SWPPPs, spill contingency plans) to minimize the potential for an inadvertent release.

Therefore, implementation of Alternative 1 would not result in significant impacts with regards to hazardous materials and wastes.

3.11.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of the On-site and Off-site Pipelines

Rehabilitation and Construction

Impacts under Alternative 2 would be similar to those described under Alternative 1, but would be related to the Marine Terminal only. As noted under Alternative 1, contamination has been detected in the sediments underneath Pier 12 due to historic use. No new sources of contaminants that could threaten worker safety have been identified since the 2016 EA. Ships fueling at the pier would not be allowed to anchor in place, and must tie up to the pier to avoid disturbance of the bottom. No sediment disturbing activities are proposed as part of this project and all refueling procedures would avoid bottom disturbance.

In the absence of proper controls, exposure of on-site workers to contamination, ACMs (present in pipeline coating in the Pipeline Corridor), and potential LBP could result in adverse health and safety impacts. However, the potential for adverse impacts would be addressed by impact avoidance and minimization measures identified in Appendix B. Implementation of the identified impact avoidance and minimization measures, in conjunction with compliance with the DFSP San Pedro Hazardous Material, Hazardous Waste, and Universal Waste Management Plan and all applicable legal requirements, would prevent risk of human exposure to contamination and would protect equipment and facilities associated with ongoing environmental remediation efforts and construction at the Marine Terminal.

Operations

Under Alternative 2, renewed fuel operations would be conducted at the Marine Terminal only, and impacts would be similar, but less than, those described under Alternative 1 based on the limited operational footprint. Operations would be carried out in accordance with applicable plans (i.e., the SWPPPs, spill contingency plans) and regulatory requirements. Impacts to hazardous materials and wastes could be expected to be similar to those associated with Pier 12 prior to partial temporary closure. Resumed operations would involve similar use of petroleum and petroleum related products consistent with former Navy use of the site as a fueling pier.

Therefore, implementation of Alternative 2 would not result in significant impacts with regard to hazardous materials and wastes.

3.12 Socioeconomics

This section discusses population demographics, employment characteristics, schools, and housing occupancy status data, and which provides key insights into socioeconomic conditions that might be affected by a proposed action.

3.12.1 Regulatory Setting

CEQ regulations implementing NEPA state that when economic or social effects and natural or physical environmental effects are interrelated, the EA would discuss these effects on the human environment (40 CFR 1508.14). CEQ regulations further state that the "human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment." In addition, 40 CFR 1508.8 states that agencies need to assess not only ecological effects, but also "aesthetic, historic, cultural, economic, social, or health" effects. Following from these regulations, the socioeconomic analysis in this EA evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the Proposed Action.

3.12.2 Affected Environment

The DFSP San Pedro facilities, including the Main Terminal, the Marine Terminal, and off-site pipelines, are located in an urban setting surrounded by several cities in Los Angeles County, California. The Main Terminal is primarily located in the harbor area of the City of Los Angeles with a portion of the northwest corner of the property located in the City of Lomita. Directly adjacent to the Main Terminal on the west side of the property is the City of Rancho Palos Verdes. The Marine Terminal is located in the Port of Long Beach, which lies in the City of Long Beach. The R-Line and G-Line pipelines are located in the City of Los Angeles, and the Long Beach Pipelines are located partially in the City of Los Angeles and partially in the City of Long Beach. The 10-inch Government pipeline and Norwalk pipeline run through the cities of Artesia, Belflower, Carson, Cerritos, Lakewood, and Norwalk. The 10-inch

Government pipeline and Norwalk pipeline would not be a part of the outlease. If the Navy in-transfers them from the current DoD owner, they would be assigned via separate assignment documents. The Main Terminal is adjacent to primarily residential land to the north, west, and south and industrial land to the east. The Marine Terminal and off-site pipelines are located in primarily industrial land associated with the Ports of Los Angeles and Long Beach. The potential use of the existing off-site pipelines would not be expected to create any socioeconomic impacts and the focus of the analysis is on the areas surrounding the Main Terminal and Marine Terminal. The study area for the socioeconomic analysis includes the cities of Los Angeles, Lomita, Rancho Palos Verdes, and Long Beach.

3.12.2.1 Population

Populations for the cities in the study area are listed in Table 3.12-1. For reference, the population of the United States, the State of California, and Los Angeles County are also listed. The growth rates of the cities since 2010 range from a low of 1.6 percent in Long Beach to a high of 5.5 percent in the City of Los Angeles. These growth rates are all lower than that of the State of California as a whole, which grew 6.1 percent.

Table 3.12-1 Population Statistics in the Study Area

Location	*Population (2010)*[1]	*Population (2017)*[2]	*Population Change*
United States	308,758,105	325,719,178	5.5%
California	37,254,518	39,536,653	6.1%
Los Angeles County	9,818,696	10,163,507	3.5%
City of Los Angeles	3,792,724	3,999,759	5.5%
City of Lomita	20,259	20,707	2.2%
City of Long Beach	462,235	469,450	1.6%
City of Rancho Palos Verdes	41,660	42,364	1.7%

Notes: [1] U.S. Census Bureau 2010; [2] U.S. Census Bureau 2017b.

3.12.2.2 Employment and Income Characteristics

Employment and income data are listed in Table 3.12-2. Of the cities in the ROI, the City of Rancho Palos Verdes has the highest median household income ($124,552), the highest per capita income ($61,011), and the lowest unemployment rate (4.0 percent). According to the United States Census Bureau (2017a), the industry employing the most people living in each of the four cities in the study area is "educational services, and health care and social assistance." The second largest industry in Los Angeles, Long Beach, and Rancho Palos Verdes is "professional, scientific, and management, and administrative and waste management services," while the second largest industry in Lomita is "retail trade."

Table 3.12-2 Employment and Income Statistics in the Study Area

Location	*Median Household Income*[1]	*Per Capita Income*[1]	*Unemployment Rate (Sept 2018)*[2]
United States	$57,652	$31,177	3.7%
California	$67,169	$33,128	3.9%
Los Angeles County	$61,015	$30,798	4.8%
City of Los Angeles	$54,501	$31,563	4.8%
City of Lomita	$62,353	$33,366	NA
City of Long Beach	$58,314	$29,586	5.0%
City of Rancho Palos Verdes	$124,552	$61,011	4.0%

Legend: NA = Not Available.
Notes: [1] U.S. Census Bureau 2017a; [2] Bureau of Labor Statistics 2018.

3.12.2.3 Schools

Information on schools in the study area is listed in Table 3.12-3. In the immediate vicinity of the Main Terminal are Rolling Hills Preparatory School to the north and Mary Star of the Sea High School, William J. Johnston Community Day School, and Taper Avenue Elementary School to the south. The William J. Johnston Community Day School and Taper Avenue Elementary School are also within the vicinity of the Long Beach Pipelines and the G-Line pipeline. Hawaiian Avenue Elementary School and George De La Torre Jr. Elementary School are within 1,500 feet of the R-Line pipeline.

Table 3.12-3 School Statistics in the Study Area

Location	*Public and Private Schools*[1]	*Public and Private School Students*[1]	*Percent of Population Under 18 Years Old*[2]
United States	NA	NA	22.6%
California	NA	NA	22.9%
Los Angeles County	2,745	1,600,103	21.9%
City of Los Angeles	677	329,985	21.3%
City of Lomita	5	2,170	19.5%
City of Long Beach	96	71,161	23.7%
City of Rancho Palos Verdes	14	7,415	21.7%

Legend: NA = Not Available.
Notes: [1]National Center for Education Statistics 2016; [2]U.S. Census Bureau 2017a.

3.12.2.4 Housing

Housing information in the study area is listed in Table 3.12-4. Between the four cities in the ROI, there are a total of 103,772 vacant housing units and an overall vacancy rate of 6.3 percent. This vacancy rate is slightly higher than Los Angeles County, which is 6.0 percent, and lower than the State of California which has a vacancy rate of 7.9 percent. Median housing prices are higher in the study area than in the State of California and nationally. In all the cities in the study area but Long Beach, housing prices are higher than those in the County of Los Angeles as well. The highest median home values are in the City of Rancho Palos Verdes where the median home values are more than double those of the county as a whole. All the cities in the study area have fewer persons per household than the State of California and Los Angeles County, but all of the cities except Lomita have a higher number of persons per household than the national average.

Table 3.12-4 Housing Statistics in the Study Area

Location	*Housing Units*[1]	*Vacant Housing Units*[1]	*Housing Vacancy Rate*[1]	*Persons per Household*[1]	*Median Value of Owner-Occupied Housing Units*[1]
United States	135,393,564	16,567,643	12.2%	2.63	$193,500
California	13,996,299	1,108,171	7.9%	2.96	$443,400
Los Angeles County	3,506,903	211,705	6.0%	3.01	$495,800
City of Los Angeles	1,457,762	93,535	6.4%	2.83	$549,800
City of Lomita	8,532	462	5.4%	2.54	$561,500
City of Long Beach	173,741	8,740	5.0%	2.80	$476,400
City of Rancho Palos Verdes	16,815	1,035	6.2%	2.66	$1,051,000

Note: [1]U.S. Census Bureau 2017a.

3.12.3 Environmental Consequences

The analysis of socioeconomics impacts is focused on the potential effects of the alternatives on population, employment, schools, and housing.

3.12.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure and there would be no change to socioeconomics.

Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.12.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

The study area for socioeconomic analyses for Alternative 1 is defined as the four cities, which contain portions of the DFSP San Pedro facilities including Los Angeles, Lomita, Rancho Palos Verdes, and Long Beach. Alternative 1 may include construction activities associated with rehabilitating existing infrastructure or the construction of new infrastructure at the Main Terminal or Marine Terminal and may include additional employment from renewed operations at the sites.

Population Change

Both construction and operational workers are anticipated to be participants in the existing labor pool of the study area. Since the existing pool would provide sufficient labor, it is not anticipated that new population would move to the area to fill project-related jobs. Therefore, no change in population is anticipated under Alternative 1.

Economic Impacts

Construction projects associated with the rehabilitation of the Main and Marine Terminals may increase economic activity in the study area due to construction spending on goods and materials, and on wages in the area. The spending may lead to indirect employment through the increase in demand for goods and services. Hiring of local construction workers would increase construction employment and wages. The influx of construction workers commuting to the area may cause an increase in spending at local retail establishments through the purchase of food or vehicle fuel.

The potential number of workers and the number of visiting ships during operation would not represent significant increases over current levels of industry employment or ship traffic. The increase in spending from ships would provide a slight increase in economic activity, but it would be less than significant.

Impacts on Schools

Impacts from noise and traffic associated with construction activity is analyzed further in Sections 3.7, Noise, and 3.9, Transportation, of this EA, respectively; since there is not expected to be an increase in population there are no other potential impacts on schools from rehabilitation/construction activities or from operations conducted at the DFSP San Pedro facilities once rehabilitation/construction is complete.

Impacts on Housing

The majority of construction workers involved with the rehabilitation projects are expected to be from the local area and would not require additional housing in any of the surrounding cities. Additional personnel may be hired to support expanded operations, but the employees are likely to be hired from surrounding communities and would not result in a need for new or additional housing.

Therefore, implementation of the Alternative 1 would not result in significant impacts to the socioeconomics of the local area or region.

3.12.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

The study area for socioeconomic analyses for Alternative 2 is similar to that of Alternative 1 although because Alternative 2 does not include changes to current conditions at the Main Terminal, the ROI is limited to the cities that contain portions of the Marine Terminal or off-site pipelines, including Los Angeles and Long Beach. Impacts associated with Alternative 2 are generally the same as those associated with Alternative 1, but these impacts would accordingly be reduced relative to what has been described for Alternative 1 as rehabilitation and operations would only occur at the Marine Terminal.

Therefore, implementation of Alternative 2 would not result in significant impacts to the socioeconomics of the local area or region.

3.13 Environmental Justice

The USEPA defines Environmental Justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (USEPA 2018d).

3.13.1 Regulatory Setting

Consistent with EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations (February 11, 1994), the Navy’s policy is to identify and address any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations.

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks (1997), requires federal agencies to, “identify and assess environmental health risks and safety risks that may disproportionately affect children,” and, “ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”

3.13.2 Affected Environment

The study area for the environmental justice analysis includes all the census tract block groups within 1,500 feet of one of the project features. In total, this includes 28 block groups. Much of the land surrounding the project features is currently in industrial use and does not include residences. Table 3.13-1 lists the census block groups along with the population in each block group and percentages of the population that are a minority, have incomes below the poverty line, or are under the age of 18.

Census block groups are considered to be an environmental justice community if 50 percent or more of the population identifies as a minority or if 20 percent or more of the population have incomes below the poverty line. These populations are bold in the table.

Figure 3.13-1 highlights the census block groups in the study area outside of the Port Industrial areas that are considered environmental justice communities.

3.13.2.1 Minority Populations

Of the 116 block groups in the study area, 107 have a population that is composed of 50 percent or more minorities (Table 3.13-1). This is typical of the State of California, which has a minority population of 62.1 percent and of Los Angeles County, which is composed of 73.5 percent minorities. Of the ten cities in the vicinity of the DFSP San Pedro facilities, nine of them also have populations with the minority community making up over 50 percent of the population and one city has a population where the population is under 50 percent minority (Rancho Palos Verdes).

3.13.2.2 Low-income Populations

Of the 116 block groups in the study area, 42 have populations with 20 percent or more of the people living below the poverty line (Table 3.13-1). Each of these 42 block groups also have populations that are greater than 50 percent minority. In the State of California, 15.1 percent of the population is living below the poverty line and in Los Angeles County 17.0 percent of the population is below the poverty line. Nine of the cities in the vicinity of the DFSP San Pedro facilities have populations where less than 20 percent of the people are below the poverty line and the City of Los Angeles has greater than 20 percent of the population living below the poverty line.

3.13.2.3 Protection of Children

Figure 3.13-1 shows schools that are within 1,500 feet of the DFSP San Pedro facilities. There are a total of 24 schools within the 1,500-foot buffer. Los Angeles County's population is 22.5 percent children (persons under the age of 18). Of the 116 block groups in the study area, 74 have a greater proportion of their populations made up of children than the county as a whole and 42 have a smaller proportion of children (Table 3.13-1).

3.13.3 Environmental Consequences

This analysis focuses on the potential for a disproportionate and adverse exposure of specific population groups to the projected adverse consequences discussed in the previous sections of this chapter.

3.13.3.1 No Action Alternative

The No Action Alternative is equivalent to what was identified and analyzed as the partial permanent closure alternative (Alternative 4) in the 2016 EA. The 2016 EA's Alternative 4 activities related to closure are complete, no additional closure activities would occur related to the 2016 EA. Under the No Action Alternative, partial operations would resume to approximately one-third of historical pre-temporary closure levels. The fuel facility would remain in partial closure, and there would be no change to environmental justice issues.

Therefore, no significant impacts would occur with implementation of the No Action Alternative.

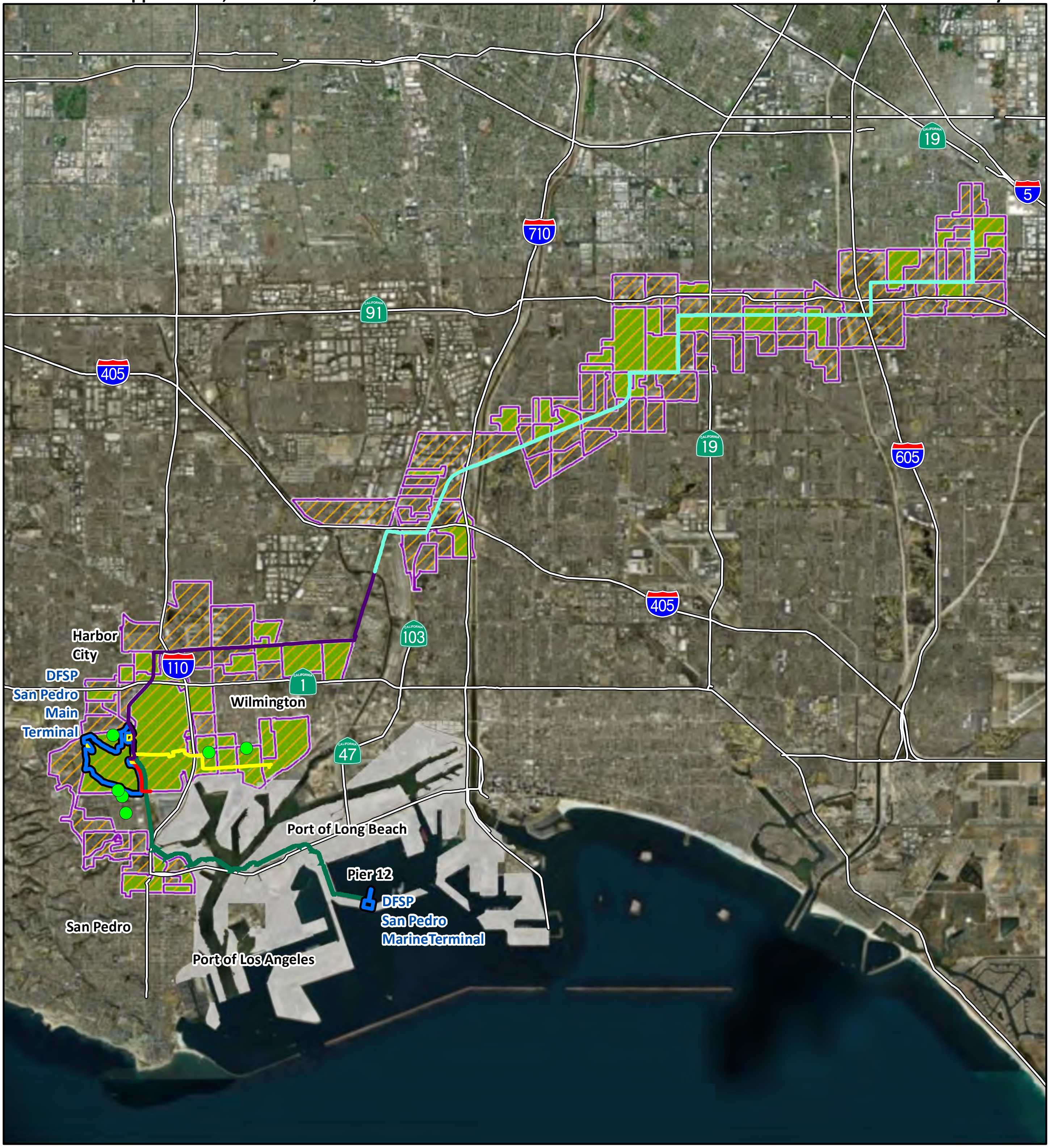


Figure 3.13-1. Environmental Justice Communities

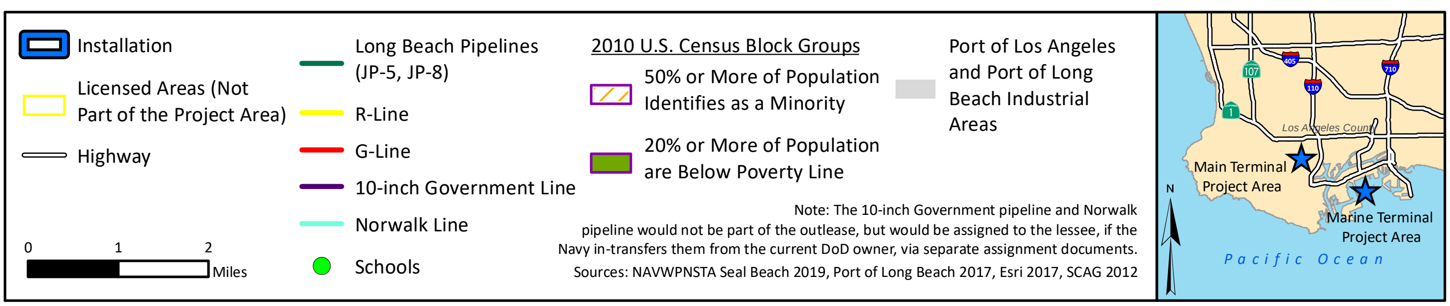


Table 3.13-1 Environmental Justice Statistics in the Study Area

Area		***Project Feature***	***Population[1]***	***Minority Population[1,2]***	***Poverty Rate[1,2]***	***Population Under the age of 18[1]***
United States		NA	325,719,178	38.5%	14.6%	22.9%
California		NA	**39,536,653**	**62.1%**	15.1%	23.4%
Los Angeles County		NA	**10,163,507**	**73.5%**	17.0%	22.5%
City of Los Angeles		Main Terminal/Pipelines	**3,999,759**	**71.6%**	**20.4%**	21.3%
City of Lomita		Main Terminal	**20,707**	**57.0%**	12.3%	19.5%
City of Long Beach		Marine Terminal/Pipelines	**469,450**	**72.4%**	19.1%	23.7%
City of Rancho Palos Verdes		Main Terminal	42,364	47.1%	4.5%	21.7%
City of Artesia		Pipelines	**16,853**	**81.4%**	11.8%	20.5%
City of Bellflower		Pipelines	**77,852**	**83.6%**	14.8%	26.0%
City of Carson		Pipelines	**92,927**	**92.7%**	10.6%	21.2%
City of Cerritos		Pipelines	**50,145**	**84.8%**	5.0%	19.1%
City of Lakewood		Pipelines	**81,106**	**63.7%**	7.0%	22.2%
City of Norwalk		Pipelines	**106,404**	**89.2%**	13.9%	24.4%
Census Tract	***Block Group***	***Project Feature***	***Population[1]***	***Minority Population[1,2]***	***Poverty Rate[1,2]***	***Population Under the age of 18[1]***
2933.04	2	Pipelines	**2,072**	**92.5%**	12.3%	21.9%
2933.06	1	Pipelines	**816**	**71.2%**	3.9%	17.2%
2933.06	2	Main Terminal	**1,716**	**65.6%**	3.0%	20.0%
2933.07	1	Main Terminal	**1,567**	**87.2%**	17.0%	17.2%
2933.07	2	Pipelines	**1,034**	**94.1%**	**40.9%**	27.0%
2941.10	1	Pipelines	**1,944**	**84.5%**	**21.0%**	25.2%
2941.10	2	Pipelines	**1,398**	**94.8%**	**40.1%**	39.8%
2941.10	3	Pipelines	**944**	**76.8%**	2.1%	19.0%
2941.20	1	Pipelines	**684**	**97.2%**	**28.7%**	33.5%
2941.20	3	Pipelines	**630**	**92.5%**	**26.7%**	27.8%
2942.00	1	Pipelines	**1,496**	**87.4%**	7.4%	24.5%
2942.00	3	Pipelines	**1,340**	**93.9%**	13.1%	29.4%
2943.01	1	Pipelines	**1,537**	**90.4%**	4.2%	24.1%
2943.02	1	Pipelines	**1,876**	**97.8%**	18.9%	30.1%
2943.02	2	Pipelines	**2,564**	**89.9%**	**31.1%**	27.5%
2944.10	1	Pipelines	**2,169**	**95.3%**	**36.8%**	41.2%
2944.10	2	Pipelines	**2,879**	**84.8%**	**28.2%**	28.1%
2944.21	1	Main Terminal	**1,127**	**82.2%**	18.8%	27.2%
2944.21	2	Pipelines	**1,081**	**100.0%**	**29.2%**	29.6%
2947.01	2	Pipelines	**1,039**	**98.1%**	**23.7%**	32.3%
2947.01	3	Pipelines	**1,525**	**96.3%**	**44.4%**	36.7%
2948.10	2	Pipelines	**1,915**	**97.9%**	**34.8%**	32.3%
2948.30	1	Pipelines	**2,799**	**99.5%**	**38.4%**	35.7%
2948.30	2	Pipelines	**1,122**	**99.6%**	**30.0%**	32.4%
2949.00	1	Pipelines	**2,066**	**95.6%**	**30.4%**	37.0%
2949.00	2	Pipelines	**1,682**	**97.3%**	**21.7%**	31.2%
2951.03	1	Main Terminal	3,221	48.7%	2.7%	15.9%
2951.03	2	Main Terminal/Pipelines	1,717	24.2%	3.0%	11.3%

Table 3.13-1 Environmental Justice Statistics in the Study Area (continued)

Census Tract	Block Group	Project Feature	Population[1]	Minority Population[1,2]	Poverty Rate[1,2]	Population Under the age of 18[1]
2962.10	1	Pipelines	**756**	**98.4%**	14.2%	22.4%
2962.10	2	Pipelines	**795**	**91.4%**	**32.6%**	29.4%
2962.10	3	Pipelines	**1,610**	**96.2%**	**47.1%**	30.2%
2963.00	1	Pipelines	**1,522**	**75.5%**	12.9%	17.0%
2963.00	2	Pipelines	**3,489**	**55.1%**	7.1%	22.7%
2965.00	1	Pipelines	**1,320**	**94.2%**	**36.6%**	19.7%
2965.00	2	Pipelines	**1,284**	**91.7%**	**35.0%**	16.5%
2965.00	3	Pipelines	**1,406**	**97.7%**	10.1%	42.5%
5436.03	1	Pipelines	**2,345**	**65.8%**	7.1%	11.5%
5436.04	2	Pipelines	**2,401**	**89.8%**	6.0%	15.9%
5437.03	1	Pipelines	**3,348**	**90.8%**	4.4%	19.2%
5440.01	1	Pipelines	**398**	**82.9%**	0.0%	20.6%
5440.01	4	Pipelines	**2,012**	**97.9%**	18.0%	27.4%
5440.02	1	Pipelines	**795**	**82.8%**	8.4%	33.5%
5526.01	1	Pipelines	**1,247**	**100.0%**	1.8%	22.5%
5526.01	2	Pipelines	**1,650**	**96.6%**	13.6%	27.0%
5526.01	3	Pipelines	**1,512**	**99.4%**	**23.6%**	28.8%
5526.02	2	Pipelines	**1,353**	**97.9%**	**31.0%**	37.2%
5526.02	3	Pipelines	**2,013**	**94.8%**	**51.5%**	35.4%
5527.00	2	Pipelines	**929**	**85.0%**	5.1%	15.1%
5527.00	3	Pipelines	**1,653**	**86.0%**	4.7%	32.1%
5531.00	3	Pipelines	**742**	**25.3%**	6.2%	29.6%
5543.01	2	Pipelines	**1,318**	**85.4%**	**23.4%**	22.6%
5543.02	1	Pipelines	**2,509**	**95.7%**	**25.2%**	33.1%
5543.02	2	Pipelines	**1,805**	**94.2%**	8.4%	27.3%
5544.03	1	Pipelines	**2,491**	**85.5%**	17.6%	31.1%
5544.03	2	Pipelines	**3,011**	**86.1%**	16.7%	24.0%
5544.04	2	Pipelines	**2,523**	**83.6%**	**21.3%**	23.3%
5544.05	2	Pipelines	**2,381**	**85.4%**	17.1%	22.0%
5544.06	1	Pipelines	**2,095**	**67.8%**	7.6%	13.0%
5544.06	2	Pipelines	**618**	**43.7%**	3.8%	24.4%
5544.06	3	Pipelines	**2,088**	**74.9%**	**20.7%**	25.1%
5545.13	1	Pipelines	**2,766**	**91.6%**	6.5%	23.8%
5545.14	1	Pipelines	**1,309**	**88.2%**	3.9%	22.8%
5545.14	2	Pipelines	**1,996**	**84.8%**	8.3%	24.5%
5545.21	1	Pipelines	**2,233**	**73.8%**	4.9%	16.3%
5545.21	3	Pipelines	**2,041**	**82.7%**	2.7%	15.3%
5436.03	1	Pipelines	**2,390**	**87.9%**	11.5%	16.8%
5436.04	2	Pipelines	**2,051**	**91.5%**	**39.6%**	25.9%
5437.03	1	Pipelines	**1,478**	**94.8%**	16.3%	23.5%
5440.01	1	Pipelines	**2,077**	**95.0%**	14.0%	19.7%
5440.01	4	Pipelines	**973**	**91.6%**	11.8%	19.8%
5440.02	1	Pipelines	**2,510**	**97.8%**	24.1%	29.1%
5526.01	1	Pipelines	**696**	**78.7%**	5.7%	15.2%
5526.01	2	Pipelines	**1,424**	**67.9%**	5.2%	16.2%

Table 3.13-1 Environmental Justice Statistics in the Study Area (continued)

Census Tract	*Block Group*	*Project Feature*	*Population[1]*	*Minority Population[1,2]*	*Poverty Rate[1,2]*	*Population Under the age of 18[1]*
5526.01	3	Pipelines	1,151	**64.3%**	14.4%	30.2%
5526.02	2	Pipelines	849	**75.6%**	5.8%	24.3%
5526.02	3	Pipelines	1,240	**65.2%**	**31.0%**	25.3%
5527.00	2	Pipelines	459	**69.3%**	**51.5%**	13.9%
5527.00	3	Pipelines	732	**64.6%**	5.1%	23.2%
5531.00	3	Pipelines	1,266	**80.5%**	4.7%	26.1%
5543.01	2	Pipelines	1,916	**81.6%**	6.2%	18.4%
5543.02	1	Pipelines	1,289	**98.1%**	**23.4%**	31.9%
5543.02	2	Pipelines	1,143	**71.3%**	**25.2%**	12.1%
5544.03	1	Pipelines	3,071	**96.0%**	8.4%	30.6%
5544.03	2	Pipelines	2,544	**89.9%**	17.6%	32.6%
5544.04	2	Pipelines	978	**83.0%**	16.7%	33.1%
5544.05	2	Pipelines	1,894	**93.7%**	**21.3%**	28.0%
5544.06	1	Pipelines	1,647	**93.9%**	17.1%	33.5%
5544.06	2	Pipelines	950	**90.1%**	7.6%	28.6%
5544.06	3	Pipelines	1,944	**88.4%**	3.8%	27.7%
5545.13	1	Pipelines	2,310	**98.2%**	**20.7%**	40.7%
5545.14	1	Pipelines	684	**95.8%**	6.5%	37.9%
5545.14	2	Pipelines	1,893	**85.3%**	3.9%	21.2%
5545.21	1	Pipelines	1,389	**68.9%**	8.3%	19.7%
5545.21	3	Pipelines	1,025	**79.9%**	4.9%	20.3%
5546.00	1	Pipelines	642	**57.5%**	2.7%	10.1%
5546.00	2	Pipelines	1,699	**78.0%**	11.5%	27.8%
5547.00	1	Pipelines	1,141	**88.5%**	**39.6%**	19.8%
5547.00	2	Pipelines	2,390	**78.0%**	16.3%	23.4%
5547.00	3	Pipelines	2,199	**94.4%**	14.0%	44.0%
5548.01	1	Pipelines	1,984	**95.2%**	11.8%	31.6%
5548.01	2	Pipelines	2,919	**88.6%**	**24.1%**	26.8%
5700.01	1	Pipelines	755	**96.0%**	5.7%	29.0%
5700.01	4	Pipelines	1,987	**91.8%**	5.2%	36.5%
5700.02	1	Pipelines	564	**95.6%**	14.4%	33.0%
5700.03	1	Pipelines	2,066	**93.8%**	5.8%	29.7%
5700.03	4	Pipelines	841	**19.4%**	6.4%	8.0%
5700.03	5	Pipelines	2,388	**97.8%**	13.1%	25.2%
5701.00	1	Pipelines	1,828	**91.4%**	9.4%	26.0%
5701.00	2	Pipelines	1,463	**84.7%**	3.2%	21.2%
5702.03	2	Pipelines	2,345	**65.8%**	**33.1%**	11.5%
5702.04	1	Pipelines	2,401	**89.8%**	16.0%	15.9%
5702.04	2	Pipelines	3,348	**90.8%**	14.6%	19.2%
5705.02	2	Pipelines	398	**82.9%**	**21.2%**	20.6%
5705.02	3	Pipelines	2,012	**97.9%**	**20.4%**	27.4%
5706.02	1	Pipelines	795	**82.8%**	**20.3%**	33.5%
5706.02	3	Pipelines	1,247	**100.0%**	**20.0%**	22.5%
5706.02	4	Pipelines	1,650	**96.6%**	16.6%	27.0%
5706.03	1	Pipelines	1,512	**99.4%**	18.8%	28.8%

Table 3.13-1 Environmental Justice Statistics in the Study Area (continued)

Census Tract	*Block Group*	*Project Feature*	*Population[1]*	*Minority Population[1,2]*	*Poverty Rate[1,2]*	*Population Under the age of 18[1]*
5706.03	2	Pipelines	1,353	**97.9%**	**44.5%**	37.2%
5706.03	3	Pipelines	2,013	**94.8%**	**20.6%**	35.4%
5707.01	5	Pipelines	929	**85.0%**	14.4%	15.1%
5707.02	1	Pipelines	1,653	**86.0%**	9.6%	32.1%
5715.02	1	Pipelines	742	**25.3%**	6.2%	29.6%
5715.02	2	Pipelines	1,318	**85.4%**	10.0%	22.6%
5715.02	3	Pipelines	2,509	**95.7%**	2.2%	33.1%
5715.02	4	Pipelines	1,805	**94.2%**	18.1%	27.3%
5715.03	1	Pipelines	2,491	**85.5%**	13.4%	31.1%
5716.00	1	Pipelines	3,011	**86.1%**	**60.9%**	24.0%
5717.01	2	Pipelines	2,523	**83.6%**	**28.1%**	23.3%
5717.01	3	Pipelines	2,381	**85.4%**	16.9%	22.0%
5717.03	1	Pipelines	2,095	**67.8%**	17.2%	13.0%
5717.03	2	Pipelines	618	**43.7%**	13.3%	24.4%
5717.04	2	Pipelines	2,088	**74.9%**	**30.9%**	25.1%
5717.04	3	Pipelines	2,766	**91.6%**	**25.4%**	23.8%
5718.00	1	Pipelines	1,309	**88.2%**	2.1%	22.8%
5723.01	1	Pipelines	1,996	**84.8%**	15.8%	24.5%
5723.01	2	Pipelines	2,233	**73.8%**	15.4%	16.3%
5725.00	2	Pipelines	2,041	**82.7%**	9.9%	15.3%
6701.00	3	Main Terminal	1,895	42.8%	18.3%	20.0%
6707.01	1	Main Terminal	**2,729**	**55.9%**	7.7%	29.3%
9800.02	1	Pipelines	**0**	**0.0%**	0.0%	0.0%
9800.14	1	Pipelines	0	0.0%	0.0%	0.0%
9800.15	1	Main Terminal/Pipelines	**514**	**85.4%**	**24.0%**	18.5%
9800.31	1	Marine Terminal/Pipelines	**1,135**	**64.9%**	0.0%	4.0%
9800.33	1	Marine Terminal/Pipelines	**12**	**100.0%**	**100.0%**	0.0%

Legend: NA = Not Available.
Notes: [1] United States Census Bureau 2017b.
[2] Bold text identifies the census block groups in the study area that are considered environmental justice communities.

3.13.3.2 Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines

Rehabilitation and Construction

The study area for the environmental justice analysis for Alternative 1 is defined as all the census tract block groups within 1,500 feet of the DFSP San Pedro facilities. Within this study area, there are a total of 107 block groups that are considered environmental justice communities.

Impacts from the implementation of Alternative 1 may include noise and traffic impacts from the construction related to rehabilitation of existing infrastructure or the construction of new infrastructure. Noise impacts and traffic impacts are discussed further in Sections 3.7, Noise, and 3.9, Transportation, of this EA, respectively. During construction, implementation of safety procedures would be followed to minimize the risks of disturbing hazardous materials. This is discussed further in Section 3.11, Hazardous

Materials and Waste. As described in Section 3.10, Public Health and Safety, due to the implementation of a construction health and safety program and the exclusion of the public from the construction area, potential impacts from construction to public health and safety would be less than significant.

Operations

During operation of the terminals, the use of ASTs and pipelines, and the storage and transportation of flammable liquids would potentially pose hazards to some of the surrounding communities. Section 3.10, Public Health and Safety, further discusses potential safety concerns from the accidental release of fuel. New ASTs installed would be designed according to NFPA standards for the appropriate class of liquids they would store. In addition, the OMES Plan (or similar plan developed by the lessee) described would help reduce safety risks and minimize potential impacts.

Activities relating to Alternative 1 have the potential to increase risk to the health and safety of environmental justice communities, and the number of environmental justice communities impacted are disproportionate to non-environmental justice communities. However, many of the potentially impacted communities are along the existing 10-inch Government Line pipeline or the Norwalk Line pipeline and the uses of the pipelines would be similar to current and historical uses. Additionally, with the safety measures and mitigation steps described in the previous sections and the appropriate standards and practices in place, these risks are low, so the impacts on minority and low-income populations due to the implementation of Alternative 1 would be less than significant.

Therefore, implementation of Alternative 1 would not cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations.

3.13.3.3 Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines

The study area for environmental justice analysis for Alternative 2 would be largely the same as the study area for Alternative 1, although Alternative 2 proposes to resume operations only at the Marine Terminal; thus the census block groups surrounding the Main Terminal are not included.

Impacts and mitigation measures associated with Alternative 2 would be similar to those described for Alternative 1, although the potential construction would be limited to the Marine Terminal, which is located in an access-restricted area away from residential neighborhoods. The distance of the Marine Terminal from potentially impacted communities and potential construction activity would accordingly be reduced relative to what has been described for Alternative 1.

Therefore, implementation of Alternative 2 would not cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations.

3.14 Summary of Potential Impacts to Resources and Impact Avoidance and Minimization

A summary of the potential impacts associated with each of the action alternatives and the No Action Alternative are presented in Table 3.14-1. Appendix B provides a comprehensive list of all impact avoidance and minimization measures associated with the Proposed Action.

Table 3.14-1 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*[1]	*Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines*	*Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines*
Air Quality	**No Significant Impact.** Activities during partial operations would not exceed *de minimis* levels for VOCs, NO_x, CO, SO_2, PM_{10}, of $PM_{2.5}$. All required air permits would be obtained before initiating partial operations.	**No Significant Impact.** Temporary increase in dust would occur during construction. Activities during construction and renewed operations would not exceed *de minimis* levels for VOCs, CO, SO_2, PM_{10}, or $PM_{2.5}$, but would exceed *de minimis* levels for NO_x under construction, and would exceed *de minimis* levels for NO_x and VOCs under operations. All required air permits would be obtained by the lessee before initiating operations. A Record of Non-applicability for Clean Air Act Conformity has been prepared for the emissions for the Marine Terminal portion of Alternative 1, which would be below *de minimis* for all criteria pollutants, as presented in Appendix C.	**No Significant Impact.** Impacts from rehabilitation and construction, and renewed operation impacts would be similar to those described for Alternative 1 except a smaller area would be subject to ground-disturbing activity. Activities during construction would not exceed *de minimis* levels, and activities during renewed operations would not exceed *de minimis* levels for VOCs, CO, SO_2, PM_{10}, or $PM_{2.5}$, but would exceed *de minimis* levels for NO_x. All required air permits would be obtained by the lessee before initiating operations.
Water Resources	**No Significant Impact.** Partial operations would be conducted in compliance with new SWPPPs and associated BMPs prepared for the Main and Marine Terminals.	**No Significant Impact.** No potential for significant direct impacts to surface waters or floodplains. Negligible impacts to groundwater resources. Implementation of and adherence to the project-specific construction SWPPP and associated BMPs would minimize the potential for pollutants to enter receiving waters at the Main Terminal and Marine Terminal during rehabilitation and construction activities. Renewed operations would be conducted in compliance with new SWPPPs and associated BMPs prepared for the Main and Marine Terminals.	**No Significant Impact.** Rehabilitation and construction impacts would be similar to those described for Alternative 1 except a smaller area would be subject to ground-disturbing activity. Renewed operations would be conducted in compliance with new SWPPP and associated BMPs prepared for the Marine Terminal.

Table 3.14-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	*No Action Alternative[1]*	*Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines*	*Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines*
Geological Resources	**No Significant Impact.** Partial operations would not affect geological resources.	**No Significant Impact.** Surface disturbance and grading would occur. Slight increase in risk for lands and erosion would be minimized. No or negligible impacts would occur to mineral resources, bedrock, or soils. Renewed operations would not affect geological resources.	**No Significant Impact.** Rehabilitation and construction impacts would be similar to those described for Alternative 1 except a smaller area would be subject to ground-disturbing activity, limited to the Marine Terminal. Renewed operations would not affect geological resources.
Biological Resources	**No Significant Impact.** Biological resources would continue to be managed in accordance with the Integrated Natural Resources Management Plan and recent BOs issued for DFSP San Pedro (USFWS 2010; 2015).	**No Significant Impact.** No direct impacts to native habitats, only indirect impacts would occur at the Main Terminal. During construction, temporary impacts to wildlife could occur within adjacent habitats due to an increase in dust, noise, or visual disturbances. No adverse effects to federally listed species. Biological resources would continue to be managed in accordance with the Integrated Natural Resources Management Plan and recent BOs issued for DFSP San Pedro (USFWS 2010; 2015).	**No Significant Impact.** Rehabilitation and construction impacts would be similar to those described for Alternative 1 related to wildlife, but would be limited to the Marine Terminal. There is no vegetation nor special status species located at the Marine Terminal.
Land Use and Coastal Resources	**No Significant Impact.** Land uses and coastal resources would not change under partial operations.	**No Significant Impact.** Land uses would not change under renewed operations at either the Main or Marine Terminal. Coastal uses and resources would not be impacted.	**No Significant Impact.** Land uses would not change under renewed operations at the Marine Terminal. Coastal uses and resources would not be impacted.

Table 3.14-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	***No Action Alternative*[1]**	***Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines***	***Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines***
Visual Resources	**No Significant Impact.** Visual resources would not change under partial operations.	**No Significant Impact.** Temporary change to the visual environment during construction from the presence of construction equipment could occur. Equipment installed for operations would be similar to existing infrastructure on site at the Main and Marine Terminals, and would be consistent with similar industrial fueling operations directly adjacent to the DFSP San Pedro sites. The addition of infrastructure at the Main and Marine Terminals could be visible from certain vantage points in the surrounding community, but this generally would not represent a significant change to the visual environment based on the industrial character of the area.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.
Noise	**No Significant Impact.** Noise levels at identified sensitive receptors would not be noticeably distinct from the existing noise environment. Noise from partial operations would be less than historical levels and indistinct.	**No Significant Impact.** Temporary and localized noise from construction activities as well as localized noise during repair and activation activities would occur. Noise levels at identified sensitive receptors would not be noticeably distinct from the existing noise environment. Existing noise sources would continue to be the predominant noise contributors in the area. The proposed outlease of the Main Terminal and future development under Alternative 1 would not significantly change those conditions. Noise generated at the Marine Terminal, under Alternative 1, would not change significantly from existing activity and would be consistent with the current industrial land uses surrounding the facility.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal, which is located in an industrial area over 2 miles from noise sensitive receptors. Noise generated at the Marine Terminal, under Alternative 2, would not change significantly from existing activity and would be consistent with the current industrial land uses surrounding the facility.

Table 3.14-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	*No Action Alternative[1]*	*Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines*	*Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines*
Infrastructure	**No Significant Impact.** No change to infrastructure under partial operations.	**No Significant Impact.** Temporary increase in production of solid waste during construction. Renewed use of existing infrastructure with the possible connection to new infrastructure under operations. Demand for utilities under Alternative 1 would be consistent with historic demand.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.
Transportation	**No Significant Impact.** Daily traffic under partial operations would be the same as under current conditions.	**No Significant Impact.** Traffic in waterways related to fueling operations is anticipated to incrementally increase, but be of negligible size and impact in regard to the vast size and impact of the Los Angeles Harbor. Temporary increase in daily trips (87), with mainly worker trips (60) occurring during peak hours. During operations, an estimated recurring increase of approximately 240 daily trips during peak hours for worker commutes, and up to 125 passenger car equivalent trips for fuel onloading or offloading occurring throughout the day.	**No Significant Impact.** Temporary increase in daily trips (29), with mainly worker trips (20) occurring during peak hours going to/from the Marine Terminal. During operations, an estimated recurring increase of approximately 80 daily trips during peak hours for worker commutes, and up to 63 passenger car equivalent trips for fuel onloading or offloading occurring throughout the day.
Public Health and Safety	**No Significant Impact.** No change to public health and safety under partial operations.	**No Significant Impact.** Construction would be conducted with implementation of a health and safety program and the exclusion of the public from the construction area. During operations, implementation of site-specific health and safety plans, spill and contingency plans, compliance with federal, state, and local safety regulations, and the continued exclusion of the public from operational areas would minimize potential impacts during operations. Rehabilitated and newly construction equipment and infrastructure would be required to comply with current safety and environmental requirements.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.

Table 3.14-1 Summary of Potential Impacts to Resource Areas (continued)

Resource Area	*No Action Alternative[1]*	*Alternative 1: Rehabilitation and Operation of Main and Marine Terminals and Operation of On-site and Off-site Pipelines*	*Alternative 2: Rehabilitation and Operation of Marine Terminal and Operation of On-site and Off-site Pipelines*
Hazardous Materials and Wastes	**No Significant Impact.** Under partial operations, existing plans would be followed to minimize potential for inadvertent release. Ongoing site assessments and remediation activities would continue.	**No Significant Impact.** Proposed construction activities could encounter contamination associated with existing Navy Installation Restoration Program sites and/or Defense Logistics Agency restoration sites. However, the sites would not be available for development until ongoing site assessments and remediation activities are complete and the sites achieve regulatory closure. Under operations, applicable plans and BMPs would be followed to minimize potential for inadvertent releases (e.g., SWPPPs, spill and contingency plans).	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal.
Socioeconomics	**No Significant Impact.** No change to socioeconomics under partial operations.	**No Significant Impact.** Construction associated with the rehabilitation of the Main and Marine Terminals may temporarily increase economic activity. Additional personnel may be hired to support expanded operations, which would also increase economic activity. Employees are likely to be hired from surrounding communities and would not result in a need for new housing or schools.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal and the immediate vicinity.
Environmental Justice	**No Significant Impact.** No change to environmental justice under partial operations.	**No Significant Impact.** Implementation of a health and safety program and the exclusion of the public from the construction area would limit any potential impacts to the 107 block groups that are considered environmental justice communities near the Main and Marine Terminals. Renewed operations would not disproportionately impact environmental justice communities due to the continued implementation of safety and minimization measures.	**No Significant Impact.** Impacts would be the same as described under Alternative 1, only restricted to the Marine Terminal and the immediate vicinity.

Note: [1] Closure activities have already occurred at DFSP San Pedro, as analyzed in the 2016 EA. Impacts described for the No Action Alternative relate to the resumption of partial operations at approximately one-third of historical full operational levels.

4 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 Code of Federal Regulations (CFR) section 1508.7 as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions may have the potential to result in cumulatively significant impacts and should therefore be discussed in the same environmental impact analysis.

In addition, CEQ and United States (U.S.) Environmental Protection Agency (USEPA) have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005) and Consideration of Cumulative Impacts in USEPA Review of NEPA Documents (USEPA 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (1997) states that cumulative impact analyses should "…determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this Environmental Assessment (EA), the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area includes those areas previously identified in Chapter 3 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of “reasonably foreseeable” to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for environmental impact statements, EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section focuses on past, present, and reasonably foreseeable future projects at and near Defense Fuel Support Point (DFSP) San Pedro. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding each such past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here, as the intent is to focus the analysis on the meaningful actions relevant to inform decision-making. Projects included in this cumulative impacts analysis are listed in Table 4-1 and briefly described in the following subsections.

Table 4-1 Cumulative Action Evaluation

Past Actions	***Level of NEPA Analysis Completed***
Complete or Partial Closure of DFSP San Pedro, California	FONSI for EA signed February 22, 2016
Blue Butterfly Village Housing	NA
Port of Los Angeles – LA Waterfront Completed Projects	NA
Present and Reasonably Foreseeable Future Actions	***Level of NEPA Analysis Completed***
Remediation Projects at DFSP San Pedro Main Terminal	NA
Highpark at San Pedro (formerly Ponte Vista) Housing Project	NA
Marymount California University Residential Campus	NA
SR 47/Vincent Thomas Bridge and Front Street/Harbor Boulevard Interchange Reconfiguration Project	NA
Gerald Desmond Bridge Replacement	NA
Harbor Performance Enhancement Center	NA
Port of Long Beach Port Master Plan Update	NA
Port of Los Angeles – LA Waterfront Projects Under Development	NA
Port of Los Angeles – Capital Improvement Projects	NA

Legend: FONSI = Finding of No Significant Impact; NA = not applicable.

4.3.1 Past Actions

Complete or Partial Closure of Defense Fuel Support Point San Pedro. The Proposed Action was to completely or partially close the DFSP San Pedro fuel facility in order to achieve efficiencies in receiving, storing, and distributing fuel to Department of Defense facilities. The EA was completed and a Finding of No Significant Impact (FONSI) was signed in February 2016. Alternative 4 was selected for implementation. Under the 2016 EA's Alternative 4, a portion of DFSP San Pedro would undergo closure with minimal demolition of infrastructure, and partial operations would resume. As of December 2018, all of the USTs had been closed-in-place, but the property has not officially been turned over to the Navy from Defense Logistics Agency (NAVFAC SW 2016).

Blue Butterfly Village. The Blue Butterfly Village is a 9-acre site adjacent to the north-central portion of the DFSP San Pedro Main Terminal. The Navy deeded this former military family housing area to the Volunteers of America in 1997 for renovation for use as housing for homeless people, with homeless veterans receiving preference for over 80 percent of the housing units. The property also includes a U.S. Fish and Wildlife protected Palos Verdes Blue Butterfly Sanctuary (Los Angeles Times 2014, Volunteers of America 2018). The renovation/remodeling of 73 existing structures began in 2011 and was completed in May 2015; no new construction other than development of a play area occurred. Residents began moving into Blue Butterfly Village in May 2015 (Daily Breeze 2015).

Port of Los Angeles – LA Waterfront Completed Projects. The Port of Los Angeles has undertaken a series of projects to improve 400 acres of existing Port property in the harbor communities of San Pedro and Wilmington. The projects at the LA Waterfront are an effort to provide public recreation facilities and visitor serving areas to facilitate public access to the waterfront and better integrate the Port with the surrounding community (Port of Los Angeles 2018). Projects date back to 2003, but significant projects completed within the last five years include the Outer Harbor, Wilmington Marina Parkway, and the Harbor Boulevard Roadway Improvements Project.

- **Outer Harbor (2014).** An Outer Harbor cruise ship dock with an event site, concrete wharf, and on-site parking was constructed on 12-acres at Berths 45-49 at the Port of Los Angeles. The Outer Harbor now serves as an outdoor venue for concerts, festivals, or sporting events and the SS Lane Victory Merchant Marine Museum and Memorial is docked at Berth 49 and is open to the public year-round. Improvements to the site included asphalt paving, and adding electrical, water and sewer connections (LA Waterfront.org 2019a).
- **Wilmington Marina Parkway (2014).** The project created a 3-acre landscaped promenade along Anchorage and Shore Roads, just west of the Terminal Island Freeway SR-103, in Wilmington. Site improvements include landscaping and irrigation, including more than 200 trees and 2,500 shrubs, a 2,000-foot paved pathway, and amenities that create a visitor-friendly environment (i.e., picnic tables, park benches, trash/recycle receptacles, pet stations) (LA Waterfront.org 2019a).
- **Harbor Boulevard Roadway Improvements Project (2018).** This project was implemented to improve public safety, streamline traffic, and enhance vehicle and pedestrian access to the LA Waterfront and involved realigned Harbor Boulevard and extended Miner Street to intersect with the newly aligned boulevard. Improvements include adding a new traffic signal at the intersection of Harbor Boulevard and 7th Street, landscaping along the new Miner Street segment, adding bike lanes, marked crosswalks, outdoor lighting, landscaping and walkways, and refurbishment of the historic Plaza Park Street (LA Waterfront.org 2019a).

4.3.2 Present and Reasonably Foreseeable Actions

Remediation Projects at DFSP San Pedro Main Terminal. Both the DLA and Navy have ongoing remediation projects at the Main Terminal. The following projects are currently active (NAVFAC SW 2019):

- Estimated to be complete in fiscal year (FY) 2019:
    - Investigation of North Gaffey Street Plume (South Control Area)
    - Investigation of North Line (South Tank Farm Area)
- Estimated to be complete in FY 2020:
    - Soil Excavation and Biotreatment (South Control Area)
- Estimated to be complete in FY 2021:
    - Soil Vapor Extraction System Operation at Tank 43 (North Tank Farm Area)
    - Soil Vapor Extraction/Air Sparge System Operation (Administration Area)
    - Investigation and Remediation at Truck Rack and Tank 52 (Administration Area)
    - Soil Vapor Extraction/Air Sparge System Operation and Groundwater Extraction System Operation (South Control Area)
    - Operation of North Gaffey Street Plume Remediation (South Control Area)
    - Remedial Systems Operation at 19 Tanks (South Tank Farm Area)
    - Remediation at North Line (South Tank Farm Area)
- Estimated to be complete in FY 2022:
    - Decommissioning of Soil Vapor Extraction/Air Sparge and Groundwater Extraction Systems (South Control Area)
    - Decommissioning of Remediation Systems at 19 Tanks (South Tank Farm Area)
- Estimated to be complete in FY 2023:
    - Groundwater Monitoring (Administration Area, South Control Area, South Tank Farm Area)
- Estimated to be complete in FY 2024:
    - Monitoring Well Abandonment (Administration Area, South Control Area, South Tank Farm Area)

Highpark at San Pedro (formerly Ponte Vista) Housing Project. This project site is located adjacent to the southern border of the DFSP San Pedro Main Terminal. The name of the project was changed to Highpark in 2016 (Daily Breeze 2017). This 61.5-acre project is under construction to construct 676 new homes. The project also includes construction of a 2.4-acre public park on Western Avenue at the southern end of the site. A total of 13.6 acres of internal open space are included in the development (City of Los Angeles 2018). Groundbreaking for the project occurred in May 2014; however, the project has changed ownership most recently in April 2018 and construction has been delayed periodically, most recently related to heavy rains in 2016 and 2017, and also due to permit and infrastructure constraints (Daily Breeze 2018). It is assumed construction will resume in 2019 and is estimated to last approximately 4 to 5 years. The project area encompasses the former Navy San Pedro housing area that was closed in the late 1990s. A Final Environmental Impact Report (EIR), Case No. ENV-2005-4516-EIR, was published for the project in 2013 (City of Los Angeles 2012b, 2013).

Marymount California University Residential Campus. This property is adjacent to the west-central portion of DFSP San Pedro Main Terminal at 1600 Palos Verdes Drive North. The Navy deeded the 11-acre parcel of former military housing to Marymount California University in 1997 (Marymount University 2016; Daily Breeze 2011). The site consists of 78 townhomes arranged around a central outdoor recreational area. The site was already developed with roadways and drainage. Marymount's improvements consisted mainly of remodeling the housing units and constructing a central recreational pavilion. Marymount has a Conditional Use Permit from the City of Los Angeles for more buildings on the Residential Campus (but not to expand beyond the current property boundary). The Conditional Use Permit has not expired yet. Marymount has approval from the City to add classroom buildings and dormitory-style housing, but does not have plans to begin construction within the immediate future. Marymount's long-term vision for the parcel is that it would be a small residential campus, where students would live and attend classes at the same location (currently the site is residential only). Construction began in May 2017 (Marymount California University 2018).

SR 47/Vincent Thomas Bridge and Front Street/Harbor Boulevard Interchange Reconfiguration Project. The California Department of Transportation, within cooperation with the City of Los Angeles Harbor Department, proposes to reconfigure the existing interchange at SR 47/Vincent Thomas Bridge and Harbor Boulevard/Front Street. The project limits on SR 47 extend from approximately Post Mile 0.3 to Post Mile 0.8 (SR 47 from west of Harker Street to east of North Front Street) in the City of Los Angeles in Los Angeles County, California. An Initial Study with Proposed Negative Declaration/EA was published in October 2018, and the Public Review Period ended on October 30, 2018 (California Department of Transportation 2018).

Gerald Desmond Bridge Replacement. The bridge replacement project is needed as the current bridge was not designed to accommodate today's larger cargo ships or the dramatic increase in trucking traffic with the growth of the Port. The project is a joint effort between of Caltrans and the Port of Long Beach, with funding from the U.S. Department of Transportation and the Los Angeles County Metropolitan Transportation Authority. The new bridge will be the second-tallest cable-stayed bridge in the U.S., have a 205-foot vertical clearance to accommodate larger vessels, provide three lanes in each direction for improved traffic flow, emergency lanes on both the inner and outer shoulders in each direction to reduce traffic delays and safety hazards from accidents and vehicle breakdowns, a reduction in the bridge's steep grades for further improvements to traffic flow, and will include the Mark Bixby Memorial Bicycle and Pedestrian Path with three scenic overlooks. An EIR was completed in July 2010 for the project (Port of Long Beach 2010b). The bridge project is generating 3,000 construction related jobs. The bridge is expected to open to traffic in late 2019 and be completed by 2020 (Gerald Desmond Bridge Replacement Project 2019).

Harbor Performance Enhancement Center. The project proposes to enhance container management at the Port of Los Angeles through use of the former Los Angeles Export Terminal yard and the adjacent former U.S. Customs House site located at 300 South Ferry Street and 750 Eldridge Street in the Port of Los Angeles. The proposed Project would create an all-wheeled yard for peel-off and push-from marine terminals in the San Pedro Bay Complex, which includes Ports of Los Angeles and Long Beach, that would enhance terminal velocity by streamlining container moves and improving the flow of cargo between terminals, thereby reducing truck queuing at marine terminal gates and improving terminal efficiencies. Construction of the project is estimated to occur over 22 months in two phases: Phase 1 would occur over 8 months (October 2019 through May 2020), and Phase 2 would take approximately 14 months (June 2020 through July 2021). The Los Angeles Harbor Department published a Notice of Preparation to prepare an EIR and Initial Study in May 2018, and the Public Review Period closed on June 28, 2018 (Los Angeles Harbor Department 2018b).

Port of Long Beach Master Plan Update. The Master Plan serves as a long-range plan to establish policies and guidelines for future development within the coastal zone boundary of the Port. The update is needed to incorporate previous amendments and update the existing 1990 Master Plan to reflect changes in the global shipping industry, technological advances, and important factors such as climate change and energy resources consistent with Green Port Policy objectives. The update is also necessary to re-evaluate land uses to ensure permitting flexibility for future development in the Port. Potential projects may include terminal redevelopment projects, cuts and fills, support yards/facilities, rail infrastructure improvements, recreational and public access enhancements, and sediment management areas. The potential projects are in the planning or conceptual stages and are anticipated to be initiated or completed within the next 10 to 20 years. Buildout of the potential projects would occur in multiple phases; however, the specific timing, and in most cases, the scope of the potential projects is unknown or has not yet been developed in sufficient detail at this time. The most recent draft of the Plan was released in July 2019 (Port of Long Beach 2019b).

Port of Los Angeles – LA Waterfront Projects Under Development. The Port of Los Angeles has undertaken a series of projects to improve 400 acres of existing Port property in the harbor communities of San Pedro and Wilmington. The projects at the LA Waterfront are an effort to provide public recreation facilities and visitor serving areas to facilitate public access to the waterfront and better integrate the Port with the surrounding community (Port of Los Angeles 2018a). Pending projects that are part of this initiative include:

- **AltaSea at the Port of Los Angeles.** The AltaSea project will establish a 35-acre innovation campus at the historic pier at City Dock No. 1. The project aims to accelerate scientific collaboration, facilitate job creation and inspire the next generation for a more sustainable ocean by expanding a science-based understanding of the ocean; incubating and sustaining ocean-related business; and pioneering new ocean-related education programs. AltaSea is a non-profit organization with a Board of Trustees that oversee its organization, construction, and capital campaign. The project is planned in phases to occur over the next 15 to 20 years, with plans currently published for Phases 1A, 1B, and 1C. Phase 1A (2016-2018) involves the restoration of Warehouses 58-60, construction of an education pavilion and upgrading the north façade of Warehouse 57. Phase 1B is anticipated to occur between 2019 and 2021, and will include the full restoration of Warehouse 57 and the realignment of Leonard Aube Way (a renamed section of 22nd Street between Harbor Boulevard and Signal Street). Phase 1C involves building The Engagement Center, slated for occupancy in 2022 (AltaSea 2019, LA Waterfront.org 2019b).
- **Avalon Promenade and Gateway Project.** This project includes construction of a pedestrian bridge along Avalon Boulevard to provide pedestrian access to the future Wilmington Waterfront Promenade (project described below). Construction is anticipated to begin in 2019 and will last approximately 2 years (Curbed LA 2018, LA Waterfront.org 2019b).
- **San Pedro Public Market.** The San Pedro Public Market is located on a 42-acre site on the LA Waterfront. The project includes 16 acres of restaurants, shopping, fresh markets, office space, an amphitheater concert venue, and a waterfront promenade (project described below). Construction will occur in multiple phases, and construction on Phase 1 is scheduled to begin in early 2020, with the Public Market expected to open in mid-2021 (San Pedro Public Market 2019, LA Waterfront.org 2019b).
- **San Pedro Public Market Promenade and Town Square.** Related to the San Pedro Public Market development project, a new 1-mile public promenade will be built parallel to the Los Angeles Main Channel, with construction of a town square at 6th Street, just east of Harbor Boulevard. Site improvements include public seating, landscaping, hardscaping, signage, trash cans, architectural finishes, handrails, and lighting. Construction is expected to begin in 2019 (San Pedro Public Market 2019, LA Waterfront.org 2019b).

- **Wilmington Waterfront Promenade.** This project includes construction of a waterfront promenade, pedestrian plaza, parking lot on an 8-acre site and will realign a portion of Water Street. Site improvements include landscaping, irrigation, signage, lighting, and furnishings (e.g., public seating, bike racks and public drinking fountains). Construction is anticipated to begin in 2019 and will last approximately 2 years (Curbed LA 2018, LA Waterfront.org 2019b).

Port of Los Angeles – Capital Improvement Projects. The Port of Los Angeles has included the following projects in their FY 2018/19 (Port of Los Angeles 2018b):

- **Everport Container Terminal.** This project includes improvements for Berths 226-236. Design work is in progress on proposed improvements to ready the terminal for 14,000 twenty-foot equivalent unit vessels. Improvements include wharf upgrades at Berths 226-229 and Berths 230-232, and new berth depth increases to -53 feet and -47 feet respectively. The project will also involve constructing an additional 1.5 acres of backland and electrical improvements for additional cranes and five new AMP® connections. A Final EIR was certified in October 2017, and Construction is expected to start in early 2019.
- **Yang Ming Container Terminal.** This project includes improvements to Berths 121-131 at the West Basin Container Terminal and plans to deepen its berths to accommodate 14,000 twenty-foot equivalent unit vessels and increase cargo volume. The environmental review process for the project is expected to conclude in November 2018. As part of the project, the Port plans improvements at the terminal that will include construction of a new 1,260 linear-foot wharf at Berths 126-129, dredging to a depth of -53 feet at the newly constructed wharf, and expansion of the existing on-dock rail yard.
- **Marine Oil Terminal Engineering and Maintenance Standards Projects.** In March, the Port released a Draft EIR for Shell Oil Company's marine oil terminal located at Berths 167-169 in Wilmington. A meeting was held in April to solicit public comment. The adopted $22.5 million project is needed for the terminal to comply with the Marine Oil Terminal Engineering and Maintenance Standards building standards that apply to all marine oil terminals in California. A Final EIR was published in July 2018 for the project (Los Angeles Harbor Department 2018a).
- **Transportation Projects.** Construction will begin and be completed in FY 2019 on a number of pavement resurfacing projects including the Navy Way Speed Hump Reconstruction and Restriping, Water Street Resurfacing, Reeves Avenue Resurfacing, Miner Street Resurfacing, and the Swinford Street, Front Street and Regan Street Resurfacing Projects. Construction will begin in late 2018 on Berth 200 - Rail Yard and Track Connections Enhancements which includes a new drainage collection system for the locomotive fueling facility, and the Berth 200 - Roadway Improvements project which will provide access to the north entrance of Wallenius Wilhelmsen Logistics Terminal and acts as an emergency fire lane connecting South Wilmington to Henry Ford Avenue.

4.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available, and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Chapter 3, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts.

For this analysis, a geographic scope, or region of influence (ROI), for each cumulative effects issue was established. The ROI is generally based on the natural boundaries of the resources affected, rather than jurisdictional boundaries. The geographic scope may be different for each cumulative effects issue. The geographic extent of analysis may be different for each cumulative effects issue. The geographic analysis range for cumulative effects often extends beyond that of the direct effects of the proposed action. However, cumulative impact analysis does not extend beyond the area subject to indirect effects of a proposed action. Geographic area may vary among resources, as indirect effects associated with a proposed action also vary in extent by resource. However, if a proposed action is determined to have no direct or indirect effects on a resource, no future cumulative effects analysis is necessary. ROIs are defined in Section 4.4 for each resource area.

4.4.1 Air Quality

4.4.1.1 Description of Geographic Study Area

The ROI in this air quality cumulative effects analysis includes the South Coast Air Basin (SCAB).

4.4.1.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would impact, the air quality within the SCAB and in marine areas within 3 nautical miles of the SCAB.

4.4.1.3 Cumulative Impact Analysis

Activities from implementation of the Proposed Action that could contribute to potential cumulative impacts to air quality include emissions from trucks and vehicles used during proposed rehabilitation and construction activities, as well as emissions from trucks, vessels, and storage of petroleum products in storage tanks during operations. Although the Proposed Action's estimated emissions associated with operations would exceed the *de minimis* levels for Clean Air Act conformity (oxides of nitrogen and volatile organic compounds [VOCs] under Alternative 1 and oxides of nitrogen under Alternative 2) the Navy is consulting with the South Coast Air Quality Management District (SCAQMD) to confirm that the emissions increase is within the emissions budget outlined in the approved Air Quality Management Plan. Impacts from construction of the Proposed Action would be short-term and temporary, lasting during the duration of construction. Projects like the Gerald Desmond Bridge Replacement, which are already under construction, would not overlap with the construction period of the Proposed Action, and the emissions from operations of the bridge are not anticipated to differ appreciably from current operational emissions of the former bridge (Port of Long Beach 2010b). Other projects whose construction or operations may overlap with construction of the Proposed Action and would contribute cumulatively to emissions include the remediation projects at DFSP San Pedro Main Terminal, construction of the Highpark Residential Development Project, construction of the Harbor Performance Enhancement Center, construction of the SR 47/Vincent Thomas Bridge and Front Street/Harbor Boulevard Interchange Reconfiguration Project, and the container terminal projects at the Port of Los Angeles (both construction and operations). Quantitative air quality estimates were not available for all of the projects listed, as the environmental studies are in the process of being completed. Therefore, there is not enough information about the projects' potential impacts to air quality to make an assessment of significance, but current and future regulations would limit emissions from the project activities. For example, SCAQMD permits G58410 through G58419 for the remediation projects at the DFSP Main Terminal (see Section 3.1, Air Quality) list a 667 pound per calendar month (4 ton per year) emissions limit for VOCs. These permits would be renewed annually and be active until remediation is complete, and all remediation activities are currently anticipated to be complete by 2024 (see Section 2.1.2, Potential Development Scenarios). Emissions from the remediation projects are not available on the SCAQMD website at the time of the preparation of this EA; however, the incremental increase of emissions from the construction of Alternative 1 is unlikely to cause an exceedance of the permitted limit. Emissions under Alternative 1 from operations would overlap with the with the remediation projects until 2024. As discussed above, the Navy is consulting with SCAQMD to ensure the emissions increase is within the emissions budget outlined in the approved Air Quality Management Plan. Thus, no significant cumulative impacts are anticipated in conjunction with the remediation projects currently occurring at the Main Terminal. Coordination with the SCAQMD has already occurred for both the Highpark project (City of Los Angeles 2012b, 2013) and the Shell Marine Oil Terminal Engineering and Maintenance Standards project (Los Angeles Harbor Department 2018a), as these projects would exceed *de minimis* thresholds for criteria pollutants, to confirm the emissions would fall within the emissions budget outlined in the approved Air Quality Management Plan. Similar coordination would be required to occur if exceedances would be anticipated from the other cumulatively considerable projects. Therefore, there would be no significant cumulative impacts from the emission of criteria pollutants in conjunction with the other past, present, and reasonably foreseeable actions from implementation of the Proposed Action.

4.4.1.4 Greenhouse Gases

In addition to the potential cumulative impacts of additional criteria pollutants, the cumulative effects analysis for air quality addresses the Proposed Action's potential impact to contribute to global climate change (in combination with the other identified past, present, and future projects). The most recent California Climate Change Scenarios Assessment predicts that temperatures in California could increase by approximately 2-4 degrees Celsius (medium emissions scenario) to 4-7 degrees Celsius (high emissions scenario) by 2100 (California Energy Commission 2018). Predictions of long-term negative environmental impacts due to global warming include sea level rise, changing weather patterns with increases in the severity of droughts, changes to local and regional ecosystems including the potential loss of species, and a substantial reduction in winter snow pack. In California, predictions of these effects include exacerbation of air quality problems, a reduction in municipal water supply, increased impacts from coastal flooding, an increase in the number and intensity of wild fires, and damage to marine and terrestrial ecosystems (California Energy Commission 2018).

In December of 2014, the CEQ issued revised draft guidance for federal agencies, to guide them on when and how to consider the effects of greenhouse gases (GHG) emissions and climate change in their projects (CEQ 2014). In the analysis of the direct effects of a Proposed Action, the CEQ proposes that it would be appropriate to (1) quantify cumulative emissions over the life of the project; (2) discuss measures to reduce GHG emissions, including consideration of reasonable alternatives; and (3) qualitatively discuss the link between such GHG emissions and climate change. Formulating significance criteria for GHG emissions is problematic, as it is difficult to determine what level of proposed emissions would substantially contribute to global climate change. The CEQ recommends that 25,000 metric tons of CO_{2e} or more being produced by a Proposed Action be considered the threshold warranting a more substantial evaluation of—but not necessarily a determination of—significance of climate change impact (CEQ 2014). In April 2017, the CEQ withdrew this guidance, and new guidance has not been issued to date (CEQ 2017).

4.4.1.5 Greenhouse Gases Cumulative Effects Analysis

The potential effects of GHG emissions are by nature global and cumulative and it is impractical to attribute climate change to individual activities. Therefore, an appreciable impact on global climate change could only occur in the context of GHG emissions associated with the alternatives combining cumulatively with GHG emissions from other human-made activities on a global scale.

Estimated GHG emissions were calculated for land-based construction and operations activities via California Emissions Estimator Model (version 2016.3.2), and estimated GHG emissions from vessel activity was calculated separately and added to the operational total, using emissions factors derived from the Port of Long Beach's annual emissions inventory. Details of the calculations for Alternatives 1 and 2 are provided in Appendix C. Tables 4.4-1 and 4.4-2 summarize the annual GHG emissions that would occur with implementation of Alternative 1 and Alternative 2. Notwithstanding the 2017 withdrawal of CEQ's guidance establishing a threshold for more substantial evaluation of potential climate change impacts, it is noted that each action alternative for the Proposed Action would generate CO_e2 levels below the 25,000 metric ton threshold set forth in that guidance.

Table 4.4-1 Alternative 1 – Estimated Maximum Annual GHG Emissions (metric tons/year)

Emission Source	*CO_2*	*CH_4*	*N_2O*	*CO_2e[1]*
Rehabilitation Activities	528	0	0	530
Annual Operations	12,135	0	0	12,183

Legend: CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide.

Table 4.4-2 Alternative 2 – Estimated Maximum Annual GHG Emissions (metric tons/year)

Emission Source	*CO_2*	*CH_4*	*N_2O*	*CO_2e[1]*
Rehabilitation Activities	362	1	0	364
Annual Operations	1,531	1	0	1,551

Legend: CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide.

While the emissions generated by construction and operation activities alone would not be enough to cause global warming, in combination with past and future emissions from all other sources they would contribute incrementally to the global warming that produces the adverse effects of climate change. However, as an indication of the nominal relative magnitude of these emissions, total annual CO_2e emissions in the U.S. were approximately 6,511.3 million metric tons (USEPA 2018c). The maximum annual GHG emissions during the implementation of the Proposed Action would be less than two-millionths of one percent of the total U.S. emissions. Therefore, when GHG impacts from Alternative 1 or Alternative 2 are added to the GHG impacts from the projects included in Table 4-1, there would not be significant GHG cumulative impacts to global climate change from implementation of either alternative.

4.4.2 Water Resources

4.4.2.1 Description of Geographic Study Area

The ROI for water resources includes DFSP San Pedro and receiving waters.

4.4.2.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would impact, water resources within the ROI.

4.4.2.3 Cumulative Impact Analysis

As discussed in Section 3.2, the ROI for water resources includes DFSP San Pedro and surrounding receiving waters. Implementation of the alternatives would result in minimal and localized impacts to surface water, no discernible impacts to groundwater, and potential impacts to water quality during rehabilitation/construction and operation would be minimized through the application of a project-specific construction SWPPP and BMPs (as described in Appendix B). During operations, new SWPPPs would be prepared by the lessee for the Main Terminal and Marine Terminal based on any ultimately-approved proposed operational activities to continue to curtail any potential future impacts to water resources. Thus, the implementation of either Alternative 1 or 2 would not have the potential to contribute meaningfully to any potentially significant cumulative impacts to water resources. The remediation projects occurring at the DFSP San Pedro Main Terminal are anticipated to improve soil and groundwater quality in the ROI. The other development projects included in Table 4-1 would be required to comply with the same regulatory requirements or California state standards for water quality control plans for construction activities, including the use of similar erosion control measures and BMPs to avoid or minimize impacts to water resources. Therefore, when added to the impacts from other potentially cumulative actions, the Proposed Action would not result in significant cumulative impacts to water resources.

4.4.3 Geological Resources

4.4.3.1 Description of Geographic Study Area

The ROI for geological resources includes DFSP San Pedro and adjacent landforms.

4.4.3.2 Relevant Past, Present, and Future Actions

Of the projects listed in Table 4-1, the Complete or Partial Closure of DFSP San Pedro and the Highpark housing projects have impacted, or would have the potential to impact, geological resources within the ROI.

4.4.3.3 Cumulative Impact Analysis

Implementation of the Proposed Action would result in surface disturbance at the Main and Marine Terminal sites. There would be no increased risk for landslides or erosion with the implementation of the identified impact avoidance and minimization measures. There would be no or negligible impacts to mineral resources, bedrock, or soils. Potential impacts to geological resources are related to site-specific soil conditions, erosion, and ground shaking during earthquakes. Thus, the impacts on each site related to the projects described in Table 4-1 would be specific to that site and its users during construction or operations, and would not be common or contribute in an additive sense to the impacts on other sites, with the exception of sites located in close proximity to each other. Of the projects in close proximity to the Proposed Action, the Blue Butterfly Village and the Marymount California University Residential Campus projects would not contribute towards cumulative impacts to geological resources. The geotechnical report for the Highpark (formerly Ponte Vista) housing project concluded that there is no substantial evidence the project would result in significant adverse impacts to geology and soils, and no further analysis was required. The requirements and recommendations of the geotechnical report would be required as conditions of the project during implementation (City of Los Angeles 2012b, 2013). Therefore, when added to the impacts from other potentially cumulative actions, the Proposed Action would not result in significant cumulative impacts to geological resources.

4.4.4 Biological Resources

4.4.4.1 Description of Geographic Study Area

The ROI for cumulative impacts includes the project area components (Main Terminal, Marine Terminal, and pipelines) and adjacent lands that could be impacted by the Proposed Action.

4.4.4.2 Relevant Past, Present, and Future Actions

Of the projects listed in Table 4-1, the Complete or Partial Closure of DFSP San Pedro, the Highpark housing project, Blue Butterfly Village, and the Marymount California University Residential Campus projects have impacted, or would have the potential to impact, biological resources within the ROI.

4.4.4.3 Cumulative Impact Analysis

The cumulative effect of past actions (the development of southern California in general and the Palos Verdes Peninsula specifically) have led to the loss of large amounts of California gnatcatcher (CAGN) habitat and almost all of Palos Verdes blue butterfly (PVB) habitat. That makes the Proposed Action's impact on even small amounts of habitat (most particularly PVB) potentially significant when added to the aggregate effects of these past actions. Projects with potential direct and indirect impacts on biological resources include those that would result in the loss of native plant communities, permanent loss of sensitive plant populations, species losses that affect population viability, and the reduction in adjacent habitat quality from temporary actions including the addition of noise and dust during demolition to permanent effects such as the addition of lighting. For native plant and wildlife communities, other impacts could include habitat fragmentation or the permanent loss of contiguous (interconnecting) native habitats such as migration or movement corridors. Long-term changes in climate, including prolonged drought conditions, could have harmful effects on sensitive species at DFSP San Pedro, irrespective of and unrelated to this Proposed Action.

The majority of the projects listed in Table 4-1 do not or would not have any potential to add further to cumulative impacts on PVB or other species, based on their distance from the Main Terminal site. Given the proximity of some potential PVB habitat on the southern end of the Main Terminal to the Highpark site, there is the potential for temporary adverse cumulative effects on PVB, should those habitat areas be occupied by PVB, due to disturbance factors such as noise, vibration, dust, and human activity. According to the current project schedules, activities requiring heavy equipment on the Ponte Vista site (demolition and grading) should be completed before the start of the proposed DFSP San Pedro demolition activities, reducing the potential for combined effects from noise, vibration, dust, and human activity. However, exposure to noise, vibration, dust, and human activity could still have cumulative effects, if PVB is present, by extending the time period the species would be exposed to heavy construction activity.

Construction on the Highpark housing project is likely to continue through 2023, overlapping the construction period for DFSP San Pedro and possibly increasing noise and traffic in the project vicinity. However, the Highpark project would not cause a loss of sensitive habitats or resources, as the site was previously military housing. The EIR for the Highpark housing project noted the project site was altered by development as early as 1947, and the decades of grading disturbances and construction in the area had previously degraded the ecological functionality of the Highpark site (City of Los Angeles 2012b, 2013). In addition, the Highpark project plan does include open space elements that would be favorable to certain biological resources, such as migratory birds, if they develop as planned.

The Blue Butterfly Village and the Marymount California University Residential Campus cumulative projects are remodeling projects of previously developed housing areas and would be consistent with previous land use. Thus, these projects would not contribute towards cumulative impacts to biological resources.

Continued implementation of conservation measures mandated by the U.S. Fish and Wildlife Service (USFWS) in recent Biological Opinions (BOs) issued for DFSP San Pedro (USFWS 2010, 2015) would minimize the Proposed Action's potential for impacts and thus for any cumulative effects as well. The 2010 and 2015 BOs provide protection for CAGN and PVB by mandating certain management actions, such as monitoring of populations, avoidance of breeding season impacts, and habitat protection. Additionally, the PVB breeding program at the Main Terminal is proactively contributing to the continued existence and planned improved condition of the species. Therefore, when added to the impacts from other potentially cumulative actions, the alternatives would not result in significant cumulative impacts to biological resources.

4.4.5 Land Use and Coastal Resources

4.4.5.1 Description of Geographic Study Area

The ROI for land use resources includes the DFSP San Pedro Main Terminal, Marine Terminal, and adjacent public and private lands that could be impacted by the Proposed Action.

4.4.5.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to impact, land use within the ROI, with the exception of the SR 47/Vincent Thomas Bridge and Front Street/Harbor Boulevard Interchange Reconfiguration Project.

4.4.5.3 Cumulative Impact Analysis

Under the Proposed Action, land use at the DFSP San Pedro Main and the Marine Terminals would not change from the current existing land use, and a less than significant impact to land use would occur with implementation of the Proposed Action. The Blue Butterfly Village and the Marymount California University Residential Campus cumulative projects are remodeling projects of previously developed housing areas and would be consistent with previous land use. Thus, these projects would not contribute towards cumulative impacts to land use. The Highpark project replaces former military housing that was present in the area, and is therefore, also consistent with the pervious land use.

The Port of Long Beach Master Plan update has the potential to change the land use mix in the Port Harbor district. However, the Marine Terminal would remain as an industrial use that is consistent with the Port Industrial uses of the surrounding area. As the impacts from the Proposed Action under either alternative to land use would be negligible, when added to the impacts from other potentially cumulative actions, the Proposed Action would not result in significant cumulative impacts to land use.

4.4.6 Visual Resources

4.4.6.1 Description of Geographic Study Area

The ROI for visual resources consists of DFSP San Pedro and its greater viewshed.

4.4.6.2 Relevant Past, Present, and Future Actions

Of the projects listed in Table 4-1, the Highpark, Blue Butterfly Village, and Marymount California University Residential housing projects have impacted, or would have the potential to impact, visual resources within the ROI.

4.4.6.3 Cumulative Impact Analysis

Implementation of the alternatives would result in temporary negative impacts to visual resources as construction vehicles, materials, equipment, and debris are present at DFSP San Pedro Main and Marine Terminals. During implementation of the cumulative projects, similar temporary negative visual impacts would occur. Upon completion of the Proposed Action, the visual environment of the DFSP San Pedro would be largely consistent with existing conditions, though more aboveground storage tanks may be visible if located in the mesa area at the highest elevations on the Main Terminal. The Highpark housing project is in effect replacing a previous housing project, and the Blue Butterfly Village and the Marymount California University Residential Campus projects are remodeling projects of previously developed housing areas; thus, the overall visual environment at completion would be highly consistent with the current viewshed. Therefore, when added to the impacts from other potentially cumulative actions, the action alternatives would not result in significant cumulative impacts to visual resources.

4.4.7 Noise

4.4.7.1 Description of Geographic Study Area

The ROI for noise consists of DFSP San Pedro and adjacent communities.

4.4.7.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to create impacts, related to noise within the ROI.

4.4.7.3 Cumulative Impact Analysis

The Proposed Action in conjunction with the cumulative projects would generate intermittent, temporary noise impacts throughout the ROI. The duration of these localized impacts would be limited to the construction phases of the cumulative projects; some overlap with construction of the Highpark housing project with the Proposed Action may occur (refer to the discussion in Section 4.4.4). Should project overlap occur, construction related noise levels would have the potential to magnify noise levels. However, due to the distance between the projects, and the prevalence of shielding topography, no cumulative noise impacts related to sensitive noise receptors would occur. During operations, levels of noise associated with the implementation of the Proposed Action would not represent a change from the nature or level of noise in the current existing environment, and thus the Proposed Action would not contribute to any potentially significant cumulative impacts during operations.

Therefore, when added to the impacts from other potentially cumulative actions, the alternatives would not result in significant cumulative impacts related to noise.

4.4.8 Infrastructure

4.4.8.1 Description of Geographic Study Area

The ROI for infrastructure includes water distribution, wastewater collection, stormwater collection, solid waste management, energy, and communications areas at DFSP San Pedro and these services in the immediate surrounding area.

4.4.8.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to impact, infrastructure within the ROI.

4.4.8.3 Cumulative Impact Analysis

Implementation of the Proposed Action would result in less than significant impacts to infrastructure on DFSP San Pedro and the provisions of these services and in the surrounding community. During construction, there would be a temporary increase in solid waste generation, but this would be anticipated to decrease once operations resume. The Proposed Action could result in an increased demand for electricity during operations, but may also include the development of potential energy generation and storage facilities (e.g., solar farms, battery storage) to support on-site energy requirements. Of the projects listed in Table 4-1, the residential and commercial infrastructure projects may increase demand of electricity, water, and sewer, but these projects combined with the incremental increase in demand as a result of the Proposed Action would not be anticipated to result in the use of a substantial proportion of the remaining system capacity, reach or exceed the current capacity of the system, or require development of facilities and sources beyond those existing or currently planned. Therefore, implementation of the Proposed Action, combined with the past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts within the ROI.

4.4.9 Transportation

4.4.9.1 Description of Geographic Study Area

The ROI for transportation includes the public roadway network that provides local and regional access to and from DFSP San Pedro.

4.4.9.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to impact, transportation within the ROI.

4.4.9.3 Cumulative Impact Analysis

Implementation of the Proposed Action would cause less than significant impacts to transportation. The Blue Butterfly Village and the Marymount California University Residential Campus projects are remodeling projects of previously developed housing areas and would be consistent with previous traffic generation levels. Thus, these projects would not contribute towards cumulative impacts to transportation.

The construction of the Highpark housing project would entail similar vehicles, workers, and equipment as proposed for the alternatives, resulting in a cumulative increase in construction/demolition-related trips. The Highpark housing project would generate 180 daily trips during peak construction activities (City of Los Angeles 2012b, 2013); when considered cumulatively with the Proposed Action, no substantial change in Level of Service (LOS) would occur.

Upon completion, the Highpark project would result in an increase in traffic on roads in the ROI. Although traffic generated from this project would primarily use Western Avenue, trips from this development would likely comingle with operations-related trips from the Proposed Action on other roadways that have interchanges with Interstate 110 and/or other freeways in the area. This would include the five-way intersection of North Gaffey Street/South Vermont Street/Palos Verdes Drive/Normandie Avenue, which is located to the north of the Proposed Project that would accommodate traffic from both projects.

As noted in the EIR prepared for the Highpark project (City of Los Angeles 2012b, 2013), this cumulative project has been conditioned with 36 mitigation measures intended to reduce the project's traffic impacts to a level below significance. Mitigation measures at this location would reduce the volume-to-capacity ratio at this intersection to a level below the "no-project" condition. A measure of effectiveness used to determine the LOS of an intersection by comparing the volume of conflicting traffic movements (e.g., northbound left and southbound through) to the available capacity (based on the number of lanes available on each conflicting movement). Accordingly, with the implementation of the Highpark project, there would be an increase in capacity at this location.

Construction of the Gerald Desmond Bridge would be complete by the time construction of the Proposed Action is anticipated to begin, and thus a benefit to transportation flow in the ROI would result from the operation of the new bridge. Therefore, when added to the impacts from other potentially cumulative actions, the alternatives would not result in significant cumulative impacts to transportation.

4.4.10 Public Health and Safety

4.4.10.1 Description of Geographic Study Area

The ROI for public health and safety includes land areas within DFSP San Pedro and adjacent lands where civilians reside.

4.4.10.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to impact, public health and safety within the ROI.

4.4.10.3 Cumulative Impact Analysis

Impacts to public health and safety with the implementation of the Proposed Action would be less than significant, as the Proposed Action would include activities and fuels that do not pose significant negative health and safety risk and/or impacts to the environment. Construction activities for the Proposed Action would be contained within the boundaries of the Main and Marine Terminals, where the public is excluded from access, and the construction contractor would follow all applicable federal, state, and local regulations to protect worker health and safety. This is also true for the contractors currently implementing the ongoing remediation projects on the Main Terminal site. Similarly, the impacts to public health and safety on each site related to the projects described in Table 4-1 would be specific to that site and its users during construction or operations, and would not be common or contribute in an additive sense to the impacts on other sites, with the exception of sites located in close proximity to each other. The projects located in close proximity to the Proposed Action are primarily residential in nature, including the Highpark housing development, the Marymount California University Residential project, and the Blue Butterfly Housing Development, and would therefore not present increased risks to public health and safety during operations. Therefore, when considered cumulatively with the other projects included in Table 4-1, the Proposed Action would have a less than significant cumulative impact to public health and safety.

4.4.11 Hazardous Materials and Wastes

4.4.11.1 Description of Geographic Study Area

The ROI for hazardous materials and wastes includes DFSP San Pedro and adjacent communities.

4.4.11.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to impact, hazardous materials and wastes within the ROI during construction.

4.4.11.3 Cumulative Impact Analysis

The Proposed Action would not result in significant impacts related to existing soil contamination due to adherence to Occupational Safety and Health Administration standards and to a site-specific Health and Safety Plan, which would include detailed precautionary measures to substantially reduce potential exposure of on-site personnel to petroleum waste and/or hazardous waste. After construction, the Proposed Action would include the use, storage, and transfer of petroleum products and hazardous materials during renewed operations of the DFSP San Pedro facilities. Renewed DFSP San Pedro operations would occur in accordance with an Operations, Maintenance, Environmental, and Safety Plan, Storm Water Pollution Prevention Plan, and Oil and Hazardous Substance Integrated Contingency Plan. Construction of the cumulative projects would potentially result in incidental releases of petroleum products and hazardous materials during fueling and maintenance of construction equipment. However, such releases would be mitigated through implementation of a mandated SWPPP and associated BMPs, such that impacts would not occur. In addition, any potential soil contamination found during excavations and grading would be addressed through established federal, state, and local guidelines regulating petroleum and hazardous waste.

Hazardous materials and waste related impacts would be confined to the project area and would have no cumulative effects. The impacts on each site related to the projects described in Table 4-1 would be specific to that site and its users during construction or operations, and would not be common or contribute in an additive sense to the impacts on other sites, with the exception of sites located in close proximity to each other. The majority of the projects listed in Table 4-1 are located far enough away from the Proposed Action to ensure no cumulative or additive impacts from hazardous materials and wastes would occur. Certain projects, such as the Highpark housing development project, the Marymount California University Residential project, and the Blue Butterfly Housing Development are located in close proximity to the Proposed Action. However, as these projects are residential in nature, the construction and operation of these projects would not create significant hazardous materials risks. Additionally, redevelopment of the Highpark site and the ongoing remediation projects on the Main Terminal are serving to lessen impacts from past hazardous materials and wastes present in the vicinity of the Proposed Action. Therefore, when added to the impacts from other potentially cumulative actions, the Proposed Action would not result in significant cumulative impacts related to the increased exposure of people to public health and safety risks from hazardous materials and wastes.

4.4.12 Socioeconomics

4.4.12.1 Description of Geographic Study Area

The ROI for socioeconomics includes DFSP San Pedro and the communities that border it.

4.4.12.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4-1 have impacted, or would have the potential to impact, socioeconomics within the ROI.

4.4.12.3 Cumulative Impact Analysis

Implementation of the Proposed Action would not result in significant impacts to the socioeconomics of the local area or region. The Proposed Action would not significantly increase the overall population in the region, but economic activity in the area would be modestly increased due to the presence of construction workers in the area during construction. Los Angeles County is the most populous county in the country and has a large and diverse economy. The large current surrounding population and the existing infrastructure and economy would adequately support the Proposed Action as well as the cumulative effects from additional projects. The effects associated with the Proposed Action are minor enough that they would not contribute meaningfully to any potentially negative socioeconomic impacts. Additionally, cumulative socioeconomic impacts from past, present, and future actions within the ROI represent an economic benefit to the region due to an increase in economic activity. The list of projects includes the addition of housing and the improvement of transportation infrastructure, which would improve socioeconomic conditions as they are completed. In conjunction with the various present and future cumulative development projects referenced in Table 4-1, cumulative impacts to socioeconomics would result in a slight increase in economic activity, one that would be cumulatively beneficial but not approaching a level of significance.

4.4.13 Environmental Justice

4.4.13.1 Description of Geographic Study Area

The ROI for environmental justice includes DFSP San Pedro and areas in the vicinity with the potential for environmental health and safety risks to children and minority/low-income populations.

4.4.13.2 Relevant Past, Present, and Future Actions

None of the projects listed in Table 4-1 have impacted, or would have the potential to impact, environmental justice within the ROI.

4.4.13.3 Cumulative Impact Analysis

Implementation of the Proposed Action would not cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations. Minor temporary impacts to low-income and minority communities could occur from construction activities associated with the Proposed Action in limited areas near the Main Terminal, however, other areas of potential construction such as areas of the Main Terminal that are surrounded by industrial activities or the Marine Terminal, which is surrounded by water, are not located near residences or communities. Projects listed in Table

4-1 are either not expected to be constructed concurrently with the Proposed Action or are located far enough away from potentially impacted areas that they would not affect the same communities. Additionally, mitigation measures such as dust suppression procedures as described in Sections 3.1, Air Quality and 3.2, Water Resources or adherence to construction windows and local noise ordinances as described in Section 3.7, Noise would be used to ensure that the Proposed Action's potential impacts remain at levels that would not contribute in a meaningful way to the cumulative impacts in the area. Residential housing projects in Table 4-1, including Highpark and Blue Butterfly Village, contribute to meeting the regional housing need, remediation projects at the Main Terminal are working to improve environmental conditions in the area, and waterfront improvement projects such as those at the Port of Los Angeles, are adding amenities to the local communities and therefore would provide a slight beneficial impact to environmental justice communities. Therefore, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects, would not result in significant cumulative environmental justice impacts within the ROI.

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5 Other Considerations Required by National Environmental Policy Act

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

In accordance with 40 Code of Federal Regulations (CFR) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 5-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	*Status of Compliance*
National Environmental Policy Act (NEPA) (42 United States [U.S.]Code [U.S.C.] section 4321 et seq.); Council of Environmental Quality NEPA implementing regulations (40 CFR parts 1500-1508); Navy procedures for Implementing NEPA (32 CFR part 775 and Office of the Chief of Naval Operations Instruction 5090.1D)	This Environmental Assessment (EA) has been prepared pursuant to applicable implementing regulations and Navy NEPA procedures.
Clean Air Act (CAA) (42 U.S.C. section 7401 et seq.)	The CAA is the comprehensive federal law that regulates air emissions from stationary and mobile sources. The Proposed Action would exceed the *de minimis* levels for CAA conformity. The Navy has consulted with the South Coast Air Quality Management District to confirm that emissions associated with the Proposed Action would be within the emissions budget outlined in the approved Air Quality Management Plan. A Conformity Determination has being prepared to reflect the anticipated determination that activities under the Proposed Action would be accounted for within the currently approved State Implementation Plan.
Clean Water Act (33 U.S.C. section 1251 et seq.)	The Proposed Action would be implemented in compliance with California's Construction General Permit. Proposed construction activities would require preparation of a Stormwater Pollution Prevention Plan and use of best management practices to control water pollution by regulating point sources that discharge pollutants into waters of the U.S. Renewed operations would be conducted in compliance with a new Storm Water Pollution Prevention Plan.
Coastal Zone Management Act (CZMA) (16 U.S.C. section 1451 et seq.)	The Navy conducted an effects analysis as part of its determination of the Proposed Action's effects to coastal uses or resources for purposes of federal consistency review under the CZMA. This was done to factually determine whether the action (even if conducted entirely within a federal enclave) would affect any coastal use or resource. None of the alternatives would have any effects on public access to or public recreation in the coastal zone since the sites are restricted access. Although the Main Terminal does contain sensitive species and habitats, the Proposed Action would not adversely affect those species and those resources are not considered within the coastal zone.

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action (continued)

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	*Status of Compliance*
Coastal Zone Management Act (CZMA) (16 U.S.C. section 1451 et seq.)	The Marine Terminal site is devoid of endangered or threatened species and any sensitive habitats or species because it is located in a heavily developed and industrialized area. The alternatives would implement best management practices, and avoidance and minimization measures to ensure no more than minimal effects, if any, to biological productivity, water quality, or sensitive biological and marine species of the coastal zone. None of the alternatives would increase human health risk or environmental exposure to hazardous materials or hazardous wastes. None of the alternatives would disturb historic or archeological resources, substantially alter the visual character of the area, or generate regionally significant air emissions. As none of the alternatives would result in appreciable impacts to coastal uses and resources, no further consultation with the California Coastal Commission is required.
National Historic Preservation Act (Section 106, 16 U.S.C. section 470 et seq.)	The Proposed Action would not affect any sites, buildings, structures, or objects that are deemed eligible for nomination to the National Register of Historic Places. The Navy has therefore be proposed a finding of no Historic Properties Affected in consultation with the California State Historic Preservation Officer.
Endangered Species Act (16 U.S.C. section 1531 et seq.)	The Navy has informally consulted with the U.S. Fish and Wildlife Service making them aware of the Proposed Action, no adverse effects to listed species determination, and continued adherence to prior formal consultations (2010 and 2015 Biological Opinions).
Migratory Bird Treaty Act (MBTA) (16 U.S.C. sections 703-712)	The Proposed Action would comply with the MBTA.
Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	Based on the analysis in this EA, the Navy concludes that Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.
EO 13045, Protection of Children from Environmental Health Risks and Safety Risks	Based on the analysis in this EA, the Navy concludes that the Proposed Action would not result in environmental health and safety risks that may disproportionately affect children.

5.2 Irreversible or Irretrievable Commitments of Resources

The permanent use and subsequent loss of non-renewable resources, such as oil, natural gas, and iron ore, are considered irreversible because non-renewable resources cannot be replenished by natural means. An action that causes a loss in the value of an affected resource, which cannot be restored (e.g., disturbance of a cultural site), is considered an irretrievable commitment of resources. Similarly, the consumption of a renewable resource that would be lost for a period of time is also considered an irretrievable commitment of resources. Renewable natural resources include water, lumber, and soil, all of which can be replenished by natural means within a reasonable timeframe. All considered alternatives would require the irretrievable commitments of both non-renewable and renewable resources in the use of fuel, construction materials, and labor.

The alternatives would use varying amounts of these resources commensurate with the level of effort and size of footprint of each alternative. Alternatives 1, 2, and the No Action Alternative would all require the use of non-renewable resources (primarily fossil fuels) for construction and facility operations.

5.3 Unavoidable Adverse Impacts

The Navy has determined that the Proposed Action would not result in any significant impacts. Per the analysis provided in this EA, the Navy believes the majority of potential impacts could be avoided either entirely or nearly so. While some impacts clearly could not be avoided altogether, the Navy has determined that all such impacts could, to at least some extent, be reduced through impact avoidance and minimization measures as presented in Appendix B. Some of the impact avoidance and minimization measures presented in Appendix B are reflective of agency consultation and were accepted as part of the 2016 EA.

5.4 Relationship between Short-Term Use of the Environment and Long-Term Productivity

Short-term uses of the environment associated with the Proposed Action would include temporary impacts to wildlife in the course of rehabilitation and construction of facilities and infrastructure. Project-related construction activities would temporarily increase air pollution emissions in the immediate vicinity of the affected area(s).

As discussed in Chapter 3, the action alternatives would result in both short- and long-term environmental effects. Rehabilitation/construction and renewed fueling operations at DFSP San Pedro would not result in the types of impacts that would reduce environmental productivity, have long-term impacts on sustainability, affect biodiversity, or narrow the range of long-term beneficial uses of the environment.

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6 References

AltaSea. (2019). Home page, Campus Design, and Our Vision. Available at: https://altasea.org/. Accessed on March 25, 2019.

American National Standards Institute. (1988). American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, ANSI S12-9-1988. New York: Acoustical Society of America.

Atwood, J.L. and D.E. Minsky. (1983). Least tern foraging ecology at three major California breeding colonies. Western Birds, 14(2), pp.57-72.

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T. J. Rosatti, and D.H. Wilken, editors. (2012). The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley.

Bechtel Environmental, Inc. (1997). Final Remedial Investigation (RI) Report, Installation Restoration Program for Site 7 (West Basin), Naval Station Long Beach, Long Beach, California. December.

Bechtel Environmental, Inc. (2003). Final Feasibility Study – IR Site 7, Naval Station Long Beach, Long Beach, California. September.

Bureau of Labor Statistics. (2018). *Local Area Unemployment Statistics*. Series Report Retrieved for California, Los Angeles County, City of Long Beach, City of Los Angeles, and City of Rancho Palos Verdes: https://data.bls.gov/cgi-bin/srgate.

Burke, J. (2019). Community Planner, NAVFAC SW. Personal communication. March 2019.

Calflora. (2019). Online database. Available at: https://www.calflora.org/. Accessed on January 2, 2019.

California Air Pollution Control Officers Association. (2016). California Emissions Estimator Model™ version 2016.3.2. Retrieved from: http://www.aqmd.gov/caleemod/. Accessed on December 10, 2018.

California Air Resources Board (CARB). (2016). California Ambient Air Quality Standards (CAAQS). http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed on December 11, 2018.

CARB. (2018). Area Designation Maps, State and National. http://www.arb.ca.gov/desig/adm/adm.htm. Accessed on December 10, 2018.

California Department of Conservation. (1998). Division of Mines and Geology. Seismic Hazard Zone Report for the Long Beach 7.5-Minute Quadrangle, Los Angeles County, California. http://gmw.consrv.ca.gov/shmp/downoad/evalrpt/longb_eval.pdf. Accessed on March 18, 2015.

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources. (2019). Division of Oil, Gas & Geothermal Resources Well Finder. Available at: https://maps.conservation.ca.gov/doggr/wellfinder/#close.

California Department of Fish and Wildlife. (2018). California Natural Diversity Database, Special Animals List. November.

California Department of Transportation. (2018). State Route-47/Vincent Thomas Bridge and Front Street/Harbor Boulevard Interchange Reconfiguration Project Initial Study with Proposed Negative Declaration/Environmental Assessment. October.

California Emergency Management Agency. (2009a). Los Angeles County Tsunami Inundation Maps. Maps for Long Beach Quadrangle. http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/LosAngeles/Pages/ LosAngeles.aspx. Accessed on December 21, 2018.

California Emergency Management Agency. (2009b). Los Angeles County Tsunami Inundation Maps. Maps for Long Beach and Torrance/San Pedro Quadrangles. http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/LosAngeles/Pages/ LosAngeles.aspx. Accessed on December 21, 2018.

Camp, Dresser, and McKee, Inc. (2007). Final Record of Decision (ROD), Installation Restoration Site 7, Operable Unit 3, Former Long Beach Naval Complex, Long Beach, California. September.

Cardno. (2015). Final Coastal California Gnatcatcher Report for 2015 Surveys Conducted in Support of the Defense Fuel Support Point San Pedro Environmental Assessment San Pedro, California. Prepared for Naval Facilities Engineering Command Southwest and the Defense Logistics Agency. May.

City of Lomita. (2018, December 28). Zoning Map. Retrieved from: http://www.lomita.com/cityhall/government/planning/index.cfm?p=./pzbs/zoningmap.cfm.

City of Long Beach. (2015). Historical - Oil Operations. Wilmington Oil Field. http://www.longbeach.gov/oil/about/historical.asp. Accessed on December 21, 2018.

City of Long Beach. (2018). Zoning Districts. Retrieved from: http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=7265. Accessed on December 28, 2018.

City of Los Angeles. (2012a). City of Los Angeles San Pedro Community Plan Environmental Impact Report. SCH No. 2008021004, City of LA EIR No. ENV-2009-1558-EIR, CPC No. CPC-2009-1557-CPU. Volume I: Draft EIR. August. Retrieved from: https://planning.lacity.org/eir/SanPedro/SanPedroCoverPg.html. Accessed on December 29, 2018.

City of Los Angeles. (2012b). Draft Environmental Impact Report for the Ponte Vista Project. Prepared by CAJA Environmental Services. November.

City of Los Angeles. (2013). Final Environmental Impact Report for the Ponte Vista Project. Prepared by CAJA Environmental Services. June.

City of Los Angeles. (2014, December 28). General Plan Land Use Map (as of March 4, 2014), Wilmington – Harbor City Community Plan. Retrieved from: https://planning.lacity.org/complan/westla/PDF/wlmplanmap.pdf.

City of Los Angeles. (2018). Ponte Vista at San Pedro Specific Plan. Director’s Interpretation. Department of City Planning. August 7.

CNIC. (2018).Website for Defense Fuel Support Point San Pedro, Los Angeles, CA. https://www.cnic.navy.mil/regions/cnrsw/installations/nws_seal_beach/om/environmental_support/environmental_cleanup/san_pedro/documents.html. Accessed on December 21, 2018.

Council on Environmental Quality (CEQ). (1997). Considering Cumulative Effects Under the National Environmental Policy Act. Washington, DC.

CEQ. (2005). Guidance on the consideration of past actions in Cumulative Effects Analysis. Washington, DC: Executive Office of the President, Council on Environmental Quality.

CEQ. (2014). Memorandum for Heads of Federal Departments and Agencies. Revised Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. December.

CEQ. (2017). Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. Federal Register 82:16576-16577. April 5.

Curbed LA. (2018). Renderings: Wilmington's industrial waterfront will be transformed into 20-acre park. 29 March. Available at: https://la.curbed.com/2018/3/28/17166110/wilmington-waterfront-port-of-la-parks. Accessed on March 25, 2019.

Daily Breeze. (2011). Marymount College charts new course in San Pedro. Retrieved from: http://www.dailybreeze.com/article/ZZ/20110619/NEWS/110618173. Accessed on January 7, 2019.

Daily Breeze. (2015). Homeless vets will have a place to call home in San Pedro. Retrieved from: http://www.dailybreeze.com/veterans/20150425/homeless-women-vets-willhave-a-place-to-call-home-in-san-pedro. Accessed on: January 7, 2019.

Daily Breeze. (2017). Name change for San Pedro's Ponte Vista — to Highpark — brings mixed reviews. Retrieved from: https://www.dailybreeze.com/2016/02/04/name-change-for-san-pedros-ponte-vista-to-highpark-brings-mixed-reviews/. Accessed on: January 4, 2019.

Daily Breeze. (2018). San Pedro's Highpark (aka Ponte Vista) gets new owner, housing development remains on track for construction. Retrieved from: https://www.dailybreeze.com/2018/04/18/san-pedros-highpark-aka-ponte-vista-gets-new-owner-housing-development-remains-on-track-for-construction/. Accessed on: January 4, 2019.

Defense Logistics Agency (DLA). (2008). Integrated Cultural Resources Management Plan 2008-2012. Document on file, NAVWPNSTA Seal Beach, Seal Beach, California.

DLA. (2011). Final Environmental Condition of Property Report, DFSP San Pedro, California to the Pier 12, Marine Fuel Terminal, Long Beach, California. December 5.

DLA. (2013a). Storm Water Pollution Prevention Plan and Best Management Practices, State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, National Pollution Discharge Elimination System General Permit No. CAS000001, WDID No. 4191005602. May 15.

DLA. (2013b). Record of Determination Environmental Evaluation. December 5.

DLA. (2017a). Storm Water Pollution Prevention Plan and Best Management Practices, State Water Resources Control Board, Water Quality Order No. 2014-0057-DWQ, National Pollution Discharge Elimination System General Permit No. CAS000001, WDID No. 4191005602. June 19.

DLA. (2017b). Storm Water Pollution Prevention Plan and Best Management Practices for the Defense Fuel Support Point Pier 12 Marine Terminal, WDID No. 4191024659. June 19.

DLA Energy. (2015). Integrated Pest Management Plan. January.

Department of Defense (DoD). (2009). Memorandum from the Under Secretary Defense. Methodology for Assessing Hearing Loss Risk and Impacts in DoD Environmental Impact Analysis. June.

DoD. (2015). Unified Facilities Criteria (UFC) Design: Petroleum Fuel Facilities.

DoD Noise Working Group. (2009). Improving Aviation Noise Planning, Analysis and Public Communication with Supplemental Metrics - Guide to Using Supplemental Metrics.

DoD and U.S. Fish and Wildlife Service (USFWS). (2014). Memorandum of Understanding to Promote the Conservation of Migratory Birds.

Esri. (2017). World Imagery (basemap, scale not given). Imagery date: December 16, 2017. http://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9. Accessed on December 28, 2018.

Federal Interagency Committee on Aviation Noise. (1997). Effects of Aviation Noise on Awakenings from Sleep. Accessed on December 28, 2018.

Federal Interagency Committee on Noise. (1992). Federal Review of Selected Airport Noise Analysis Issues.

Federal Interagency Committee on Urban Noise. (1980). Guidelines for Considering Noise in Land Use Planning and Control. Washington, DC.

Federal Emergency Management Agency. (2008). Flood Insurance Rate Map: Los Angeles County, California, and Incorporated Areas. Map Number 060.7C1945F. Map Revised September 26, 2008.

Fish and Wildlife Service (FWS). (2018). GIS data. Feature class: HU8_18070106_Wetlands. https://www.fws.gov/wetlands/nwi/Overview.html. Accessed on December 28, 2018.

Gerald Desmond Bridge Replacement Project. (2019). About the Bridge. https://newgdbridge.com/about-the-bridge/. Accessed Febuary 14, 2019.

Harris, C. (1979). *Handbook of Noise Control.* New York: McGraw-Hill.

Intergovernmental Panel on Climate Change. (2007). Fourth Assessment Report.

Johnson, J., Q. Sweeney, K. Virun, T. Wilson, Y. Xia, C. Tuday, J. Jones, E. Lopez, M. Kim, N. Miyahara, N. Hubeek, S. Jabas, T. Regan, N. Wilson, and T. Longcore. (2013). Final Report for 2013 PVB Captive Rearing on DFSP San Pedro, California and The Butterfly Project, Moorpark, California. Los Angeles: The Urban Wildlands Group (NAVFAC SW Agreement # N62473-12-2-2101).

LA Waterfront.org. (2019a). LA Waterfront Completed Projects. Available at: http://www.lawaterfront.org/projects.php. Accessed on March 25, 2019.

LA Waterfront.org. (2019b). LA Waterfront Completed Projects. Available at: http://www.lawaterfront.org/projects.php. Accessed on March 25, 2019.

Los Angeles County Department of Public Works Water Resources Division. (2004). GIS Data. Soils_2004.shp. http://ladpw.org/wrd/publication/. Accessed on February 18, 2015.

Los Angeles Harbor Department. (2012). Al Larson Boat Improvement Project Draft Environmental Impact Report. http://www.portoflosangeles.org/EIR/ALBS/DEIR/Section_3%205%20Geology.pdf. Accessed on March 18, 2015.

Los Angeles Harbor Department. (2014). Draft EIS/EIR – Berths 2-1-224 [YTI] Container Terminal Improvements Project. Section 3.5 Geology. May. ihttp://www.portoflosangeles.org/EIR/YTI/DEIR/deir_yti.asp. Accessed on December 21, 2018.

Los Angeles Harbor Department. (2018a). Final Environmental Impact Report – Berths 167-169 [Shell] Marine Oil Terminal Wharf Improvements Project. July.

Los Angeles Harbor Department. (2018b). Notice of Preparation for the Harbor Performance Enhancement Center Project. May 31.

Los Angeles RWQCB. (1995). Water Quality Control Plan: Los Angeles Region.

Los Angeles RWQCB. (2018). Website: Water Quality Control Plan: Los Angeles Region. Downloaded from website December 21, 2018: https://www.waterboards.ca.gov/losangeles/serp.html?q=Defense%20Fuel%20Support%20.

Los Angeles Times. (2014). San Pedro development will give female veterans a place to call home. 18 May. Retrieved from: http://www.latimes.com/local/la-me-womenvets-20140519-story.html. Accessed on: January 6, 2016.

Leidos. (2015). Phase I Cultural Resources Survey for the Proposed Partial or Complete Closure of Defense Fuel Support Point, San Pedro, California. May 2015. Report prepared for DFSP San Pedro, San Pedro, California. Report prepared by Leidos, Carpinteria, California.

Longcore, T. (2015). Urban Wildlands Group, personal communication May 19, 2015 to Kelly Finn, NAVFAC SW. Mr. Longcore confirmed that there were zero observations of adult PVB during their surveys of DFSP San Pedro in 2015.

Longcore, T., and K. H. Osborne. (2015). Final Report for 2013 PVB Adult Surveys on DFSP San Pedro, California. Los Angeles: The Urban Wildlands Group (Defense Logistics Agency Agreement # N62473-12-2-2101).

Ludlow, B., & Sixsmith, K. (1999). Long-term Effects of Military Jet Aircraft Noise Exposure during Childhood on Hearing Threshold Levels. *Noise and Health*, 33-39.

Marymount University. (2016). Marymount California University San Pedro Residential Campus. Retrieved from: http://www.marymountcalifornia.edu/san-pedroresidential. Accessed on January 7, 2019.

Marymount University. (2018). Resort Living at Marymount's Residential Campus. Retrieved from: http://www.marymountcalifornia.edu/2017/05/22/resort-living-marymounts-residential-campus/. Accessed on January 4, 2019.

McLeod, C. Milo, and Robert Whetsell. (1999). Cultural Resources Assessment of the Defense Logistics Agency Defense Fuel Support Point San Pedro, California. Report submitted to the Defense Logistics Agency and the California State Historic Preservation Office.

National Center for Education Statistics. (2016). *Search for Private Schools and Search for Public Schools*. Retrieved for Los Angeles County at: https://nces.ed.gov/surveys/pss/privateschoolsearch/.

National Cooperative Soil Survey. (1972). Ramona Series. https://soilseries.sc.egov.usda.gov/OSD_Docs/R/RAMONA.html. Accessed on December 21, 2018.

National Cooperative Soil Survey. (2000). Yolo Series. https://soilseries.sc.egov.usda.gov/OSD_Docs/Y/YOLO.html. Accessed on December 21, 2018.

National Institute for Occupational Safety and Health. (1998). Criteria for a Recommended Standart Occupational Noise Exposure, Revised Criteria. Cincinnati: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

Naval Facilities Engineering Command Southwest (NAVFAC SW). (2016). Final Environmental Assessment for the Complete or Partial Closure of Defense Fuel Support Point San Pedro, California. February.

NAVFAC SW. (2019). Draft Final Environmental Condition of Property for Pier 12, Defense Fuel Support Point San Pedro, and Associated Pipelines. San Pedro, California. March.

Naval Weapons Station (NAVWPNSTA) Seal Beach. (2014). Integrated Natural Resources Management Plan DFSP San Pedro. Prepared by Tierra Data Inc. Prepared for NAVWPNSTA Seal Beach and DLA under Contract with NAVFAC SW. July.

NAVWPNSTA Seal Beach. (2015). GIS Data. Various geodatabases. Accessed on December 28, 2018.

NAVWPNSTA Seal Beach. (2019). GIS Data. Various geodatabases. Accessed on March 12, 2019.

Navy. (2007). Final Environmental Assessment. MILCON P-401. Replace Fuel Storage Tanks and Facilities. Naval Base Point Loma, San Diego, California.

Navy. (2014). Integrated Natural Resources Management Plan Defense Fuel Support Point San Pedro. Final. July.

Navy. (2015). GIS data. Various feature classes. Accessed on December 28, 2018.

National Fire Protection Association (NFPA). (2018). NFPA 30 FAQs. Retrieved from: https://www.nfpa.org/Assets/files/AboutTheCodes/30/30_FAQs.pdf. Accessed on January 2, 2019.

Norris, R.M., and Webb, R.W. (1990). Geology of California (2nd Edition), New York. January.

OSHA. (2019). How loud is too loud? Retrieved from: https://www.osha.gov/SLTC/noisehearingconservation/loud.html#targetText=OSHA%20sets%20legal%20limits%20on,a%205%20dBA%20exchange%20rate. Accessed on October 3, 2019.

Palos Verdes Peninsula Land Conservancy. (2018). Lands: Defense Fuel Support Point & Nursery. Retrieved from: https://pvplc.org/_lands/dfspn.asp. December 28.

Port of Long Beach. (1990). Port Master Plan Update 1990. May.

Port of Long Beach. (2006). Port-Wide Ground Motion Study Port of Long Beach California. Final Report. Prepared by Earth Mechanics, Inc. August 7. http://www.slc.ca.gov/division_pages/mfd/motems/STUDIES/PART%20Q2%20-%20%20Port-Wide%20Seismic%20Study.pdf. Accessed on February 23, 2015.

Port of Long Beach. (2010a). Port of Long Beach Speed Zone Survey. June.

Port of Long Beach. (2010b). Gerald Desmond Bridge Replacement Project Final Environmental Impact Report. July.

Port of Long Beach. (2016). Navy Property Transfer Commemorated. August 30. http://www.polb.com/news/displaynews.asp?NewsID=1573&TargetID=1. Accessed on February 15, 2019.

Port of Long Beach. (2017). GIS Data. LongBeachPier.gdb. Accessed on December 28, 2018.

Port of Long Beach. (2019a). Liquid Bulk. Retrieved from: http://www.polb.com/economics/cargotenant/liquid/default.asp. Accessed on April 17, 2019.

Port of Long Beach. (2019b). Master Plan / Port Master Plan Update. Retrieved from: http://www.polb.com/facilities/master_plan/default.asp. Accessed on October 3, 2019.

Port of Los Angeles. (2018a). Port Master Plan. September.

Port of Los Angeles. (2018b). 2018/2019 Adopted Annual Budget.

Port of Los Angeles. (2019). Liquid Bulk Terminals. https://www.portoflosangeles.org/business/terminals/liquid-bulk. Accessed on April 17.

SAIC. (2010). Final 2008 Biological Surveys of Los Angeles and Long Beach Harbors. In Association with Seaventures, Keane Biological Consulting, Tenera Environmental, ECORP Consulting Inc., and Tierra Data Inc. April.

SCAG. (2012). GIS Data. Shapefile: General Plan Land Use. https://gisdata-scag.opendata.arcgis.com/datasets/general-plan-land-use-los-angeles. Accessed on January 14, 2019.

Schallmann, B. (2019). Natural Resources Manager, Naval Weapons Station Seal Beach. Personal communication. February 2019.

South Coast Air Quality Management District (SCAQMD). (2012). Board Adoption of 2012 Lead SIP for Los Angeles County. http://www3.aqmd.gov/hb/attachments/2011-2015/2012May/2012-May4-030.pdf. May 4.

SCAQMD. (2019). Facility Information Detail (FIND) permit database. http://www3.aqmd.gov/webappl/fim/prog/search.aspx. Accessed on August 27, 2019.

Sproul, D.K. (2014). Reevaluation of National Register of Historic Places Eligibility, Defense Fuel Support Point San Pedro, California. Report prepared for Commanding Officer, NAVWPNSTA Seal Beach, California. Report prepared by David K. Sproul, NAVFAC SW, San Diego, California.

State of California. (2003). Geologic Map of the Long Beach 30’ X 60’ Quadrangle. ftp://ftp.consrv.ca.gov/pub/dmg/rgmp/Prelim_geo_pdf/lb_geol-dem.pdf. Accessed on February 17, 2015.

State of California. (2014). Sea Level Rise Guidance Document. Prepared by the Sea Level Rise Task Force of the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT). 2013.

Source Group Incorporated Inc. (SGI). (2011). Final Environmental Condition of Property Report Defense Fuel Support Point San Pedro, California to the Pier 12, Marine Fuel Terminal, Long Beach, California. December 5.

SGI. (2015). Annual Operation and Performance Report for 2014, Pump House Area Treatment System, Defense Fuel Support Point San Pedro, 3171 North Gaffey Street, San Pedro, California 90731. Prepared for California Regional Water Quality Control Board, Los Angeles Region, Information Technology Unit. February 11.

SGI. (2017). Report of Waste Discharge, First Quarter 2017, Defense Fuel Support Point San Pedro, 3171 North Gaffey Street, San Pedro, California 90731. Prepared for California Regional Water Quality Control Board, Los Angeles Region, Information Technology Unit. April 17.

SGI. (2019a). Report of Waste Discharge, Second Quarter 2019, Pump House Area Remediation System, Defense Fuel Support Point San Pedro, 3171 North Gaffey Street, San Pedro, California 90731. Prepared for California Regional Water Quality Control Board, Los Angeles Region, Information Technology Unit. July 9.

SGI. (2019b). Application to Conduct Land Treatment of Soils, Defense Fuel Support Point San Pedro, 3171 North Gaffey Street, San Pedro, California 90731. Prepared for California Regional Water Quality Control Board, Los Angeles Region, Site Cleanup Unit IV. March 21.

SGI. (2019c). Second Quarter 2019 Waste Discharge Progress Report, Defense Fuel Support Point San Pedro, 3171 North Gaffey Street, San Pedro, California 90731. Prepared for California Regional Water Quality Control Board, Los Angeles Region. July 11.Transportation Research Board. (2010). Highway Capacity Manual. Fifth Edition. Washington, DC.

TriEco, LLC and Tetra Tech, Inc. Join Venture, TriEco-TT (TriEco). (2015). Final Expanded Site Inspection Report for Installation Restoration Site 31, Central Ravine, Defense Fuel Support Point San Pedro, CA. September 19.

U.S. Army Corps of Engineers (USACE). (2013). Operation, Maintenance, Environmental, and Safety Plan. DFSP San Pedro, California. December.

USACE. (2018). Operation, Maintenance, Environmental, and Safety Plan. DFSP San Pedro, California. May.

U.S. Census Bureau. (2010). *2010 Census*. Retrieved from QuickFacts for the United States, California, Los Angeles County, City of Lomita, City of Long Beach, City of Los Angeles, and City of Rancho Palos Verdes: https://www.census.gov/quickfacts/fact/table/US/PST045218.

U.S. Census Bureau. (2017a). *2013-2017 American Community Survey 5-Year Estimates*. Retrieved from American FactFinder for the United States, California, Los Angeles County, City of Lomita, City of Long Beach, City of Los Angeles, City of Rancho Palos Verdes, and Los Angeles County census tract block groups: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

U.S. Census Bureau. (2017b). *2017 Population Estimates*. Retrieved from QuickFacts for the United States, California, Los Angeles County, City of Lomita, City of Long Beach, City of Los Angeles, and City of Rancho Palos Verdes: https://www.census.gov/quickfacts/fact/table/US/PST045218.

United States Environmental Protection Agency (USEPA). (1974). Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with and Adequate Margin of Safety. EPA 550/9-74-004. Washington, DC: Office of Noise Abatement and Control.

USEPA. (1982). Guidelines for Noise Impact Analysis. EPA 550/9-82-105. Washington, DC: Office of Noise Abatement and Control.

USEPA. (2009). Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories. Final Report. April.

USEPA. (2013). America's Children and the Environment. Third Edition. EPA 240-R-13-001. January.

USEPA. (2016). National Ambient Air Quality Standards Table. https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed on December 11, 2018.

USEPA. (2018a). The Green Book Nonattainment Areas for Criteria Pollutants. As of November 30, 2018. https://www.epa.gov/green-book. Accessed on December 10, 2018.

USEPA. (2018b). *De Minimis* Levels Table. https://www.epa.gov/general-conformity/de-minimis-tables. Accessed on December 11, 2018.

USEPA. (2018c). Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016. Report EPA 430-R-18-003. Published April 12, 2018.

USEPA. (2018d). *Enviornmental Justice*. Retrieved from U.S. Environmental Protection Agency: http://www.epa.gov/environmentaljustice/. December 21, 2018.

U.S. Fish and Wildlife Services (USFWS). (1980). Listing the PVB as an Endangered Species with Critical Habitat; Final Rule. Federal Register 45:44939-44942.

USFWS. (1984). The PVB Recovery Plan, dated January 19, 1984, prepared by the United States Fish and Wildlife Service under contract with Dr. Richard Arnold, Department of Entomology, University of California 94720.

USFWS. (1993). Endangered and threatened wildlife and plants; Determination of threatened status for the CAGN; Final Rule. Federal Register 58:16742-16757.

USFWS. (2000). Endangered and threatened wildlife and plants; Final determination of critical habitat for the CAGN; Final Rule.

USFWS. (2007). Revision of Designated Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*). Final Rule. December 19.

USFWS. (2010). Formal Section 7 Consultation for Routine Maintenance Operations, Defense Fuel Support Point, San Pedro, Los Angeles County, California. FWS-LA-08B0606-08F0704. July 2.

USFWS. (2014). Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*). 5-Year Review: Summary and Evaluation. Carlsbad, California. January 9.

USFWS. (2015). Formal Section 7 Consultation for Proposed Closure of the Defense Fuel Support Point San Pedro, Los Angeles County, California. FWS-LA-1580317-16F0042. December 14.

USFWS. (2018). GIS data. Feature class: HU8_18070106_Wetlands. Accessed on December 28, 2018. https://www.fws.gov/wetlands/nwi/Overview.html.

U.S. Geological Survey (USGS). (2015). GIS Data. Shapefile: qfaults.shp. Accessed on December 28, 2018.

USGS. (2017). GIS Data. Shapefile: qfaults.shp. Accessed on February 13, 2019.

USGS. (2018). Quaternary Fault and Fold Database of the United States. Interactive Fault Map. http://earthquake.usgs.gov/hazards/qfaults/map/. Accessed on December 19, 2018.

Volunteers of America. (2018). Blue Butterfly Village. Available at: https://www.voa.org/housing_properties/blue-butterfly-village. Accessed on January 4, 2019.

Vonder Linden, K. (1989). The Portuguese bend landslide. Engineering Geology 27L:1-4.

Western Regional Climate Center. (2018). Prevailing Wind Direction, California. https://wrcc.dri.edu/Climate/comp_table_show.php?stype=wind_dir_avg. Accessed on December 11, 2018.

Woodring, W.P., Bramlette, M.V. and Kew, W.S. (1946). Geology and Paleontology of Palos Verdes Hill, California. USGS Professional Paper 207.

7 List of Preparers

This EA was prepared collaboratively between the Navy and contractor preparers.

U.S. Department of the Navy

Albert Mar
Environmental Engineer – Environmental Compliance Air Program
Naval Facilities Engineering System Command Southwest

Amanda Peyton
Community Planner
Naval Facilities Engineering System Command Southwest

Bob Schallmann
Conservation Program Manager
Naval Weapons Station Seal Beach

Deb McKay
NRSW N40 NEPA & Coastal Coordinator
Navy Region Southwest

Gregg Smith
Public Affairs Officer
Naval Weapons Station Seal Beach

Jazmin Atencia
Installation Plans, Programs, and Readiness Integrator (Strategy and Future Requirements)
Naval Weapons Station Seal Beach

Jeff McGovern
Compliance Manager
Naval Weapons Station Seal Beach

Jeffrey Burke
Facility Planner
Naval Facilities Engineering System Command Southwest

John Cummings
Engineering Division Chief – Installation Management - Operations for Energy
Defense Logistics Agency

Kim Spencer
Senior Realty Specialist
Naval Facilities Engineering System Command Southwest

Lindsay Flieger
NEPA and Environmental Management System Coordinator
Naval Weapons Station Seal Beach

Sara Goodwin
N45 NEPA Coordinator
Naval Facilities Engineering System Command Southwest

Teresa Bresler
NEPA Project Manager
Naval Facilities Engineering System Command Southwest

Todd E. H. Williams
Facility Manager/COR, DFSP San Pedro
DLA Installation Operations Energy

Contractors - Cardno

Stella Acuna, AICP, PMP
B.A., Environmental Design and Planning
Years of Experience: 28
Responsible for: Project Director

Ryan Blaich
B.S., Environmental Systems: Ecology, Behavior, and Evolution
Years of Experience: 1
Responsible for: Biological Resources Review

Jackie Clark
B.S., Business Administration
Years of Experience: 9
Responsible for: Technical Editing, Graphic Design, and Document Production

Stephanie Clarke
B.S., Biology and Environmental Studies
Years of Experience: 3
Responsible for: GIS Analysis

Dominic Craparotta
B.A., Environmental Studies with Minor in Spatial Science
Years of Experience: 2
Responsible for: GIS Analysis

Scott Coombs
M.S., Marine Science
Years of Experience: 20
Responsible for: Water Resources and Geological Resources

Chris Davis, AICP, PMP
M.S., Environmental Management
Years of Experience: 21
Responsible for: Quality Control/Quality Assurance

Michael Dungan
Ph.D., Ecology and Evolutionary Biology
Years of Experience: 35
Responsible for: Biological Resources

Doug Gilkey, AICP
MPA, Public Administration
Years of Experience: 28
Responsible for: Quality Control/Quality Assurance

Leah Gonzales
M.S., Environmental Science and Management
Years of Experience: 3
Responsible for: Air Quality and Water Resources

Seth Hopkins
M.A., Urban Planning
Years of Experience: 15
Responsible for: Geology, Infrastructure, and Hazardous Materials and Wastes

Caitlin Jafolla, AICP
B.A., Urban Studies and Planning
Years of Experience: 7
Responsible for: Air Quality, Transportation, Public Health and Safety, and Visual Resources and Deputy Project Manager

Patrick Kester
B.S., Mechanical Engineering
Years of Experience: 11
Responsible for: Noise

Amanda Kreider, AICP, PMP
M.S., Fire Ecology
Years of Experience: 17
Responsible for: Land Use, Visual Resources, and Infrastructure

Isla Nelson
B.A., Anthropology
Years of Experience: 17
Responsible for: Cultural Resources

Geoffrey Olander
B.S., Mechanical Engineering
Years of Experience: 25
Responsible for: Noise

Oliver Pahl
B.S., Environmental Economics, Policy, and Management
Years of Experience: 8
Responsible for: Socioeconomics and Environmental Justice

Clint Scheuerman
M.A., Biological Sciences
Years of Experience: 15
Responsible for: Biological Resources

Lisa Woeber
B.B.A., Business Administration
Years of Experience: 24
Responsible for: Project Management

Appendix A
Public and Agency Participation

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PUBLIC INVOLVEMENT PROCESS

1.1 INTRODUCTION

The United States (U.S.) Navy (Navy) conducted public outreach to notify and inform interested and potentially affected stakeholders and the general public about the Proposed Action and solicit their input on the environmental analysis. The National Environmental Policy Act (NEPA), and regulations for implementing NEPA as set forth by the Council on Environmental Quality (CEQ), require federal agencies to make diligent efforts to involve the general public, stakeholders and tribes in the development of environmental documents, and stipulate public involvement during various stages of the environmental review process (42 U.S. Code § 4321, as amended; CEQ Regulations for Implementing NEPA [40 Code of Federal Regulations Part 1500, as amended]).

1.1.1 Public Involvement Overview

The public involvement process for this Environmental Assessment (EA) commenced with publication of a Notice of Intent (NOI) to prepare an EA in October 2018 requesting public input on the Proposed Action, alternatives, scope of analysis, and resources to be considered in the EA. The NOI was published on Wednesday, October 10, 2018, in conjunction with the beginning of the 35-day Public Scoping Period, in three local newspapers (the Los Angeles Times, Daily Breeze, and Long Beach Press-Telegram) and ran for three consecutive days (from Wednesday, October 10, to Friday, October 12, 2018). In addition, postcard mailers were mailed to 1,644 neighboring businesses and residents, and a stakeholder letter was mailed first-class on October 10, 2018, to 79 federal, state and local elected officials and government agencies on the project mailing list. A news release was distributed by the Naval Weapons Station Seal Beach (NAVWPNSTA) Seal Beach Public Affairs Officer (PAO) and a post was made on NAVWPNSTA's Facebook page on October 10, 2019. The Public Scoping Period was from October 10, 2018 to November 13, 2018. Throughout the Public Scoping Period, written comments were accepted by mail and email (nwssbpao@navy.mil). Eleven written comments were received during the Public Scoping Period.

Subsequent to public scoping, the Navy prepared the Draft EA and then published a Notice of Availability (NOA) of the Draft EA in three local newspapers (the Los Angeles Times, Daily Breeze, and Long Beach Press-Telegram). The NOA of the Draft EA was published for three consecutive days, from Friday, April 19 to Sunday, April 21, 2019. The NOA described the Proposed Action, solicited public comments on the Draft EA, provided dates of the public comment period and public meeting, and announced that a copy of the Draft EA was available for review on the project website (www.cnic.navy.mil/SanPedroEA/) and at five local area libraries (San Pedro Regional Library, Peninsula Center Library, Bay Shore Branch Library, Miraleste Branch Library, and Wilmington Branch Library).

Additional notices were sent as a postcard mailer on April 19, 2019 to 89 contacts from a stakeholder list and to 1,644 neighboring businesses and residents within a 1,000-foot radius of Defense Fuel Support Point (DFSP) San Pedro. A stakeholder letter was also mailed on April 19, 2019 to 90 federal, state, and local elected officials and agencies. A news release was distributed by the Naval Weapons Station Seal Beach (NAVWPNSTA) Seal Beach Public Affairs Officer (PAO) and a post was made on NAVWPNSTA's Facebook page on April 19, 2019, with additional Facebook posts occurring on May 6 and May 22, 2019. A downloadable project fact sheet and comment form were also made available on the project website (www.cnic.navy.mil/SanPedroEA/). Additionally, the NAVWPNSTA Seal Beach PAO presented at the May 29, 2019 Northwest San Pedro Neighborhood Council meeting and the June 6, 2019 Coastal San Pedro Neighborhood Council Sustainability Committee meeting. The Navy held a public meeting on May 6, 2019 to describe the environmental impacts of the Proposed Action and alternatives, and receive comments on the Draft EA impacts analyses.

1.1.2 Timing and Methods of Comment Submittal

An initial 30-day Public Review Period was provided in order to afford an opportunity for government agencies, interest groups, and the general public to comment on the Draft EA. The Public Review Period began on April 19, 2019 and closed on May 20, 2019, but was extended to June 3, 2019 for local community groups who requested more time to submit comments. All substantive comments submitted for the project, even those received after the deadline, were considered in preparation of the Final EA. A total of 69 comments were received.

All comments received were evaluated and taken into consideration both individually and collectively during development of this Final EA. Certain substantive comments prompted additional data collection, impact analysis, and text changes or additions that were incorporated into this Final EA.

1.2 Overview of Comments and Responses

1.2.1 Comment Response Process

The Navy implemented the following process for reviewing and responding to all comments received during the Public Review Period for the Draft EA:

- The Navy carefully reviewed the comment letters, and distinct or separable points were identified in the content of each comment letter.
- As appropriate, based on substantive comments about the Draft EA analysis and findings, the Navy modified the Final EA to make corrections and/or to otherwise improve or clarify the analysis presented in the Draft EA.

1.2.2 Summary of Comments Received During the Draft SEIS Public Comment Period

A total of 69 comments were received and accepted in response to the Draft EA. Two written comments were submitted at the open house public information session, 5 letters were received via mail, and 64 comments were submitted via email to the NAVWPNSTA Seal Beach PAO. Three of the comments were submitted by state and local agencies, the California Department of Fish and Wildlife, the South Coast Air Quality Management District, and the Los Angeles County Fire Department. Los Angeles City Councilmember Joe Busciano, 15th District, submitted a comment, as well as two local organizations, the Northwest San Pedro Neighborhood Council and San Pedro Peninsula Homeowners United Inc. The remainder of the comments were submitted by private individuals.

The top concerns expressed in the public comments were related to public health and safety (72 percent [%] of comments addressed this topic), general opposition to reactivation of DFSP San Pedro (36%), traffic concerns and lack of alternative transportation routes (32%), air quality (23%), location of the DFSP San Pedro Main Terminal in an earthquake zone and other geological concerns (22%), the threat of a terrorist attack (17%), and biological resources and habitat preservation (16%). Concerns related to public health and safety covered a wide range of topics, including the proximity of the DFSP San Pedro Main Terminal site to residences, schools, recreational resources, and commercial businesses; the addition of more fueling infrastructure in an area that already has a large amount of explosive and flammable fuel storage; and the lack of ingress/egress routes for the community in the event of a disaster or accident.

1.2.3 Comment Summary Table

The comments have been compiled into a summary table, Table A-1, intended to illustrate the main issues raised by the public during the comment period; it is not meant to capture all aspects of the comments or to serve as a legal record.

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Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
NEPA Process	Concern that the Draft EA is not written to be easily understood by a layperson.	Where appropriate, the Navy has simplified language and provided additional information to make the Final EA more easily understood.
NEPA Process	Request that a full Environmental Impact Statement (EIS) be required before any alternative is selected.	For all resource areas studied, the analysis indicates there would be no significant environmental impacts from the Proposed Action under either alternative. Therefore, an EIS is not required.
NEPA Process	Concern regarding the fact that the EA does not address the future commercial uses rather just states additional environmental analysis would be required.	The EA analyzed the developable areas on the Main and Marine Terminals of DFSP San Pedro for a 'maximum development scenario' covering a variety of uses a commercial lessee would be allowed to pursue (including storage of commercial and military grade fuels in aboveground storage tanks [ASTs], construction of warehousing or storage space, and parking). Once the Navy has received proposals, it will evaluate the operations proposed by the commercial lessees to determine whether the environmental impacts of the proposals are fully encompassed by the EA's analysis of such impacts. If a potential lessee proposes an activity or use that would involve anticipated environmental impacts beyond those analyzed by the EA, and if the Navy wished to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.
NEPA Process	Signing a lease for the entire area under either alternative would be viewed as a prior commitment to the subsequent commercial use without the appropriate environmental analysis. There is no description of what the future commercial use would include and therefore, no assessment of the environmental impacts of the traffic, air emissions, hazards to adjacent homes, schools and youth recreation areas. Both NEPA and CEQA require use of that commercial area to be environmentally assessed before the lease is awarded. Specific details noted as lacking are: What are the permissible commercial uses? How much traffic will those activities generate? Air emissions? What are the hazard characteristics of the commercial product[s] proposed to be stored/ imported/distributed on the site? What are the next steps to secure a lessee? Is there any exemption to the environmental laws being invoked by the Navy that would permit staged assessments? If no exemptions, can you provide us with citations to law or regulation that permit those commercial uses to be addressed at a later time?	The EA analyzed the developable area on the Main and Marine Terminals of DFSP San Pedro for a 'maximum development scenario' covering a variety of uses a commercial lessee would be allowed to pursue (including storage of commercial and military grade fuels in ASTs, construction of warehousing or storage space, and parking). The EA's analysis of environmental impacts (e.g., air emissions, transportation, etc.) is based on the range of potential uses reflected in the maximum development scenario. Once the Navy has received proposals, it will evaluate the operations proposed by the commercial lessees to determine whether the environmental impacts of the proposals are fully encompassed by the EA's analysis of such impacts. If a potential lessee proposes an activity or use that would involve anticipated environmental impacts beyond those analyzed by the EA, and if the Navy wished to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Public Involvement Process	A proposed change with as much potential to impact neighboring communities as this one should have a much more intensive effort at communication with neighboring communities, followed by a much longer comment period and multiple opportunities for "Open Houses" or other dialogue.	See Section 1.1.1 above for details of all public outreach activities performed for EA, including public scoping in October 2018 and the public review period for the Draft EA from May to June 2019.
Public Involvement Process	Concern the public meeting for the Draft EA was not noticed properly, as some residents neighboring the DFSP property reported not receiving notice by mail of the event.	A description of the public involvement and noticing process is included above in Section 1.1.1 of this Appendix, as well as in Section 1.8 of the EA.
Public Involvement Process	Concern the public comment period was not long enough at 32 days, as the project has considerable potential impacts.	The Navy extended the Public Review Period to June 3, 2019 for groups or individuals who requested more time. All substantive comments submitted for the project, even those received after the deadline, were considered in preparation of the Final EA. See description of the full public involvement process undertaken for this EA above in Section 1.1.1 of this Appendix, as well as in Section 1.8 of the EA.
Alternatives	Support for the use of the Marine Terminal (Alternative 2) rather than the Main Terminal (Alternative 1).	Comment noted. No change made to text based on comment, as it expresses a preference for one of the action alternatives.
Alternatives	There are other more suitable options to store military fuel where Navy ships are stationed or visit including San Diego or Seal Beach.	There is a Navy fuel pier in San Diego, but this single pier is not sufficient to meet regional Navy contingency requirements. DFSP San Pedro contains the only other Navy ship fueling facilities within 1,000 miles of the fleet concentration in San Diego. Other Navy shore installations such as Seal Beach have no ship fueling capabilities, and ship fueling would not be compatible with the missions of these other installations. Navy ships would continue to receive fuel at alternate locations whenever operations and the availability of alternate resources support these options. Excessive transit times, local disasters, declared contingencies and other issues may force the Navy to rely on DFSP San Pedro more than on alternate locations, for short- or long-term periods. See Section 2.4 for Alternatives Considered but not Carried Forward for Detailed Analysis in the EA. Based on the Navy's purpose and need, other locations were considered but eliminated, as per Chapter 2.
Alternatives	Consider additional proposed alternatives, including connect the Navy fuel pier directly to pipelines from area refiners, or refueling Navy ships by barge or offshore refueling boom.	Connecting the Navy fuel pier directly to local refinery pipelines is considered by the Navy to be the preferred alternative (Alternative 4) selected under the Navy's 2016 EA. The Navy considered the possibility of connecting Pier 12 and its associated pipelines to the local refineries, which would require the Navy to reactivate and sustain the pier and associated pipelines. The local refineries would need to provide military grade fuels for use by the Navy on a periodic and contingency basis, which would require a fuel purchase agreement to be established between the Navy and a private/commercial fueling entity. As

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
		indicated in the screening factors, it is important to note that if a commercial fuels operator is not able to reactivate and sustain the DFSP San Pedro site, the Navy would need to perform these functions to the detriment of other important Navy missions. This applies to the alternatives proposed in comments received during the Public Review Period, and thus these alternatives were not carried forward. See Section 2.4 for Alternatives Considered but not Carried Forward for Detailed Analysis in the EA.
Project Details	General disagreement on the Navy's overall need for the Proposed Action including restarting and/or increasing operations at the Main Terminal for the purposes of national defense in the EA.	Comment noted. No change made to text based on comment.
Project Details	Concern over lack of detail about the specific number of ASTs that may be added at the Main Terminal and where the ASTs would specifically be located (on low, flat/level areas of the site; perhaps along Gaffey Street, away from schools, or elsewhere on the property). Additionally, more detail on where the areas considered "historically used for operations" are on the Main Terminal. In addition, the EA does not analyze the impacts of any specific commercial development plans, but notes that additional environmental analysis may be required.	Refer to Figure 2-3 for the areas on the Main Terminal where ASTs could potentially be constructed. All areas indicated to be developable on Figure 2-3 were historically used for fueling operations. The EA analyzes these areas for various types of uses a commercial lessee would be allowed to pursue (including storage of commercial and military grade fuels in ASTs, construction of warehousing or storage space, and parking). The EA's analysis of environmental impacts (e.g., air emissions, transportation, etc.) is based on the range of potential uses reflected in the maximum development scenario, as described in Section 2.1.2.
Project Details	Concern that Government resources will be used to build new facilities and support commercial, non-Governmental operations.	Under the commercial outlease, the lessee would be required to renovate existing infrastructure to operational status or construct new infrastructure at their cost. The lessee would compensate the Navy for use of the property through consideration in-kind, which can include construction, maintenance, restoration, improvement projects, etc., for the Navy.
Project Details	Concern related to expanded and commercial operations at the site. The community generally trusts the Navy/Defense Logistics Agency (DLA) to focus on safety, whereas commercial operators would "focus on profits." The community does not view the Proposed Action as "continued military use of the site for fueling," but as a new and massive increase in untrustworthy, unsafe commercial fuel operations in their backyard, and a direct threat to their homes and families.	The commercial lessee would operate the facility, but the Navy would retain overall responsibility for the property (see Sections 2.3.2 and 2.3.3 of the EA for additional information). The commercial lessee would be required to adhere to all applicable federal, state and local regulations and laws, as the Navy and DLA have done while operating the site. Inspections and oversight from applicable agencies would still occur as mandated by pertinent regulations and laws. The commercial lessee would be required to obtain all necessary permits from the applicable agencies (e.g., Certified Unified Program Agencies [CUPAs], State Water Quality Control Board [SWQCB], South Coast Air Quality Management District [AQMD], California State Land Commission, California Environmental Protection Agency).

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Project Details	Question regarding how long (approximately, in years) the entire process will take (approvals, MILCON, design, construction advertising, bids, final construction).	If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees. As described in Section 2.1, Potential Development Scenarios, portions of the Main Terminal (Alterative 1) and the entire Marine Terminal (Alternatives 1 and 2) would be available for immediate development. Certain areas of the Main Terminal currently undergoing remediation would be available for development once remediation activities are deemed complete. However, the final timeline for implementation of the Proposed Action would be dependent on the specifics of any proposal the Navy might ultimately accept from a commercial lessee.
Project Details	Concern the project is attempting to re-open utilizing grandfathered permits from 1943 that fail to meet current facility requirements set forth by the EPA and other local, state and federal regulations for these types of facilities.	Resumed fueling operations at the site would be required to comply with current permitting requirements of the applicable agencies (e.g., CUPAs, SWQCB, South Coast AQMD, California State Land Commission, California Environmental Protection Agency). Any infrastructure returned to operational status would be required to comply with current regulations, and no grandfathering would occur.
Project Details	Question regarding benefit to City/County of Los Angeles from fees and taxes from the commercial sale of oil.	The comment raises issues outside the scope of this project. The commercial lessee would be independently responsible for any and all taxes, assessments, or payments in lieu of taxes that may be levied against its leasehold interest in the premises or against its activities or operations on the premises.
Air Quality	Concern regarding the potential air emissions at the Main Terminal as described in the EA.	See Section 3.1, Air Quality in the EA, for a description of the estimated emissions from the Proposed Action during construction and operations. The air emissions model has been updated to reflect the acreage that would be available for development during a single year, based on the remediation activities occurring at the Main Terminal. This limits the amount of construction activities occurring on site to the available acreage, and thus the emissions (including NOx) from the Proposed Action during each year. During operations, ASTs storing fuel would be required to follow the South Coast AQMD permit requirements for the proposed operations, with one possible requirement being the application of Best Available Control Technology (BACT). These assumptions have been applied to the AST model and have thus reduced the estimated VOCs associated with operation of the Proposed Action.
Air Quality	Suggest submitting a General Conformity determination request to the South Coast AQMD and consulting with the South Coast AQMD Engineering and Permitting staff regarding any changes for existing permit(s).	The Navy is preparing a General Conformity Determination and consulting with the South Coast AQMD related to estimated emissions resulting from the construction and operation the Proposed Action. If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
		commercial lessees, and confirm the proposed construction and operations fall within the maximum development scenario analyzed in the EA, or if additional environmental analysis is required prior to awarding the outlease. The commercial lessee would be required to consult with South Coast AQMD and comply with any requirements needed to obtain permits for the commercial fueling operation, and the South Coast AQMD would confirm the operations comply with their current plans (including the regional Air Quality Management Plan, as well as plans dealing with specific pollutants in specific geographic locales).
Air Quality	Request more information regarding NOx impact and source.	See Section 3.1, Air Quality in the EA, for a description of the estimated emissions from the Proposed Action. Combustion of fossil fuels from vehicles and other industrial activities produces oxides of nitrogen (NOx), which is primarily composed of nitric oxide (NO) and nitrogen dioxide (NO_2). NO_2 is an irritant gas and can cause inflammation of the airways at high concentrations. NOx gases react to form smog and acid rain as well as being central to the formation of fine particles (PM) and ground level ozone, both of which are associated with adverse health effects. If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees, and confirm the proposed construction and operations fall within the maximum development scenario analyzed in the EA, or if additional environmental analysis is required prior to awarding the outlease. The commercial lessee would be required to consult with South Coast AQMD and comply with any requirements needed to obtain permits for the commercial fueling operation, and the South Coast AQMD would confirm the operations comply with their current plans (including the regional Air Quality Management Plan, as well as plans dealing with specific pollutants in specific geographic locales).
Air Quality	Request that the commercial lessee consider use of electric trucks for transporting fuel.	As this type of technology becomes more widely available, it would be the commercial lessee's choice to use it in their operations.
Geology and Soils	Concern over Main Terminal being located in an "Earthquake Rupture Zone" (a highly vulnerable area where multiple earthquake faults converge) with surrounding land identified by USGS as "Landslide and Liquefaction Areas". Additional concern about high water tables and other geological factors near or directly underneath the DFSP property, primarily at the Main Terminal.	Federal, State and local building codes associated with construction near fault lines attempt to maximize life safety and avoid facilities failures. These codes were developed to provide for the public safety in hazardous fault zones. Authorities having jurisdiction, including the Navy as the land owner, would not approve plans for facilities if an undue hazard would be created. Flexibility, ductility and strength are to be built into soil layers, foundations and facilities as much as possible. Mat foundations, stiffer structural components in the

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
		facility, collapsible building components and other system design features and setbacks from identified faults would help to mitigate these issues.
Geology and Soils	Concern that existing seventy-year-old UST infrastructure may fail with the addition of new ASTs.	Federal, State and local building codes and ASTMs associated with construction of the new infrastructure including the ASTs would to be followed by the commercial lessee, and design plans and permits approved prior to construction. Although the USTs have been filled with structural fill, the feasibility of constructing on top of them would need to be analyzed prior to construction.
Geology and Soils	Concern potential impacts to water and oil pipelines in liquefaction zones are not adequately addressed.	Federal, State and local building codes associated with construction near fault lines and liquefaction zones attempt to maximize life safety and avoid facilities failures. These codes were developed to provide for the public safety in hazardous fault and liquefaction zones. Authorities having jurisdiction, including the Navy as the land owner, would not approve plans for facilities if an undue hazard would be created. Flexibility, ductility and strength are to be built into soil layers, foundations and facilities as much as possible. Mat foundations, stiffer structural components in the facility, collapsible building components and other system design features and setbacks from identified faults and liquefaction zones would help to mitigate these issues.
Biological Resources	Concern that "temporary" impacts from construction and reconfiguration as well as future operations adjacent to the protected habitat areas might be the negative tipping point for the butterfly, whose status at the site has become precarious.	The commercial lessee would be required to implement U.S. Fish and Wildlife Service-approved measures described in Appendix B, including noise and visual buffers, breeding season avoidance, and lighting restrictions. The above preventive measures would likely ensure no adverse effects to the population of PVB adjacent to the future operation area.
Biological Resources	Concern that the resumption of enlarged full scale operations at the site may have negative impacts on the quality of remaining habitat areas.	The Navy's analysis, as reflected in the EA, indicates that no habitats for sensitive species would be impacted, including gnatcatcher or PVB habitats. Additionally, as described in Section 3.5.2.1, the Palos Verdes Peninsula Land Conservancy will continue to manage habitat for the PVB within the Main terminal, as part of a multi-organizational partnership since 1994.
Biological Resources	Concern the native plant nursery managed on site by the Palos Verdes Peninsula Land Conservancy and serving to expand habitat for species of concern like the Palos Verdes Blue Butterfly and the California Gnatcatcher is not discussed in the document. Request for stipulation of the continued operation of the native plant nursery and associated habitat improvement efforts be included in the document.	The continued operation of the Conservancy's native plant nursery is discussed in Section 2.1.2, Potential Development Scenarios. There are no requirements being considered to expand habitat for species of concern, but the existing habitat areas would be protected under the Proposed Action and the native plant nursery would continue to operate on site, per the Biological Opinion requirements.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Biological Resources	Concern Palos Verdes Blue Butterfly and Coastal California Gnatcatcher habitat will be impacted, as it is unclear who is ultimately responsible for ensuring the conditions of the INRMP and Biological Opinion are adhered to, and lack of a specific mechanism to ensure the Navy is closely monitoring the lessee.	The Navy will continue to have oversight of the implementation of the conditions of the Biological Opinion. This is done through the two cooperative agreements for habitat management and butterfly surveys/rearing. A third contract/agreement will manage gnatcatcher surveys. Section 3.4, Biological Resources, analyses potential impacts habitat for these species, and determines no direct impacts to habitats to these two species would occur.
Biological Resources	Concern about the potential presence of the burrowing owl may be present at the Main Terminal, as one owl, believed to be a winter migrant, was observed in 2018.	Other than the 2018 burrowing owl siting at the Main Terminal documented in Section 3.4, Biological Resources, there have been no other recent records of burrowing owls on the site. Prior to any ground-disturbing activity, the commercial lessee would be required to have a qualified biologist perform a survey to ensure no burrowing owls are present.
Biological Resources	Question about more than 100 poplar trees removed in the Pumphouse Area along Gaffey Street of the facility, that were believed to be planted as a phytoremediation project to work in conjunction with an existing mechanical treatment system to clean-up contaminated soil and a defined groundwater plume. The phytoremediation project was initially approved by the Los Angeles District Water Board and later studied and evaluated by USN civilians from Port Hueneme, California. It is believed the study concluded that the poplar trees were more effective in cleaning it over the mechanical means, with the tree roots being able to metabolize nearly 100 percent contamination within soil pores vice 70 percent maximum by the mechanical system.	The comment raises issues outside the scope of this project. Note: The Navy and the DLA have ongoing remediation activities at the Main Terminal and once complete, the remediated areas may include future land use controls (LUCs). The LUCs would help to minimize the potential for exposure to contamination and protect the integrity of a cleanup action.
Land Use	Support for solar panels as one of the potential uses cited in the EA that might be allowable on the Main Terminal site. Such a use, if designed so as not to impact wildlife, might be a more benign and still financially viable option for the Navy to consider on the site.	Comment noted, no change to text required. The primary use and purpose of the site is to support fueling operations and if the use of solar technology supports the fueling operations, it would be considered.
Land Use	Desire from the community to use the Main Terminal site for a more community-focused purpose. The EA notes that the City of Los Angeles would hope to rezone the site as Open Space should the Navy cease operations on the Main Terminal site, which is also the preference of the commenter. Desire to convert the Main Terminal site into a Tri-City Sports Complex for the communities of San Pedro, Wilmington, and Harbor City was also raised as an option. Some combination of habitat restoration, recreational use and solar installation might also be considered as an alternative.	Refer to discussion in Section 2.4, Alternatives Considered but not Carried Forward for Detailed Analysis (specifically 2.4.2 and 2.4.3) in the EA regarding other potential uses of the Main and Marine Terminals and why these were deemed to not fulfill the Navy's purpose and need for the Proposed Action. The Navy has no plans to transfer ownership of the property, as the Navy requires securable property that would always be available for military use, and there is still a need for the fueling capabilities DFSP San Pedro affords.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Land Use	Question regarding whether the Marine Terminal has adequate capacity to construct large capacity ASTs.	The maximum development scenario analyzes the largest capacity tanks that could feasibly be constructed on the developable area at both the Main and Marine Terminals. If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees. Once a commercial lessee's proposal has been selected by the Navy, as part of the planning and design phase, the commercial lessee would be required to perform surveys (which could also include soil testing and analysis) to determine the site's capability to support specific ASTs required for the operations in specific locations prior to beginning construction. The Navy would have final approval of the commercial lessee's plan.
Visual Resources	Concerns with adding ASTs to the property, as they are visually unappealing to the community.	Figures 2-3 and 2-4 in the EA depict the potential development scenarios including the areas where new infrastructure could potentially be built on the Main and Marine Terminals, respectively. If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees, and the terms of the outlease would allow for improvements to the leased property with prior approval of the Navy. The construction of ASTs, warehouse, storage, office space, or parking on top of closed underground storage tanks, and of new pipeline segments to connect to existing segments on DFSP San Pedro and at other facilities off-site, may or may not be feasible and would be dependent upon design and technical analysis by the lessee. Any proposed construction deemed as not covered in this EA by the Navy would require additional environmental analysis. The lessee would be encouraged to consider the visual impacts of the facilities and infrastructure they are proposing to construct to consider visual screening and landscaping improvements where practicable. Constructing new infrastructure aboveground would change the visual environment of the Main Terminal, but it would remain largely consistent with the types of structures that are currently present on the Main Terminal and the industrial character of the immediately surrounding vicinity. The lessee would be required to develop structures and facilities at the Marine Terminal that would be of a similar size, mass, and height of those existing to the maximum extent practicable, to ensure no dramatic change to visual setting.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Noise	Concern about increased noise pollution from expanded operations	Day to day activities most likely to generate noise would include truck traffic within the proposed lease boundary as well as periodic maintenance in support of pipeline operation that could include heavy trucks similar to construction activity. A dozer generates a maximum sound level of 82 dBA (A-weighted decibels) at 50 feet, which corresponds to 70 dBA at 200 feet. Given the existing traffic along the roads surrounding the Main Terminal, noise from truck traffic inside the facility would generate only a negligible increase to the surrounding communities. See Section 3.7 Noise in the EA for further details.
Transportation and Traffic	Concern regarding the additional industrial traffic related to commercial fueling operations exacerbating an overburdened street infrastructure system in the San Pedro peninsula that has limited options for ingress/egress. The impact of 40 truck trips on Gaffey Street will not be minor. Noise, pollution, large trucks on an already busy and a road that will be busier in the future (specifically when the Highpark housing development is completed and occupied) must be seriously considered.	The maximum development scenario analyzes a maximum number of fuel trucks that would be visiting either the Main and/or Marine Terminal and assumes a minimal use of the underground pipelines for commercial operations. If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees. Once a commercial lessee's proposal has been selected by the Navy, as part of the planning and design phase, the commercial lessee would be required to prepare a transportation management plan for its commercial truck operations, as well as to develop required emergency access/contingency plans. The additional truck trips added to local streets would be distributed throughout the work day and would not be concentrated during the peak commuting hours. Impacts to air quality from the proposed operations are discussed in Section 3.1.3, Air Quality, and noise from operations is discussed in Section 3.7.4, Noise of the EA.
Transportation and Traffic	Concerns about trucks operating between 11 pm and 5 am on local streets.	It is anticipated that most commercial operations would take place during standard business hours. However, some truck traffic and some vessel, ship and barge traffic could take place outside of regular hours. The analysis in sections 3.1, Air Quality, and 3.7, Noise, and 3.9, Transportation and Traffic, indicates that no significant impacts to traffic, background noise or air quality would occur as a result of operations during non-standard hours.
Public Health and Safety	Concern over lack of current testing or reporting required by the EPA and other federal monitoring agencies being provided to the public. Chemical ground-saturation levels surrounding the existing tanks and underground interconnecting infrastructures may already require soil removal and abatement measures that will far exceed the original re-opening costs.	See Section 3.11.2.2, Hazardous Materials and Petroleum Product Releases, for details regarding previous releases and the remediation activities taking place by the Navy and DLA to clean up the contamination. All future fuel-related infrastructure would be installed with leak detection equipment and other spill prevention measures to protect the environment. Monitoring and inspections required by applicable regulations and permits would be conducted by the commercial lessee and outside agencies.
Public Health and Safety	Concern over the potential use of ASTs instead of underground storage tanks (USTs) at the Main Terminal. Concerns include the fact that ASTs are more	The fueling facilities would only be operated when they are confirmed to be code compliant and safe. All required permits to operate would be obtained

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
	likely to produce a big spill or explosion if breached during a manmade or natural disaster; and are more likely to create a chain reaction if there is an explosion or fire at one tank. Pipelines carrying fuels from DFSP San Pedro, Phillips 66 and butane fuels run along North Gaffey Street; a rail spur delivers propane to Rancho from Valero Refining in Carson and Marathon Petroleum Corp.	and all fueling operations, including operations over water, would meet or exceed all federal, state, and local requirements. The off-site pipeline system has been in use for several decades, with no known impact to the surrounding community. The Draft EA analysis indicates there would be no significant impacts to the environment (see Section 3.10, Public Health and Safety). The use of fuels inventory reconciliation (which involves monitoring inventory and identifying inventory discrepancies potentially caused by leaks), leak detection methods and systems, current code requirements, such as double-walled piping and sealed containment berms, would minimize risks. The pipeline integrity management plans required to be used by the commercial lessee would help minimize risks by preventing future releases through systematic inspections, testing, repairs, and operations maintenance.
Public Health and Safety	Concern about terrorism threat, as Port of Long Beach and Los Angeles and other fuel sites in the area are already considered a target of opportunity in past terrorist attacks that were thwarted. Adding additional fuel storage to the areas of the Main and Marine Terminals could potentially make the area a more desirable target for terrorists.	The Navy conducts threat assessments on an as-needed basis. Based on the results of a follow-on security vulnerability analysis, the Force Protection Condition could be raised or lowered. This would result in more or less protective measures. For the lessee, they would follow a similar process using security guidelines for the petroleum industry. The lessee would be required to seek out assistance and coordinate efforts with federal, state and local law enforcement agencies, and with the local emergency services and Local Emergency Planning Committee, as applicable. The Navy and the lessee would also share intelligence, coordinate training and use other resources to help deter attacks and to manage emergencies. The lessee would also be required to be aware of and comply with applicable local and national laws and regulations regarding security. Appendix A in the above-mentioned API standard has a partial list of the security regulations impacting the petroleum industry that were enacted prior to 2005. Additional standards also apply.
Public Health and Safety	Concern that the owner of Rancho LPG (Plains All America) might be the lessee as they have had environmental fines, misdemeanor charges, etc.	Comment noted. Any potential lessee would be subject to Navy's review and approval.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Public Health and Safety	Concern related to safety from increased industrial traffic on already congested local streets, including North Gaffey, as well as trucks traveling on poorly maintained local streets (potholes that could cause accidents or spills). Concern about transporting fuel (in any form) on congested city roads, especially due to increased commercial use of the Main Terminal. This includes concerns that all available "escape routes" in the community pass by at least one big petroleum facility. The Main Terminal site is bordered by both Western Avenue and Gaffey Street. These are the primary, and in some cases the only, avenues for ingress/egress to and from the neighboring communities in case of an emergency.	The potential lessee would be required to develop a transportation management plan and emergency access/contingency plan. The purpose of these plans would be to ensure the safe and efficient movement of trucks and workers to and from the terminal facilities. Detail on construction and operational vehicle routes, access arrangements and coordination with local transportation and emergency response agencies would need to be addressed in these plans. The plans would also include details of driver training awareness to minimize noise (including from reversing alarms and compression braking), and procedures for managing operational traffic, including adherence to Department of Transportation regulations for transporting hazardous materials.
Public Health and Safety	Concern about an increased influx of large trucks carrying hazardous materials into an area that contains homes and schools, including air quality impacts, causing residents to run the risk of either developing asthma (from diesel exhaust) or having existing pulmonary conditions exacerbated.	See Section 3.1, Air Quality, in the EA for a discussion of the potential emissions from the Proposed Action and the potential impacts to human health. Fuel transport at both the Main and Marine Terminals would adhere to Department of Transportation regulations for transporting hazardous materials, including required training, which would minimize the risk to the community from the transport of fuels on local roads.
Public Health and Safety	Concern about chemicals from the Main Terminal site getting into the local water supply.	The use of fuels inventory reconciliation (which involves monitoring inventory and identifying inventory discrepancies potentially caused by leaks), leak detection methods and systems, current code requirements, such as double-walled piping and sealed containment berms, would minimize risks. The pipeline integrity management plans required to be used by the commercial lessee would help minimize risks by preventing future releases through systematic inspections, testing, repairs, and operations maintenance. Monitoring and inspections required by applicable regulations and permits would be conducted by the commercial lessee and outside agencies.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Public Health and Safety	Concern about storing large quantities of highly flammable fuel so close to homes, schools, and primary thoroughfares risks major casualties to the public in the event of a fire or explosion, whether caused by accident, earthquake, or terrorism (Alternative 1). The natural topography creates a bowl where the residents live, with petroleum operations occupying the higher ground around them. Many residents fear that an earthquake or terrorist attack would rupture ASTs and spill millions of gallons of fuel into neighborhoods, where it would ignite. Request the Navy address the liquefied petroleum gas (LPG) tanks at the facilities surrounding the Main Terminal and the threat potential failures of these tanks pose to the surrounding community.	If a prospective lessee proposes a use of DFSP San Pedro that has not been thoroughly analyzed under this EA, the lessee would be required to document through the completion of industry-standard hazard analyses there are no significant environmental impacts from the proposed use. The lessee would also be required to submit a comprehensive hazard analysis report showing how risks would be comprehensively managed. The lessee must also ensure the hazard analyses are certified by an individual or organization recognized in the risk management profession. The lessee's report must clearly document understandable discharge, dispersion, pool, flammable, and toxic effect calculations for all proposed fuel types and on-site processes that would occur at the Main or Marine Terminals. The lessee's report would be reviewed and accepted by the Navy. In the event there is a potential significant threat to the environment in the proposal, the Navy may determine that significant physical safety or security risks difficult to mitigate may cause the Navy to reject the proposal until it is thoroughly assessed and found to have no significant health and safety and/or physical security concerns. The LPG facilities located near the Main Terminal have Risk Management Plans on file with the EPA in order to manage risk from their facilities affecting locations outside of their property, and the commercial lessee would be required to apply all applicable rules and regulations related to health, safety, and emergency planning to the operations at DFSP San Pedro. Ultimate siting of any new ASTs and infrastructure on the Main Terminal would be approved by the Navy, with consideration for appropriate buffering of ASTs from each other and property line of the Main Terminal. DFSP San Pedro has been in operation since 1943, and has safely operated in close proximity to the LPG facilities in the area during this time. The commercial lessee would be required to install or retrofit existing infrastructure to meet all current codes, thus improving safety benefits to the surrounding community.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Public Health and Safety	Concerns related to nitrous oxide at high enough levels causing birth defects, as the proposed ASTs would be within close proximity to neighborhoods of young families.	Emissions from the Proposed Action are described in Section 3.1, Air Quality in the EA. The Navy is preparing a General Conformity Determination and consulting with the South Coast AQMD related to estimated emissions resulting from the construction and operation the Proposed Action. If Alternative 1 or 2 is ultimately selected, then the Navy would solicit proposals from potential commercial lessees, and confirm the proposed construction and operations fall within the maximum development scenario analyzed in the EA, or if additional environmental analysis is required prior to awarding the outlease. The commercial lessee would be required to consult with South Coast AQMD and comply with any requirements needed to obtain permits for the commercial fueling operation, and the South Coast AQMD would confirm the operations comply with their current plans (including the regional Air Quality Management Plan, as well as plans dealing with specific pollutants in specific geographic locales).
Public Health and Safety	Request that information on any recorded catastrophes, major spills, ruptures or fires at DFSP San Pedro since 1943 be included in EA, with the exception of UST and pipeline leaks.	According to DFSP San Pedro personnel, several leaks have occurred from various pump seals in the older, out-of-service pump buildings, from a diesel pipeline in 1991, from a 10-inch pipeline in September 1999, and from an underground storage tank. All known releases have been cleaned up or are in the process of being remediated. See Section 3.11, Hazardous Materials and Waste in the EA, for further details.
Public Health and Safety	Concern regarding the type of commercial fuel to be used or stored at the Main Terminal site. Past storage of DFM and JP-5 storage posed mainly fire and major spill risks, but other fuel types could have additional explosion risk, like the neighboring storage facility and refinery. Also concerns over the fuels coming from refineries who use modified hydrofluoric acid in their refining processes.	Fuel types at the Main Terminal site are anticipated to be similar to those stored under historical operations (e.g., JP-5, diesel fuel marine, and commercial equivalents). If a potential lessee proposes an activity or use that would involve anticipated environmental impacts, including those to public health and safety, beyond those analyzed by the EA, and the Navy wishes to potentially consider allowing any such activity or use beyond the analysis of the EA, additional environmental analysis would be required before any decision could be made involving potential award of a lease incorporating that activity or use.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Public Health and Safety	Request that local, state, and federal safety measures that will be adhered to be described in more detail in the EA (e.g., impermeable spill containment basins, AFFF fire suppression systems, double-bottom/floors with leak detection, AQMD-approved vapor control seals on floating roofs or geodesic dome roofs, notwithstanding a viable SPCC Plan).	The fueling facilities would only be operated when they are confirmed to be code compliant and safe. All required permits to operate would be obtained and all fueling operations, including operations over water, would meet or exceed all federal, state, and local requirements. The off-site pipeline system has been in use for several decades, with no known impact to the surrounding community. The Draft EA analysis indicates there would be no significant impacts to the environment (see Section 3.10, Public Health and Safety in the EA). The use of fuels inventory reconciliation (which involves monitoring inventory and identifying inventory discrepancies potentially caused by leaks), leak detection methods and systems, current code requirements, such as double-walled piping and sealed containment berms, would minimize risks. The pipeline integrity management plans required to be used by the commercial lessee would help minimize risks by preventing future releases through systematic inspections, testing, repairs, and operations maintenance. Specific equipment to be used by the commercial lessee is not known at this time, but any proposed equipment to be added would be required to be compliant with all applicable legal requirements.
Socioeconomics	Concern continued industrial development in the area of the Main Terminal, including reactivation of DFSP San Pedro under the Proposed Action, will detract tourists and people from other neighborhoods from coming into town and spending money.	Under the Proposed Action the use of the land in the area would remain similar to current and historic uses for military fueling operations (see Section 3.5.3, Land Use). Increased intensity of industrial activity from commercial fueling is anticipated to be relatively minor and consistent with the industrial nature of the area (see Section 3.6.3, Visual Resources). Because the overall use and nature of the area are not expected to be altered by the Proposed Action, impacts to tourism would not be significant.

Table A-1. Summary of Comments Received During the Public Review Period

Comment Category	Comment(s)	Comment Response(s)
Environmental Justice	Concern that the industrial activities are/will negatively impact the surrounding economically disadvantaged community.	Under the Proposed Action the use of the land in the area would remain similar to current and historic uses for military fueling operations (see Section 3.5, Land Use). Increased intensity of industrial activity from commercial fueling is anticipated to be relatively minor and consistent with the industrial nature of the area (see Section 3.6, Visual Resources). During construction impact avoidance measures would be taken to limit dust and during operations, the commercial lessee would be required to obtain and comply with appropriate air emissions permits (see Section 3.1, Air Quality). Noise levels would not change significantly from existing activity and would be consistent with the current industrial land uses surrounding the facility (see Section 3.7, Noise). The commercial lessee would be required to comply with the same safety regulations and similar security procedures as are currently in use (see Section 3.10, Public Health and Safety). For all of the above reasons, potential impacts to the economically disadvantaged communities would not be significant (see Section 3.13, Environmental Justice).
Climate Change	Concern about the use of fossil fuels and rising seawater due to global climate change.	The Proposed Actions contribution to global climate change are evaluated in Section 4.4.1.5, Greenhouse Gases Cumulative Effects Analysis. Additionally, Chapter 5, Other Considerations Required by NEPA, states rehabilitation/construction and renewed fueling operations at DFSP San Pedro would not result in the types of impacts that would reduce environmental productivity, have long-term impacts on sustainability, affect biodiversity, or narrow the range of long-term beneficial uses of the environment.

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SCOPING SUMMARY REPORT

ENVIRONMENTAL ASSESSMENT

FOR RENEWED FUELING OPERATIONS AT DEFENSE FUEL SUPPORT POINT SAN PEDRO

December 2018

Scoping Summary Report
Environmental Assessment for Renewed Fueling Operations at Defense Fuel Support Point San Pedro

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Scoping Summary Report
Environmental Assessment for Renewed Fueling Operations at
Defense Fuel Support Point San Pedro
December 2018

The U.S. Navy (Navy) conducted notification and outreach activities in support of the scoping phase for the Environmental Assessment (EA) to be conducted to analyze the potential environmental impacts of its proposal to renew fueling operations for commercial and military purposes at Defense Fuel Support Point San Pedro. The intent of public outreach for this phase of the project was to provide an opportunity for the public and agencies to learn about and comment on the Proposed Action, alternatives, and potential resource areas to be studied in the EA. Efforts to notify the public, media, government agencies and elected officials of the scoping period were conducted in accordance with the Navy's Public Involvement Plan for this project.

This summary report describes the Navy's notification and outreach activities for the scoping phase of the EA.

1.0 SUMMARY OF SCOPING ACTIVITIES

1.1 Notification Activities

The following notifications were made to inform the public of the scoping public comment period.

1.1.1 Newspaper Advertisement

A display advertisement was placed in three newspapers, the *Los Angeles Times, Long Beach Press-Telegram* and *Daily Breeze.* The newspaper advertisement was published on Wednesday, October 10, 2018, in conjunction with the beginning of the 35-day public scoping comment period.

NEWSPAPER	DATE OF ADVERTISEMENT
Los Angeles Times (Daily)	Wednesday, October 10, 2018 Thursday, October 11, 2018 Friday, October 12, 2018
Long Beach Press-Telegram (Daily)	Wednesday, October 10, 2018 Thursday, October 11, 2018 Friday, October 12, 2018
Daily Breeze (Daily)	Wednesday, October 10, 2018 Thursday, October 11, 2018 Friday, October 12, 2018

1.1.2 Postcard Mailer

A postcard mailer announcing the Proposed Action, project information and how to submit comments was mailed first-class to 85 individuals and organizations on October 10, 2018. This postcard was also mailed to 1,644 neighboring businesses and residents.

1.1.3 Stakeholder Letter

A stakeholder letter was mailed first-class on October 10, 2018, to 79 federal, state and local elected officials and government agencies on the project mailing list.

1.1.4 News Release

A news release was distributed by the Naval Weapons Station Seal Beach Public Affairs Office to media outlets on October 10, 2018. It announced the Proposed Action, project information and how to submit comments.

LOCAL NEWSPAPERS - DAILY	LOCAL NEWSPAPERS - WEEKLY	TELEVISION NEWS STATIONS	RADIO NEWS STATIONS
Los Angeles Times	The Grunion & Downtown Gazettes	CNN (Los Angeles Bureau)	KNX 1070-AM
Long Beach Press-Telegram	South Bay Community News	KCBS Channel 2/ KCAL 9	KPCC 89.3
Daily Breeze	Excelsior	KNBC Channel 4	
Nguoi Viet Daily News	The Log	KTLA (WB) Channel 5	
Long Beach Post		KABC Channel 7	
		KTTV (Fox) Channel 11/ UPN Channel 13	

1.1.5 Facebook Post

Naval Weapons Station Seal Beach Public Affairs posted the project notice on their Facebook page on October 10, 2018.

1.1.6 Project Website

A project website was established to provide the public with project information, including the project fact sheet and downloadable comment form. The project website address is https://cnic.navy.mil/SanPedroEA/.

1.2 Outreach Materials

The following outreach materials were developed for use during the public scoping period.

1.2.1 Fact Sheet Booklet

One color, 8.5”x11”, six-page fact sheet booklet was developed and included the following topics: About the EA for renewed fueling operations at Defense Fuel Support Point San Pedro, Proposed Action and alternatives, community involvement, and the National Environmental Policy Act. The fact sheet booklet was posted on the project website.

1.2.2 Handouts

A comment form was developed for the scoping comment period. Interested parties could use the form to submit their comments.

1.3 Public Comment Period

The public scoping and comment period was from October 10, 2018 to November 13, 2018. Throughout the public scoping and comment period, written comments were being accepted by mail and email (nwssbpao@navy.mil).

1.3.1 Comments Summary

The comment summary is intended to illustrate the main issues heard from the public during the scoping meeting; it is not meant to capture all aspects of the comments or to serve as a legal record. Concerns, comments, and questions expressed by the public during the public review and comment period include the topics that follow (not prioritized).

Table 1-3. Summary of Public Scoping Comments Received

Comment Category	Types of Comments	Comment Response/ EA Location
Environmental Concerns	Concerns about additional noise from renewed operations	See Section 3.7.
Environmental Concerns	Concerns about leaks from the underground pipelines contaminating the soil, groundwater and the ocean, and concerns about community exposure to hazardous materials and waste from surface- or pipeline-transport and storage (including ground transportation on surface streets)	See Section 3.10 and 3.11.
Environmental Concerns	Concerns about the proximity of the underground pipelines to Machado Lake and associated wildlife	See Section 3.4.
Environmental Concerns	Concerns about the property being located within an Earthquake Rupture Zone (ERZ) and Tsunami hazard zone and the impact to the pipelines during a major earthquake (also impacts related to re-use of existing facilities and potential retrofitting required to meet current seismic standards	See Section 3.3.
Environmental Concerns	Concerns about the proximity to a liquefaction area and potential earthquake-induced landslides	See Section 3.3.
Environmental Concerns	Concerns over loss of open/green space, and potential migration of coyotes and rodents off the site and into residential neighborhoods as a result of renewed operations	This is outside of the scope of this project.
Environmental Concerns	Concerns about impacts to periodic wetlands that form on the Main Terminal after large rain events	See Section 3.2.

Comment Category	Types of Comments	Comment Response/ EA Location
Environmental Concerns	Concerns about construction and operational air quality impacts to the surrounding community (including noxious and/or hazardous odors or gases from the on-site storage and handling of fuel, as well as fuel transportation- and delivery-related impacts)	See Sections 3.1, 3.10, and 3.11.
Socioeconomic and Community Impacts	Concerns about the proximity of the underground pipelines to schools, youth sports fields, and residential neighborhoods	See Sections 3.12 and 3.13.
Socioeconomic and Community Impacts	Concerns about the proximity to the Phillips 66 refinery (with over 13 million gallons of highly explosive butane gas) and the Rancho LPG storage facility storing in excess of 25 million gallons of both butane and propane gas and the fact these facilities are also located within the ERZ.	This is outside of the scope of this project.
Socioeconomic and Community Impacts	Concerns about the impacts to community safety and the ingress/egress for neighboring communities surrounding the project area (including traffic patterns, night lighting, disruption of ongoing public recreation opportunities)	See Section 3.10.
Socioeconomic and Community Impacts	Concerns about heightened security risks related to commercial use of the facility, as well as terrorist threats	See Section 3.10.
Socioeconomic and Community Impacts	Concerns about visual impacts to the Western Avenue corridor related to the Proposed Action, including disruption of public views of the harbor area, Vincent Thomas Bridge, and other local landmarks	See Section 3.6.
Socioeconomic and Community Impacts	Question related to the commercial business needs driving the renewed fueling operations, with a view to potential growth-inducing impacts in the geographical area	See Section 3.12.
Socioeconomic and Community Impacts	Question on socioeconomic impacts for the community	See Section 3.12.

Comment Category	Types of Comments	Comment Response/ EA Location
National Environmental Policy Act Process	Suggestion that the comment period for the draft EA be extended to at least 45-days	The Navy will announce the availability for review of the Public Draft EA.
Proposed Action and Alternatives	Concerns the Navy's proposal and project description are too broad and vague to allow the public to provide adequate/detailed input	See Chapters 1 and 2.
Proposed Action and Alternatives	Questions related to the proposed operations at the property including structural changes (and will they be restoring operational capacity or expanding beyond previous capacity levels)	See Chapters 1 and 2.
Proposed Action and Alternatives	Questions related to the relationship with the commercial lessees (especially related to security concerns and responsibility for cleanup/disaster response)	See Chapters 1 and 2 and Sections 3.10 and 3.11.
Proposed Action and Alternatives	Questions regarding increased hazards and risks with renewed fueling operations at both the Main and Marine terminals (but primarily focused on the Main Terminal)	See Sections 3.10 and 3.11.
Proposed Action and Alternatives	Question whether there is any true need for re-commissioning, including more information on the business impetus for the commercial refueling operations	See Chapters 1 and 2.
Proposed Action and Alternatives	Question regarding the scope and nature of activities that will occur on the Main Terminal	See Chapters 1 and 2.

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DEPARTMENT OF THE NAVY
NAVAL WEAPONS STATION SEAL BEACH
800 SEAL BEACH BOULEVARD
SEAL BEACH, CA 90740-5000

IN REPLY REFER TO
5090
Ser N45/0034
8 APR 2019

Ms. Julianne Polanco
State Historic Preservation Officer
California Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816-7100

Dear Ms. Julianne Polanco:

SUBJECT: NAVY SAN PEDRO POTENTIAL LEASING

The U.S. Navy has prepared a Draft Environmental Assessment (EA) to analyze the potential environmental impacts of its proposal to renew fueling operations for military and commercial purposes at Defense Fuel Support Point (DFSP) San Pedro located in the City of Los Angeles, and the Marine Terminal which is in the City of Long Beach. Enclosure (1) provides a vicinity and installation location map.

In accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 USC 300101), the Navy is providing: a) description of the proposed undertaking; b) proposed Area of Potential Effect (APE); c) identification of historic properties; and d) the Navy's determination of *No Historic Properties Affected* by the proposed undertakings.

Description of the Undertaking

To support Navy fueling requirements, the Navy proposes to enter into an outlease and assign its interests in the Navy-owned fuel pipeline rights-of-way, to allow for renewed fueling operations for military and commercial purposes at DFSP San Pedro. A separate fuel purchase agreement would include provisions for fuel servicing of military ships on a periodic and contingency basis. Rehabilitation of facilities and infrastructure would likely be required to accommodate continued use of DFSP San Pedro Main and Marine Terminals. Pipelines included would only be maintained and used for their intended purpose.

Areas of Potential Effect

Consistent with 36 CFR 800.16(d), the APE for this project is defined as the geographic area within which the proposed undertaking may directly cause effects to historic properties. Enclosure (2) depicts the APE as encompassing the entire footprint of DFSP San Pedro operational boundary which includes the small Marine Terminal in Long Beach. The Marine Terminal was built out into the water with rock and soil, and therefore has no potential for archaeological resources. Enclosure (3) denotes the locations of the pipelines and are included in the APE because it is intended they be included in the outlease.

Identification of Historic Properties

Enclosure (4) provides your agency's concurrence with the determination of eligibility that there are no eligible National Register of Historic Places within the APE.

Analysis and Finding of Effects

The Navy has made a determination, consistent with 36 CFR 800.4(d)(1), from these results of the records searches and archaeological surveys that there are *No Historic Properties Affected* by the proposed undertaking.

Interested Parties

Interested party consultations were initiated for 35 days in the Fall of 2018 requesting scoping comments on the proposed action. No comments on historic properties were received at that time. All relevant parties listed below in the "Copy to" section are being sent this consultation letter. Also, the Draft EA shall be available for on-line review at www.cnic.navy.mil/sealbeach mid-April for at least 30 days.

The Navy is respectfully requesting your concurrence of the 1) delineation of the APE, 2) the identification of historic properties, and 3) concurrence with our determination of *No Historic Properties Affected* for the proposed undertaking.

If you have any questions, please contact me at (562) 626-7637, or lisa.bosalet@navy.mil.

Sincerely,

Lisa Ellen Bosalet

Lisa Ellen Bosalet
Cultural Resources Manager
By direction of the
Commanding Officer

Enclosures: 1. Vicinity and Installation Location Map
2. Area of Potential Effect Map
3. Location of Pipelines included in APE
4. Concurrence Eligibility ltr dated 10 Oct 2015

Copy to:

Gabrieleno Band of Mission Indians
Kizh Nation
901 N. Citrus Ave.
Covina, CA 91722

Gabrielino Tongva Nation
P.O. Box 86908
Los Angeles, CA 90086-0908

Gabrielino Tongva Indians of California
P.O. Box 490
Bellflower, CA 90707-0490

Gabrieleno/Tongva Band of Mission Indians of San Gabriel
P.O. Box 693
San Gabriel, CA 91778-0693

San Pedro Historical Society
P.O. Box 1568
San Pedro, CA 90733-1568

San Pedro Historic Waterfront Business Improvement District
390 W. 7th Street
San Pedro, CA 90731-3324

City of Rancho Palos Verdes
30940 Hawthorne Boulevard
Rancho Palos Verdes, CA 90275-5351

Los Angeles City-County Native American Indian Commission
3175 West 6th Street, Room 403
Los Angeles, CA 90020-1708

Historical Society of Long Beach
4260 Atlantic Avenue
Long Beach, CA 90807-2802

Wilmington Historical Society
P.O. Box 1435
Wilmington, CA 90748-1435

Long Beach Heritage
P.O. Box 92521
Long Beach, CA 90809-2521

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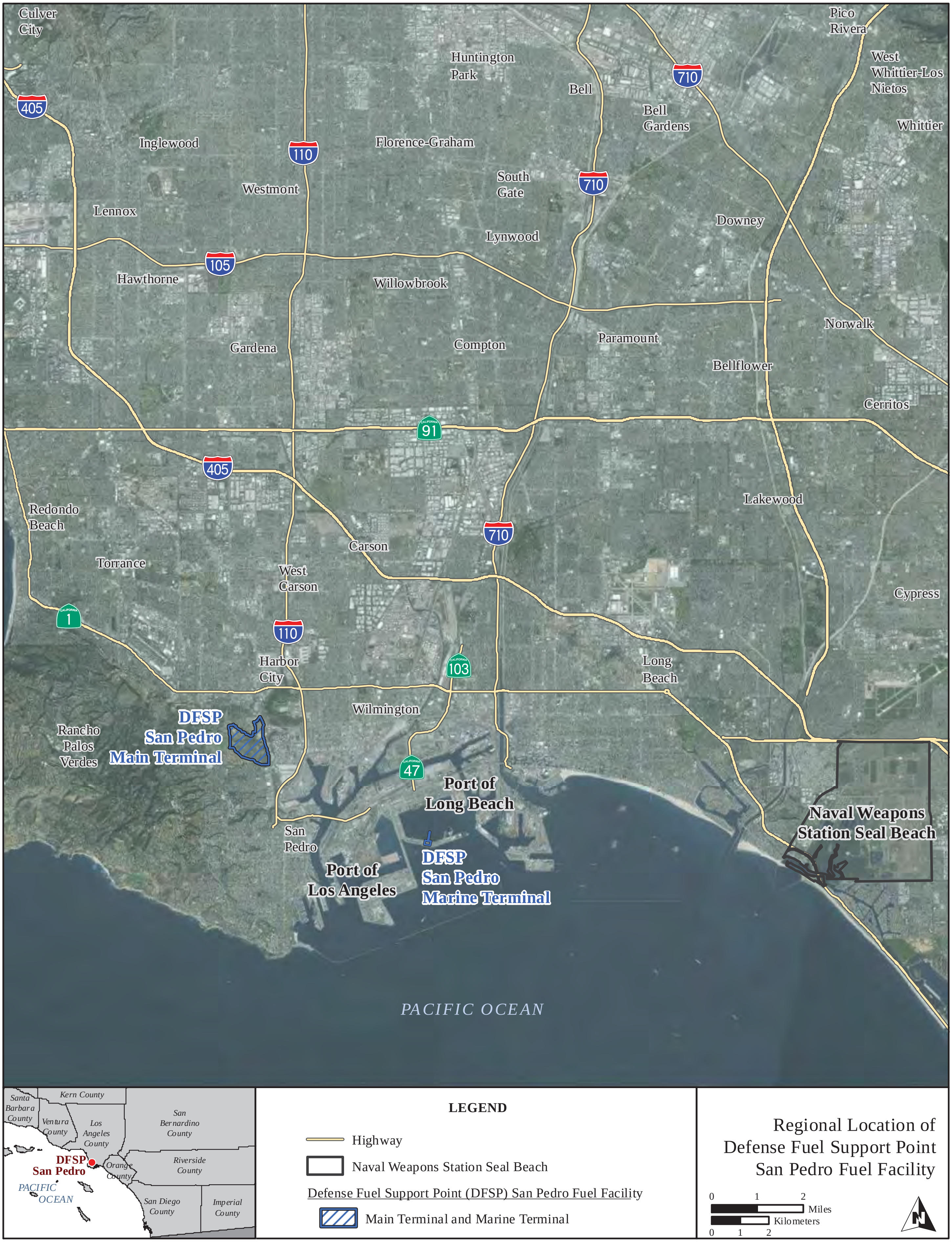
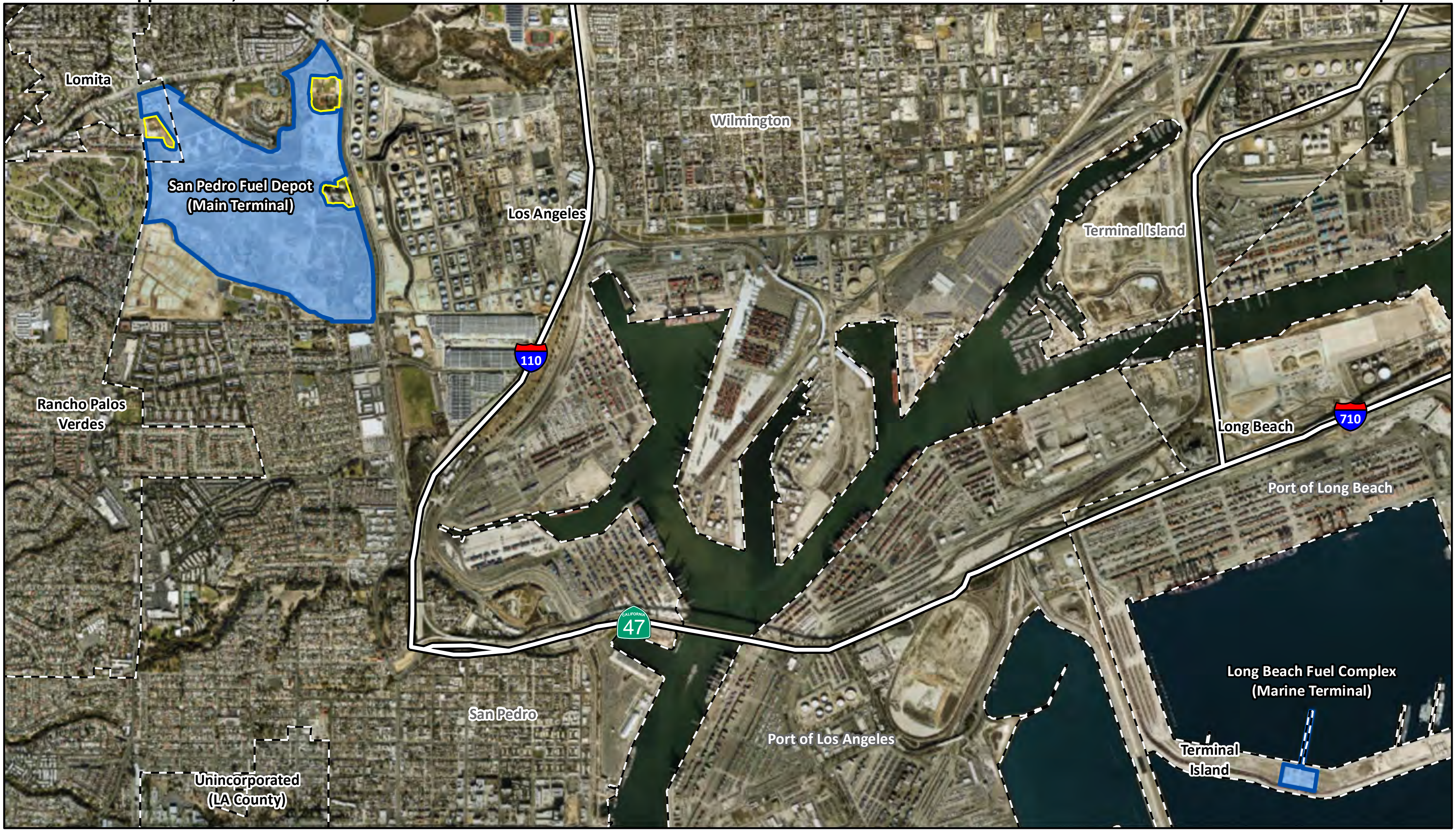
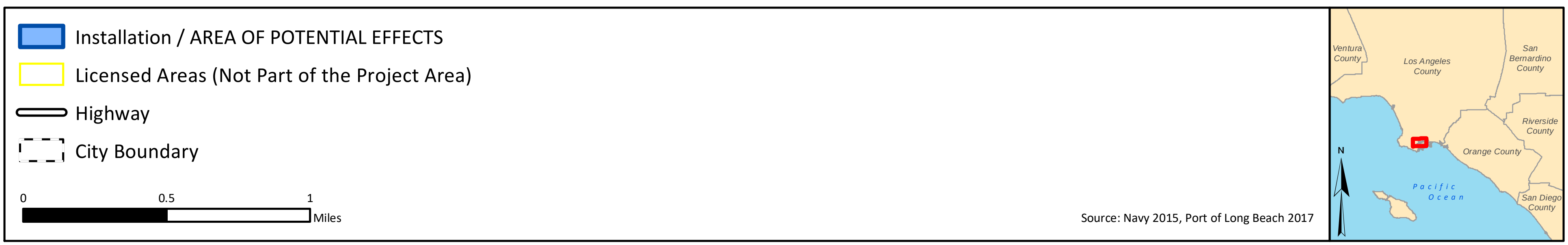
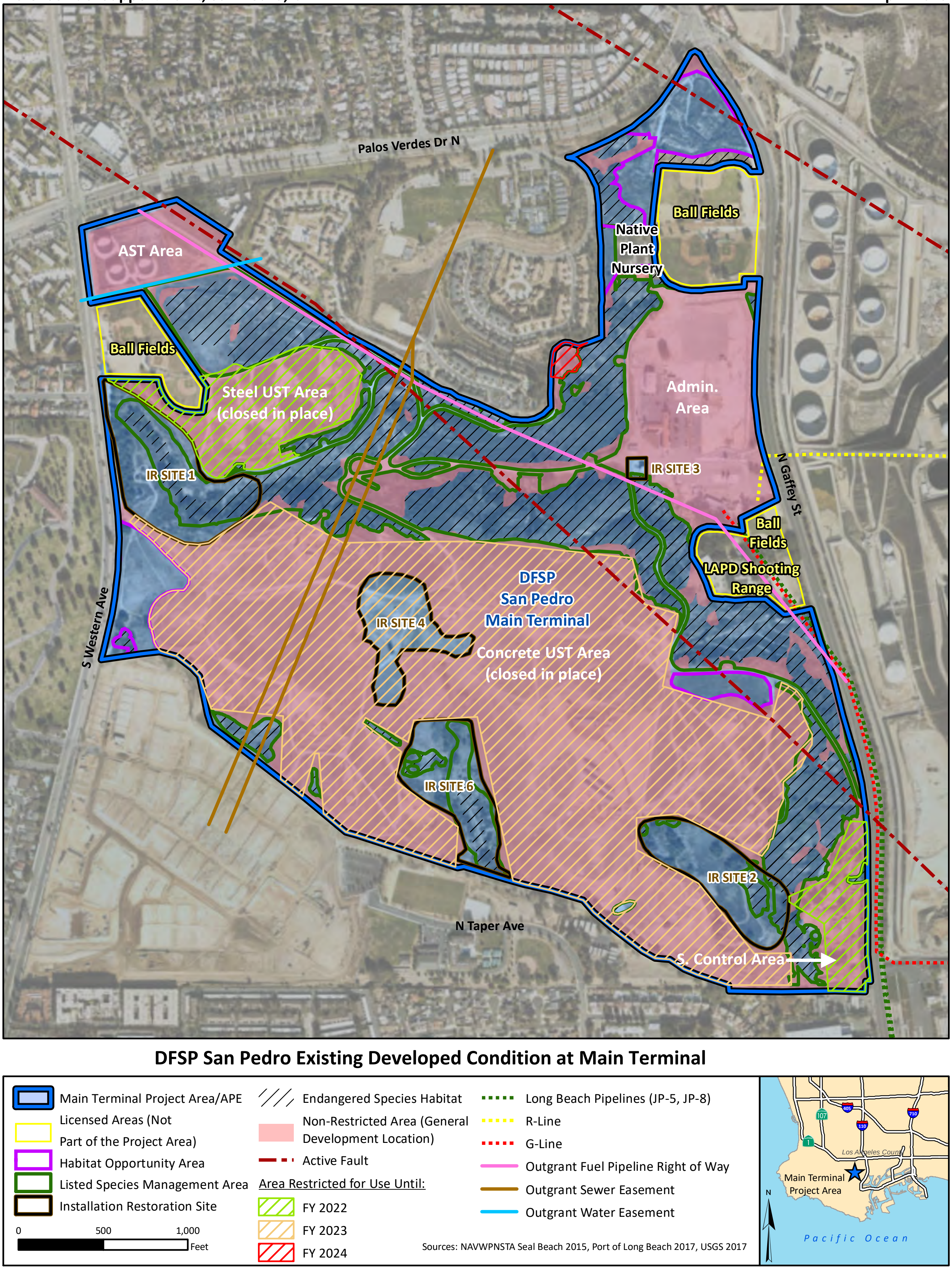

Culver City
Huntington Park
Bell
Bell Gardens
Pico Rivera
West Whittier-Los Nietos
Whittier
Inglewood
Florence-Graham
Westmont
South Gate
Lennox
Downey
Lynwood
Hawthorne
Willowbrook
Norwalk
Gardena
Compton
Paramount
Bellflower
Cerritos
Redondo Beach
Lakewood
Carson
Torrance
West Carson
Cypress
Harbor City
Long Beach
Wilmington
Rancho Palos Verdes
DFSP San Pedro Main Terminal
Port of Long Beach
Naval Weapons Station Seal Beach
San Pedro
Port of Los Angeles
DFSP San Pedro Marine Terminal
PACIFIC OCEAN
405
110
710
105
91
1
103
47
Santa Barbara County
Kern County
Ventura County
Los Angeles County
San Bernardino County
Riverside County
Orange County
San Diego County
Imperial County
DFSP San Pedro
PACIFIC OCEAN
LEGEND
Highway
Naval Weapons Station Seal Beach
Defense Fuel Support Point (DFSP) San Pedro Fuel Facility
Main Terminal and Marine Terminal
Regional Location of Defense Fuel Support Point San Pedro Fuel Facility
0 1 2 Miles
0 1 2 Kilometers
N

Enclosure (1)



Main and Marine Terminals




Palos Verdes Dr N
AST Area
Ball Fields
Steel UST Area
(closed in place)
IR SITE 1
Native
Plant
Nursery
Ball Fields
Admin.
Area
IR SITE 3
N Gaffey St
Ball
Fields
LAPD Shooting
Range
DFSP
San Pedro
Main Terminal
IR SITE 4
Concrete UST Area
(closed in place)
S Western Ave
IR SITE 6
IR SITE 2
N Taper Ave
S. Control Area
DFSP San Pedro Existing Developed Condition at Main Terminal
Main Terminal Project Area/APE
Licensed Areas (Not
Part of the Project Area)
Habitat Opportunity Area
Listed Species Management Area
Installation Restoration Site
0
500
1,000
Feet
Endangered Species Habitat
Non-Restricted Area (General
Development Location)
Active Fault
Area Restricted for Use Until:
FY 2022
FY 2023
FY 2024
Long Beach Pipelines (JP-5, JP-8)
R-Line
G-Line
Outgrant Fuel Pipeline Right of Way
Outgrant Sewer Easement
Outgrant Water Easement
Sources: NAVWPNSTA Seal Beach 2015, Port of Long Beach 2017, USGS 2017
Main Terminal
Project Area
Pacific Ocean
N

DFSP San Pedro Existing Developed Condition at Marine Terminal

Marine Terminal Project Area / APE

Long Beach Pipelines
(JP-5 & JP-8 Lines) from Main Terminal

Installation Restoration Site

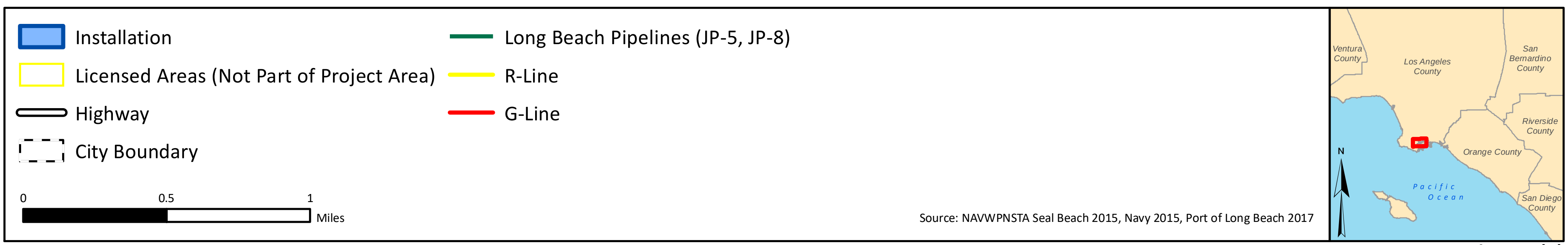
Non-Restricted Area
(General Development Location)

Proposed Navy Road Easement

0 250 500 Feet

Sources: NAVWPNSTA Seal Beach 2015, Port of Long Beach 2017, USGS 2017

Location Map of Pipelines Within Lease Agreement



Source: NAVWPNSTA Seal Beach 2015, Navy 2015, Port of Long Beach 2017

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State of California • Natural Resources Agency Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION Lisa Ann L. Mangat, *Director*

Julianne Polanco, State Historic Preservation Officer

1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

May 14, 2019 Reply In Reference to: USN_2019_0412_001

Lisa E. Bosalet
Cultural Resources Manager
Department of the Navy
Naval Weapons Station Seal Beach
800 Seal Beach Boulevard
Seal Beach, CA 90740-5000

RE: San Pedro Potential Leasing, Defense Fuel Support Point San Pedro and Marine Terminals, City of Long Beach and City of Los Angeles, Los Angeles County, California

Dear Ms. Bosalet:

Naval Weapons Station Seal Beach (Navy) is consulting with the California State Historic Preservation Officer (SHPO) in order to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 306108), as amended. The Navy is requesting SHPO concurrence with a finding of No Historic Properties Affected.

The Navy plans to renew fueling operations for military and commercial purposes at Defense Fuel Support Point San Pedro (DFSP) Main and Marine Terminals. Rehabilitation of facilities and infrastructure will likely be required.

The Navy defines the undertaking's Area of Potential Effects (APE) as the entire footprint of DFSP San Pedro, which includes the Marine Terminal at Long Beach. The Navy evaluated DFSP San Pedro and found the facility ineligible for listing on the National Register of Historic Places under all criteria. SHPO concurred with the Navy's evaluation in 2015.

Having reviewed the Navy's submittal, SHPO offers the following comments:

1) The APE appears adequate to account for direct and indirect effects to historic properties;

2) SHPO concurs that the undertaking will not affect historic properties;

3) Please be reminded that in the event of an inadvertent discover or change in the scale or scope of the undertaking, the Navy may have additional consultation responsibilities under 36 CFR Part 800.

If the Navy has questions or comments, please contact the State Historian Tristan Tozer at (916) 445-7027 or via e-mail at Tristan.Tozer@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Appendix B
Impact Avoidance and Minimization Measures

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Appendix B presents the impact avoidance and minimization measures (Table B-1) that would be implemented by the commercial lessee (unless otherwise noted) as part of each alternative for each resource area, as applicable.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
GENERAL		
Short-Term (Rehabilitation and Construction)		
G-1	1 and 2	The lessee or contractor will be required to prepare an Environmental Protection Plan that will describe how the mitigation, impact, avoidance and minimization measures presented in this table will be implemented.
AIR QUALITY (A)		
Short-Term (Rehabilitation and Construction)		
A-1	1 and 2	Proper and routine maintenance of all vehicles and equipment will occur to ensure that emissions are within design standards.
A-2	1 and 2	Dust suppression methods (such as using water trucks to wet the disturbed areas and any soil stockpiles during rehabilitation and construction and covering stockpiles with tarps or other physical barriers) will minimize fugitive dust emissions.
A-3	1 and 2	Rehabilitation and construction activities will not occur when wind speeds exceed 25 miles per hour.
A-4	1 and 2	The best available engine technologies will be utilized on construction vehicles, when available (United State Environmental Protection Agency [USEPA] Tier 4 standards).
A-5	1 and 2	As applicable, in accordance with South Coast Air Quality Management District Rule 403 on Fugitive Dust, a Fugitive Dust Plan would be prepared if the selected alternative resulted in daily earth moving that exceeded the threshold to become considered a "large operation." If the selected alternative qualifies as a large operation, then all work shall conform with the requirements set forth in Rule 403.
WATER RESOURCES (W)		
Short-Term (Rehabilitation and Construction)		
W-1	1 and 2	The contractor would prepare and implement a project-specific construction stormwater pollution prevention plan (SWPPP) and all applicable best management practices (BMPs) for each location, in accordance with the Construction General Permit from initiation through completion of construction activities. Appropriate BMPs will be implemented in accordance with the Construction General Permit that meet requirements for Best Available Technology and Best Conventional Pollutant Control Technology to reduce or eliminate pollutants from entering receiving waters. These BMPs generally fall into four main categories: erosion control, soil stabilization, sediment control, and non-stormwater management. BMPs may include but not be limited to the following:

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
		a. Stabilize disturbed soils through erosion and sediment control measures. b. Revegetate disturbed areas with native or naturalized plant species consistent with the surrounding vegetation once rehabilitation and construction is complete. c. Protection of storm drains around the rehabilitation and construction sites with sediment control (e.g., fiber rolls and sediment traps). d. Storage of hazardous materials with proper secondary containment, and establishment of designated vehicle and equipment maintenance areas. e. Management of spills and leaks from vehicles and equipment through inspections and use of drip pans, absorbent pads, and spill kits. f. At the Marine Terminal, appropriate BMPs (e.g., pier-level containment partitions, in-water containment boom) will be implemented (as warranted) to minimize the potential for construction debris to enter the Port of Long Beach harbor.
W-2	1 and 2	If groundwater is encountered, dewatering wells or sumps may be used to lower the water table a few feet below the impacted excavation area. All groundwater encountered would be captured, sampled, and pretreated before discharge in accordance with the project-specific construction SWPPP.
W-3	1 and 2	A stormwater collection system consisting of drainage swales, catch basin inlets, and drain pipes would be installed by the lessee to drain water away from the new infrastructure and discharge into the stormwater system. Drainage swales would be installed to reduce stormwater sheet flow across roadways.
W-4	1 and 2	If any additional soil or groundwater contamination is found during the rehabilitation process, a follow-on site investigation and restoration project would be initiated. Cleanup would be negotiated with the California Department of Toxic Substances Control Certified Unified Program Agency and the Los Angeles Regional Water Quality Control Board. This process would include analysis of any such contamination and ensure that any potentially contaminated soil or groundwater would be disposed of in accordance with applicable federal, state, and local regulations.
W-5	1 and 2	Due to the conversion of pervious to impervious ground cover associated with future development, it is recommended that a stormwater study be conducted by the lessee to determine the ability of the existing storm water infrastructure to accommodate the additional flow. The stormwater collection system would be designed and implemented based on the stormwater study and in compliance with Unified Facilities Criteria 3-210-10 and Section 438 of the Energy Independence and Security Act of 2007.
Long-Term (Operations)		
W-6	1 and 2	New SWPPPs would be prepared by the lessee for the Main and Marine Terminals in compliance with all regulatory requirements applicable to post-rehabilitation/construction site conditions and activities, to curtail any potential future impacts to water resources.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	Applies to Alternative(s)	Action and Description
GEOLOGICAL RESOURCES (G)		
Short-Term (Rehabilitation and Construction)		
G-1	1 and 2	A geotechnical/engineering evaluation will be conducted to determine the engineering measures and guidelines for restoration of excavations, compacting of soils, and slope stabilization. The evaluation will also evaluate whether additional drainage diversion/control will be needed on the slopes. The potential for increased landslides and erosion will be minimized by following a site engineering plan that identifies appropriate fill materials, compaction to engineering standards, appropriate angles for the reconstructed slopes, and drainage control to stabilize the reconstructed slopes. Examples of engineering controls could be: a. The use of benched slopes on the steep hillsides; and b. Concrete-lined drainage ditches to direct runoff away from the reconstructed slopes.
G-2	1 and 2	During rehabilitation and construction, contractors will be required to use a specified laydown area for the vehicles and equipment, drive on existing roads as much as possible, use of stabilized construction entrance/exit to minimize sediment from being carried offsite by vehicle tires, and use erosion-prevention BMPs such as: a. Covering soil piles at the work site; b. Using silt barriers to prevent soil loss from runoff; and c. Revegetating reconstructed slopes to provide a surface cover to protect the soil from erosion.
G-3	1 and 2	Any new ASTs would be constructed by the lessee in compliance with the applicable Unified Facilities Criteria (if storing military grade fuels), or state or local requirements for seismic design so that they would not pose any increased risk of earthquake-related injury/damage. In areas where existing closed-in-place USTs underlie proposed construction, the USTs would be replaced with structural fill per the geotechnical engineer's recommendations. Standard seismic engineering data would be used to minimize potential effects of seismically induced ground movement such as severe shaking, lateral spreading, or slope failure.
G-4	2	The lessee would be limited in their allowed disturbance of the sediment under Pier 12, in compliance with appropriate standard operating procedures and testing requirements. The lessee would be required to observe the institutional controls that have been implemented to prevent unauthorized disturbance of the sediment under Pier 12.
G-5	1 and 2	Soil material would be temporarily stockpiled in generally flat and previously developed/disturbed areas, and appropriate erosion control BMPs would be implemented in accordance with a project-specific construction SWPPP and in compliance with coverage under a Construction General Permit. Excavated areas would then be compacted to engineering standards and graded to approximate existing slope contours. Exposed areas would be revegetated to provide a surface cover to protect the soil from erosion.
G-6	1	The lessee would perform geological studies on the site to confirm where the fault line actually is before proposing construction of tanks in the area of the fault line.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	Applies to Alternative(s)	Action and Description
BIOLOGICAL RESOURCES (B) Note: These measures are mandated by two recent Biological Opinions issued to DFSP San Pedro (FWS-LA-08B0606-08F0704 [issued in 2010] and FWS-LA-15B0317-15F0042 [issued in 2015]). All applicable measures would still be mandated, and all references to demolition would apply to rehabilitation and construction under the Proposed Action. In addition, these measures apply only to the Main Terminal where the biologically sensitive areas have been identified.		
Short-Term (Rehabilitation and Construction)		
B-1	1	The project area will be accessed using existing roads. Parking, driving, lay-down, stockpiling, and vehicle and equipment storage will be limited to previously compacted and developed areas within the Operations Area. No off-road vehicle use will be permitted beyond the Operations Areas and designated access routes, except as addressed in #B-2.
B-2	1	To minimize impacts to biologically sensitive areas, construction access routes will be determined in coordination with Naval Facilities Engineering Command Southwest biologists during the design phase, and delineated in the construction plans. This access route will be clearly marked and will be considered part of the project activity zone. Biologically sensitive areas will be clearly marked on project activity plans, and avoided by personnel and equipment.
B-3	1	At least seven days before project initiation, the limits of the project boundary, including temporary features such as staging areas, will be clearly marked with flagging, fencing, or signposts. All project-related activities will occur within the project boundary. Limits of the project activity zone will be clearly marked on construction plans. No unauthorized personnel or equipment (including off-road vehicle access) will be allowed outside the project activity limits or designated access routes.
B-4	1	Should night work be authorized, any night work will involve shielding all lighting away from sensitive areas.
B-5	1	A contractor education program will be conducted during all project phases and will cover the potential presence of listed species; the requirements and boundaries of the project; the importance of complying with avoidance, minimization, and compensation measures; and problem reporting and resolution methods.
B-6	1	All trash generated by demolition activities will be disposed of properly. All food-related trash will be placed in sealed bins or removed from the site regularly. Following initial project activities, all equipment, waste, and project debris will be removed from the site, and the soil will be re-contoured before habitat restoration.
B-7	1	Staging areas, laydown areas, and/or other temporary project activity-related requirements will be located within the Operations Area, in already disturbed areas or non-sensitive habitat types.
B-8	1	Use of shoring or other excavation stability measures to reduce areas of impact may be employed where practicable.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
B-9	1	A Project Biologist will be on site when work is being done in and/or adjacent to identified habitat areas. These identified habitat areas with an appropriate buffer will be included on project maps and drawings. The Project Biologist will identify work areas, monitor work activity, provide "tailgate" sessions for the demolition contractor, and oversee and execute the impact avoidance and minimization measures pertaining to biological resources. The Project Biologist will have experience with listed and sensitive species, including Palos Verdes blue butterfly (PVB), that occur or have the potential to occur in the project area. Before demolition activities, a qualified biologist will conduct pre-project clearance surveys to ascertain the demolition area is not being used by federally listed species. The following measures will be used to minimize and avoid impacts to PVB eggs, larvae, and adults within listed species management areas: a. When practical, activities will avoid the flight season (February 15 to May 31); b. For activities that require work within the flight season, the following measures will be implemented to minimize impacts to PVB; i. Hostplants will be censused within the project footprint; ii. All hostplants, including a 2-foot buffer around their canopies, will be avoided where possible; and iii. All work will be conducted during daylight hours to allow adult PVB to escape impacts.
B-10	1	The following measures are designed to minimize impacts to habitat for federally listed species: a. If access to work areas cannot be provided from existing roadways, construction equipment will access work areas by rolling over (crushing) existing vegetation; b. If vegetation must be cleared for equipment access, vegetation will be cut at its base to avoid uprooting shrubs; c. If substantial soil disturbance is necessary in high quality habitat as determined by a United States Fish and Wildlife Service (USFWS) - approved biologist, topsoil will be salvaged and replaced following impact; i. If additional seeding and/or planting are determined to be necessary, seeds or clippings will be collected from Defense Fuel Support Point (DFSP) San Pedro to ensure appropriate plant stock is used, and the appropriate seed mix will be determined by the Project Biologist. PVB hostplants will be included in the seed mix if surrounding areas contain suitable PVB habitat. No nonnative plant species will be included in the seed mix; d. No more than 0.2 hectare (ha) (0.5 ac) of suitable coastal California gnatcatcher (CAGN) or PVB habitat will be impacted in any 1-year period, and no more than 0.4 ha (1 ac) will be impacted over any 3-year period. Separate consultation will be required for any activities that may impact larger areas; e. By September 31 of each year Defense Logistics Agency will provide the Service with an annual report that includes a table/spreadsheet that documents all habitat impacts that resulted from operations, maintenance and restoration activities implemented during the period between October 1 and September 3. The annual report will include a 3-year running cumulative table that reports and tabulates all impacts to PVB and CAGN habitat from operations and maintenance activities. Habitat impacts resulting from restoration activities will be tabulated separately. The annual report will include maps and or figures that display the location of all habitat impacts from operations and maintenance and restoration activities; and

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	Applies to Alternative(s)	Action and Description
		f. Where temporary habitat impacts are unavoidable, impacted areas will be restored and habitat restoration plans will be forwarded to the USFWS for review prior to implementation. If the USFWS does not respond within 30 days, DFSP San Pedro will assume that the USFWS has no concerns with the plans and proceed with the restoration.
B-11	1	The following measures will be used to minimize and avoid impacts to CAGN: a. The biologist will monitor demolition activities. The Project Biologist will conduct pre-activity surveys for CAGN s and their nests in and within a 100-foot wide buffer surrounding the impact area. These surveys will be conducted within the week before the initiation of brush clearing, grading, or other demolition activities. The Navy will coordinate with the USFWS to determine appropriate nest survey frequency. Areas that have been surveyed would be flagged, and any vegetation that is required to be removed for purposes of demolition would be removed outside the breeding season. b. Dust migration in or adjacent to Coastal Sage Scrub areas will be minimized by lightly spraying areas of exposed soil with water during excavation activities when weather conditions require the use of dust control measures. c. When practical, activities will avoid the active nesting season (February 15 to August 15); d. The following measures will be employed if active CAGN nest(s) are detected within the immediate area of project impacts or within the surrounding 100-foot wide buffer: i. If practical, demolition activities will be avoided within 100 feet of a nest until the nest fails or juveniles successfully fledge as determined by the Project Biologist. ii. If any active CAGN nest (nest containing eggs or an empty or partial nest with CAGNs actively exhibiting breeding behaviors) occurs within 100 feet of proposed demolition area, the Project Biologist will report the nest to the Navy. The Project Biologist will use the distance to the project limits and local topography to determine if demolition activities are likely to directly damage a nest or disturb nesting activities. Signage will be installed to deter people from entering any area within an active CAGN nest. iii. Where damage or disturbance of any CAGN nest(s) is likely, Naval Weapons Station Seal Beach will implement further measures to avoid the likelihood of nest destruction or disturbance, including temporarily halting clearing activities until the nest fails or until at least 10 days after young fledge from the nest. Demolition activities will be directed to other areas farther from the active nest(s) where the activities will not disturb the active nest(s). iv. The Project Biologist will monitor nest progress, demolition activity, and protective fencing to minimize potential demolition-related disturbance and submit a weekly nest status report to Naval Weapons Station Seal Beach. A post-demolition report will be submitted to the USFWS summarizing the weekly nest status report and outcomes within six months of project completion. e. The following measures will be implemented to minimize impacts to CAGN outside of the breeding season: i. Immediately prior to clearing vegetation, a Service-approved biologist will survey the work area for CAGN; ii. If CAGN are found within the work footprint, the biologist will direct workers to begin initial vegetation clearing in an area away from CAGN; and

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
		iii. The biologist will walk ahead of clearing/grubbing equipment to passively flush birds toward areas of appropriate vegetation that are to be avoided.
B-12	1	Due to the presence of Migratory Bird Treaty Act habitat within the project area, a qualified biologist will conduct pre-activity surveys for migratory birds and their nests within the project area and associated buffer area. The areas will be flagged; any vegetation needing to be removed for demolition will be removed prior to breeding season.
B-13	1	The contractor performing the closure activities will be required to prepare a Revegetation Plan that is consistent with the DFSP Integrated Natural Resources Management Plan (INRMP). The Revegetation Plan will address all revegetation efforts associated with the project activities and include specific erosion control measures, irrigation requirements, species composition, seed mix origins and ratios for that particular habitat, weed control, water regimes, maintenance activities, success criteria, and monitoring requirements. The Revegetation Plan will apply to all soil disturbance and will include the following: a. The Operations Area will be reseeded with native species. b. The Habitat Area (Listed Species Management and Habitat Opportunity Areas) will be restored with habitat plantings specific to the PVB and CAGN, as appropriate. c. To minimize and avoid impacts to CAGN following project completion, all suitable and/or occupied CAGN habitat that is temporarily impacted by project activities will undergo appropriate restoration activities (e.g., re-contouring, planting, and weeding). Restoration will be conducted consistent with the Restoration Plan. d. Revegetation methods for habitat areas will be consistent with the INRMP and include seeding and/or planting of container stock, salvaged plants, cuttings, or other propagules collected or propagated from a local native plant nursery or locally collected sources, including any sensitive plant species that will be impacted during soil disturbance or other project activities. Plants from local nurseries will use clean, weed-free soil. e. Reseeding/replanting that becomes necessary after the start of the rainy season will be done as soon as possible.
Long-Term (Operations)		
B-14	1	Areas impacted by project activities will be inspected by the Navy within one year following the completion of project activities to determine whether any remedial measures, such as re-seeding/re-planting, weed control, watering, and/or erosion control, are required. Up to five years of post-restoration monitoring within disturbed habitat areas will occur. Invasive weed control (e.g., hand removal, mechanical, and herbicide control) will be implemented in areas reseeded/replanted until the native vegetation is established. This will be conducted as part of the established Habitat Management Program and incorporated into the Habitat Management Plan and INRMP.
B-15	1	The project will minimize the potential for invasive plant species (i.e., weeds) or soil pathogens to become established in disturbed areas and spread into Listed Species Management Areas as well as minimize the risk of habitat degradation from the invasion of nonnative vegetation into Listed Species Management Areas. Invasive plant species generally include those species listed by the California Invasive Plant Council (Cal-IPC) and any

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	Applies to Alternative(s)	Action and Description
		species that can invade natural or restoration areas and replace or preclude the establishment of native or other more desirable species. Invasive Species (as listed by the Cal-IPC "high" and "moderate" categories) will be prevented from establishing in temporarily disturbed areas by biological monitoring and removal if discovered. The following measures will be implemented: a. Vegetation characteristics will be monitored annually within habitat areas using study areas defined in Longcore (2007). Monitoring will occur following the PVB flight season each year. The following characteristics will be estimated: i. Three permanent transects will be established in each survey area to estimate percent cover of native shrubs, native forbs, nonnative grasses, nonnative forbs, and bare ground. ii. For each study area, a qualified biologist will provide a narrative that describes which invasive species pose the most important threats to habitat. b. The following species will be eradicated from the Listed Species Management Areas, and any new invasion will be eliminated annually: giant reed (*Arundo donax),* Peruvian peppertree (*Schinus molle*), and iceplant (*Carpobrotus edulis*). Eradication techniques will avoid PVB hostplants with a buffer (2 foot) around hostplant canopies and follow guidelines described in CAGN minimization measures. c. A qualified biologist will maintain and continually update a list of nonnative plants that are known to quickly invade and degrade native habitat in the vicinity of DFSP San Pedro. If plant species with rapid colonization and invasion potential are observed within the Listed Species Management Areas, they will be the highest priority for annual weed management. This list will initially include: spurge (*Euphorbia terracina*), castor bean (*Ricinus communis*) and pampas grass (*Cortaderia selloana*); d. Other nonnative plants will be managed as part of habitat maintenance using the approaches as deemed appropriate by a biologist: i. Routine nonnative vegetation control will be implemented using hand tools, including hand-held power tools such as weed trimmers, without the use of chemicals. ii. To minimize impacts to PVB adults, use of powered weed trimmers or other potential disturbance-inducing methods will be avoided during the PVB flight season (February 15 to May 31) within areas determined to be occupied by monitoring and areas mapped as potentially occupied by PVB. iii. In problematic areas, herbicides will be applied by certified pesticide applicators as needed using the following guidelines: a. A mixture of 2 percent glyphosate and 98 percent water with no surfactant will be used. Alternate herbicides or formulations may be used with Service approval; b. A marking dye (e.g., Blazon® Blue or Tracer™) will be added to the spray solution to help ensure that the herbicide is applied only to target plants; c. The herbicide solution will be sprayed through a wand that reaches down to the base of target plants where a small amount of the herbicide solution will be sprayed;

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	Applies to Alternative(s)	Action and Description
		d. Herbicide treatments will be limited to periods of low wind to reduce spray drift (unintended dispersal of herbicide through currents of air). Herbicide will not be used if conditions become windy (maximum gusts of 11 kilometers per hour (km/h) [7 miles per hour (mph)]; e. No herbicide will be applied within 2 feet of any coast locoweed (Astragalus trichopodus var. lonchus) or deerweed canopy; f. Using data from vegetation sampling, each study area will be assessed to determine whether it meets the following criteria in regards to the severity of nonnative plant dominance. i. If the relative ratio of nonnative plant cover to native plant cover for any study area exceeds 1:1, the biologist will initiate vegetation management for that study area during the same calendar year. ii. If nonnative vegetation remains above this threshold two years later, the biologist will contact the USFWS and DFSP San Pedro to coordinate remedial actions, which may include supplemental seeding to enhance success.
B-16	1	The following measures will be used to conserve PVB at the DFSP San Pedro: a. To maintain a captive breeding program to support PVB protection and recovery, DFSP will: i. Continue to fund the existing onsite captive breeding program that was initiated during consultation for the Chevron pipeline project [Formal Section 7 Consultation for the Chevron 1-8" Pipeline and Associated Government Pipeline Projects, Defense Fuel Support Point, San Pedro, Los Angeles County, California (1-6-96-F-09)]; ii. Provide annual reports to the Carlsbad Fish and Wildlife Office that include techniques, results and proposed changes for the captive breeding program. The reports will be submitted by October 1 of each year to allow sufficient time for the Service to provide comments for the following breeding season; iii. Provide access to facilities and share data with public or private researchers studying captive breeding techniques; iv. Support maintenance of secondary PVB rearing facilities to protect against catastrophe; v. Continue to provide PVB from the captive rearing program for Service-approved releases throughout the historic range of the species; vi. Continue to allow the operation of a native plant nursery on DFSP San Pedro for providing PVB host plants and other native vegetation for habitat restoration projects within and outside the facility; and vii. Continue to share PVB information with others who are trying to establish habitat and PVB populations. b. To monitor PVB in the wild, DFSP San Pedro will: i. Continue annual PVB surveys along transects that have been sampled since 1999 and as described in Longcore 2009; ii. Conduct PVB surveys throughout all habitat management areas as defined in Longcore (2007) every three years or as habitat conditions are appropriate. Survey protocol will follow the 2006 basewide sampling effort and include hostplant mapping (Longcore et al. 2010); and

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
		iii. Deviations from the established PVB survey protocol will require coordination with and approval from the Service. c. The following measures will be used to minimize and avoid impacts to PVB eggs, larvae, and adults within potentially occupied habitat: i. When practical, routine maintenance and operations activities listed above will avoid the flight season (February 15 to May 31); ii. For activities that require work within the flight season, the following measures will be implemented to minimize impacts to PVB; a. Hostplants will be censused within the project footprint; b. All hostplants, including a 0.6-meter (2-foot) buffer around their canopies will be avoided where possible; and c. All work will be conducted during daylight hours to allow adult PVB to escape impacts. d. The following measures will be implemented to restore PVB habitat in vegetation communities that have matured to a point that they no longer include open patches with PVB hostplants and support few or no PVB: i. For restoration activities, there will be an appropriate plan with existing conditions, methods, monitoring, maintenance (3-5 years), success criteria, reporting, and remedial actions. These plans will be forwarded to the Service for approval; ii. Restoration priority will be given to the edges and outside of existing CAGN habitat; iii. Priority will be given to areas that have relatively low PVB abundance according to recent survey data; iv. The basic strategy will be to mimic natural disturbance events that historically maintained PVB habitat, but specific techniques will be determined on a project-specific basis; and v. No more than 0.4 ha (1 ac) will be disturbed for the purpose of habitat restoration in any 1-year period, and this acreage will not be included in the limit described in Conservation Measure B-10. e. The following measures will be implemented to minimize and avoid impacts to PVB and its habitat within the designated mowing areas: i. No mowing will be conducted between February 15th and May 31st , when PVB eggs, larvae or adults are likely to be present; and ii. No heavy equipment will be used for vegetation clearing in the Avoidance areas, and no clearing or mowing will occur between February 15th and May 31st. Where appropriate, bright colored flagging and tape will be used to demark the Avoidance areas.
B-17	1	Continued operation of the onsite native plant nursery.
LAND USE (L)		
Short-Term (Rehabilitation and Construction)		
L-1	1 and 2	Although facilities built on federal property are exempt from state and local building codes, the Navy will require the lessee to follow state and local building codes to the maximum extent practicable.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	Applies to Alternative(s)	Action and Description
VISUAL RESOURCES (V)		
Short-Term (Rehabilitation and Construction)		
V-1	1	To the extent practicable, the lessee would be required by the Navy to preserve existing vegetation and trees on the Main Terminal to reduce visual impacts to the surrounding viewshed.
V-2	1	The lessee would be encouraged to consider the visual impacts of the facilities and infrastructure they are proposing to construct to consider visual screening and landscaping improvements where practicable.
V-3	2	The lessee would be required to develop structures and facilities at the Marine Terminal that would be of a similar size, mass, and height of those existing to the maximum extent practicable, to ensure no dramatic change to visual setting.
NOISE (N)		
Short-Term (Rehabilitation and Construction)		
N-1	1 and 2	The lessee would comply with all applicable laws and regulations including Navy requirement, to the fullest extent practicable. In addition, the following measure will be implemented: a. The lessee will provide advanced notification of proposed rehabilitation and construction activities and associated rehabilitation and construction hours to the community.
N-2	1 and 2	San Pedro (City of Los Angeles Department of Building and Safety) permits construction activity between 7 A.M. and 9 P.M., Monday through Friday; 8 A.M. to 6 P.M. on Saturdays or holidays; and no work allowed on Sunday. Construction activity at the Marine Terminal would follow a similar construction window dictated by the City of Long Beach. All construction activity would conform to local regulations to occur within the specified window whenever possible and receive prior approval from the city for exceptions.
INFRASTRUCTURE (I)		
Short-Term (Rehabilitation and Construction)		
I-1	1 and 2	The lessee would divert as much demolition waste from landfills as possible using demolition deconstruction techniques to reduce, reuse, or recycle the various types of waste. Demolition material would be recycled to the maximum extent practicable and when not feasible, the material would be categorized and sent to an appropriate disposal facility.
TRANSPORTATION (T)		
Short-Term (Rehabilitation and Construction)		
T-1	1 and 2	Western Avenue would not be used for repair or rehabilitation and construction-related trips to/from DFSP San Pedro.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
PUBLIC HEALTH AND SAFETY (P)		
Short-Term (Rehabilitation and Construction)		
P-1	1 and 2	The lessee shall gain approval from the Navy for any changes to security procedures relating to commercial staff or other members of the public accessing DFSP San Pedro (Main or Marine Terminals).
P-2	1 and 2	The lessee shall ensure any products used in their operations that are transferred via the same system as the military fuels (F-76 and JP-5/JP-8) are compatible, and ensure any installed system has a way to be purged and checked to confirm the quality of fuel at fuel delivery points at Pier 12 (to confirm delivered products are meeting Military Specifications [MILSPEC] quality requirements).
P-3	1 and 2	The lessee shall implement inspection, testing, and monitoring procedures as well as safety measures at least as stringent as those that DFSP San Pedro was functioning under during the historical fully operational condition.
P-4	1 and 2	The lessee shall ensure appropriately rated roads are be used by tankers, and that tankers would not be travel on public roads at times of major traffic congestion in the local community.
HAZARDOUS MATERIALS AND WASTES (H)		
Short-Term (Rehabilitation and Construction)		
H-1	1 and 2	Before the start of rehabilitation and construction activities, a site-specific Health and Safety Plan will be prepared and submitted for the Navy's approval, and all necessary permits and approvals will be obtained. The Health and Safety Plan will include detailed precautionary measures to substantially reduce potential exposure of on-site personnel to petroleum waste, hazardous waste, and potentially explosive gases. All on-site personnel handling or working in the vicinity of the contaminated soil will be trained in accordance with Occupational Safety and Health Administration regulations for hazardous waste operations. These regulations are based on Code of Federal Regulations 1910.120 (e) and 8 California Code of Regulations 5192, which states that "general site workers" shall will receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place. The site-specific Health and Safety Plan will describe the strategy for handling and disposing of all construction debris. Part of this strategy will be to divert as much of the construction waste from landfills as possible using techniques to reduce, reuse, or recycle the various types of waste. Any required asbestos, lead, or polychlorinated biphenyl abatement will be conducted before rehabilitation and construction activities begin. The removal methods, health and safety procedures, and disposal methods will conform to the applicable regulations of federal, state, and local regulatory agencies, including any required notifications.

Table B-1
Impact Avoidance and Minimization Measures for the Action Alternatives (1 and 2)

#	*Applies to Alternative(s)*	*Action and Description*
H-2	1 and 2	Before the start of rehabilitation and construction activities, Lessee will coordinate with the Navy and Regional Water Quality Control Boards, Los Angeles Region, to determine whether demolition of underground and aboveground pipelines will potentially damage existing monitoring wells, remediation wells, and aboveground remediation equipment. In the event that such a scenario occurs, an environmental monitor, knowledgeable of on-site remediation equipment, will be present during underground pipeline demolition activities to verify that subsurface wells and remediation equipment are not damaged.
H-3	1 and 2	The Lessee shall be required to strictly comply with all applicable hazardous waste management and permitting requirements under RCRA and/or its applicable state equivalent.
CULTURAL RESOURCES (C)		
Short-Term (Rehabilitation and Construction)		
C-1	1 and 2	Halt work orders shall will be given if ground-disturbing activities were to encounter an unexpected archaeological discovery.

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Appendix C
Record of Non-applicability for Clean Air Act Conformity and Air Quality Calculations

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RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY

FINAL ENVIRONMENTAL ASSESSMENT FOR RENEWED FUELING OPERATIONS AT DEFENSE FUEL SUPPORT POINT SAN PEDRO, CALIFORNIA

SOUTH COAST AIR BASIN

INTRODUCTION

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* in the 30 November 1993, Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). The U.S. Department of the Navy (Navy) published Navy Guidance for Compliance with the Clean Air Act (CAA) General Conformity Rule (30 July 2013), as referenced in Chief of Naval Operations Instruction 5090.1, *Environmental Readiness Program Manual* dated 25 June 2021. These publications provide implementing guidance to document CAA Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the federal agency to determine whether a federal action conforms to the applicable implementation plan before the action is taken (40 CFR Section 51.850[a]).

The General Conformity rule applies to federal actions proposed within areas which are designated as either nonattainment or maintenance areas for a National Ambient Air Quality Standard (NAAQS) for any of the criteria pollutants. Former nonattainment areas that have attained a NAAQS are designated as maintenance areas. Emissions of criteria pollutants within an area that is designated as attainment are exempt from general conformity analyses.

The project would occur within South Coast Air Basin (SCAB). The entire SCAB is currently in extreme nonattainment of the 2015 and 2008 8-hour ozone (O_3) NAAQS and serious nonattainment of the particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) NAAQS; and is a maintenance area for carbon monoxide (CO), particulate matter less than or equal to 10 microns in diameter (PM_{10}), and nitrogen dioxide (NO_2). In addition, Los Angeles County was designated as nonattainment for the lead (Pb) NAAQS due to exceedances measured near a large battery recycling facility after the USEPA reduced the Pb standard to 0.15 $\mu g/m_3$ in 2008. In the current Air Quality Management Plan (2016), the South Coast Air Quality Management District (SCAQMD) states it will request the USEPA redesignate the Los Angeles County portion of the SCAB as in attainment for Pb, as the final near-source monitoring location was below the standard throughout the 2012 through 2015 time period[1];

[1] South Coast Air Quality Management District Final 2016 Air Quality Management Plan, Appendix II: Current Air Quality. Available online at: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp.

however, there is no documentation available on the SCAQMD website indicating this request has been submitted. The annual *de minimis* levels for SCAB are 10 tons of NO_x and volatile organic compounds (VOCs) (which are precursors to the formation of O_3), 70 tons of $PM_{2.5}$, 25 tons of Pb, and 100 tons of CO, PM_{10}, and NO_2, as listed in Table 1. Federal actions within nonattainment or maintenance areas may be exempt from conformity determinations if their emissions of criteria pollutants do not exceed designated *de minimis* thresholds for the criteria pollutants (40 CFR Section 93.153[b]).

Table 1. Conformity *de minimis* Levels for Criteria Pollutants in the South Coast Air Basin

Criteria Pollutant	*de minimis Level (tons/year)*
Oxides of Nitrogen (NO_x)	10
Volatile Organic Compounds (VOC)	10
Particulate Matter Less Than or Equal to 2.5 Microns in Diameter ($PM_{2.5}$)	70
Lead (Pb)	25
Carbon Monoxide (CO)	100
Particulate Matter Less Than or Equal to 10 Microns in Diameter (PM_{10})	100
Nitrogen Dioxide (NO_2)	100

PROPOSED ACTION

Action Proponent: Naval Weapons Station Seal Beach

Location: San Pedro, Los Angeles County, California

Proposed Action Title: Renewed Fueling Operations at Defense Fuel Support Point, San Pedro, California

Proposed Action and Emissions Summary: The Proposed Action as analyzed in the Environmental Assessment (EA) involves the Navy entering into an outlease of its fee-owned real property, pursuant to 10 U.S. Code section 2667, and assigning its interests in the Navy-owned fuel pipeline rights-of-way, to allow for renewed fueling operations for commercial and military purposes at Defense Fuel Support Point San Pedro, California. The commercial outlease lessee would be required to provide the Navy with the capability of receiving fuel alongside Pier 12 at the Marine Terminal during normal and contingency operations. The purchase and delivery of fuel to Navy vessels and ships would be addressed by the Navy through contracts outside of the commercial outlease.

However, the Navy's expectations with respect to the proposed commercial outlease(s) have evolved, in that the requirement to allow for fueling of Navy ships under such a lease has been canceled and the Navy intends to pursue a potential lease at the Marine Terminal under Alternative 1 only at this time, for which the cancelation of the near-term Navy fueling requirement does not affect the EA's analysis of environmental impacts. In a letter dated 14 January 2021, the Commander of the U.S. Pacific Fleet canceled the Navy fueling requirement at DFSP San Pedro. This cancelation does not preclude use by the Navy in the future and additional National Environmental Policy Act analysis may be prepared if any such future Navy fueling requirement exceeds the anticipated environmental impacts analyzed in the EA. Thus, in pursuing the potential commercial outlease of the Marine Terminal under Alternative 1, the Navy is allowing for the operation and sustainment of the property for potential military use in the future, but is not requiring the potential lessee to make allowance for Navy refueling at Pier 12 at this time. As the Navy does not need to receive fuel at the Marine Terminal at this time and expressions of interest from potential lessees have not indicated a need for use of the pipelines as analyzed in the Draft EA, the Navy has coordinated with the Office of the State Fire Marshall in order to have four of the existing off-site fuel pipelines (Norwalk Line, G-Line, and the two Long Beach Pipelines as they were referenced in the EA) reclassified as abandoned in place, as of 25 February 2021. (Note: Two of the abandoned pipelines (the Long Beach Pipelines) were used to carry fuel between the Main and Marine terminals. Neither of these pipelines would be included in the footprint for the commercial outlease.) Thus, use of these pipelines is not included in project emissions described in this RONA for the Marine Terminal under Alternative 1.

The cancelation of the Navy fueling requirement at DFSP San Pedro may allow for a wider range of use scenarios for a potential lease at the Main Terminal (which would require further environmental analysis). Both the Main Terminal and Marine Terminal are situated in strategic locations and therefore the Navy requires the continued availability of these properties. Any proposed construction, demolition, and operations by a lessee to occur at either the Main Terminal or the Marine Terminal would need to be reviewed and approved by the Navy. While it is anticipated that the majority of the analysis of environmental impacts concerning potential reutilization of the Main Terminal will remain unchanged, expressions of interest received by the Navy since the publication of the Draft EA indicate the Navy needs to further evaluate additional types of uses (and associated environmental impacts) that could occur on the Main Terminal under a potential lease. Therefore, the Navy has determined a Supplemental EA would need to be prepared before it can make any final determination concerning its analysis with respect to the Main Terminal. Thus, the emissions described below pertain only to the potential decision to enter into a lease for the utilization of the Marine Terminal facilities associated with DFSP San Pedro.

The project emissions described below reflect the evolution of the Navy’s expectations with respect to the commercial outlease and how the activities analyzed under the potential development scenario in the EA adequately capture the potential activities that may occur on the Marine Terminal under Alternative 1. After the Final EA is published and if a Finding of No Significant Impact is signed for the Marine Terminal under Alternative 1, the Navy can then proceed with signing a lease with a potential lessee for the Marine Terminal, and will evaluate the activities subsequently proposed by that commercial lessee to ensure they are consistent with the nature and extent of impacts analyzed in the Final EA, including the total construction and operational emission as presented in this RONA.

Project Emissions:

Types of activities under the Proposed Action at the Marine Terminal, as analyzed in the EA as the potential maximum development scenario, that could affect air quality include operation of construction equipment, construction worker trips, and earth-moving activities during construction; and worker trips during operation of the Marine Terminal, fuel loading and unloading, and vessel or truck trips for fuel shipments and receipts. In light of the changed expectations with respect to the proposed commercial outlease at the Marine Terminal, the operation of the Marine Terminal would not include vessels receiving fuel via pipeline at Pier 12, and expressions of interest by potential lessees have indicated vessel fueling that would occur would likely be well below the total number of vessels (295 per year) as analyzed in the EA. Any refueling that would occur would need to use a barge to deliver the fuel, which would generate emissions due to the combustion of fossil fuels; however, the emissions estimates detailed below represent a maximum amount of emissions that would occur from marine commercial fueling operations, and thus represent a substantial overestimate relative to the actual levels of emissions anticipated under the Navy's proposed outlease. Similarly, the tailpipe exhaust emissions from commercial fueling trucks described below represent a bounding case for other truck operations of similar size and type that may occur at the Marine Terminal during operations. If there is a proposed use of the property that would result in environmental impacts not already analyzed in the EA, or having environmental impacts beyond what was analyzed, additional environmental impacts analysis would be required before the Navy could potentially give its approval for any such activity.

Air quality impacts from rehabilitation and renewed fueling operations proposed at the Marine Terminal under Alternative 1 would primarily occur from combustive emissions due to the use of fossil fuel-powered equipment; emissions generated from rehabilitation of existing infrastructure; the construction and operation of new infrastructure, including emissions from storage of petroleum products in aboveground storage tanks; exhaust emissions from commercial truck operations, and vessel emissions from fueling transactions at the Marine Terminal (Pier 12). Emissions were estimated using the California Emissions Estimator Model® (CalEEMod) (version 2016.3.2), which is the current comprehensive tool for quantifying air quality impacts from land use projects throughout California, as well as supplemental calculations for project-related emissions that were not included in model. The model, developed in collaboration with the air districts of California, includes default data (e.g., emission factors, trip lengths, meteorology, and source inventory) that have been provided by the various California air districts to account for local requirements and conditions[2]. For this analysis, default data were overridden in the model by project-specific data, as described in Section 2.1.2 of the EA, Potential Development Scenarios, when available.

Assumptions were made regarding the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used. Additional calculations related to emissions from vessels and ships receiving fuel while moored to the pier at the Marine Terminal and exhaust emissions from fuel truck operations were prepared separately and added to the model outputs. Vessel emissions were calculated following the methodology provided in the San Pedro Bay Ports Emissions Inventory Methodology Report and tailpipe emissions from commercial trucks were calculated using EMFAC2017 (v1.0.2) emission rates. Emissions factors for Pb, from both vessel[3] and vehicle[4] exhaust, are typically presented as a fraction of particulate matter emissions.

As described above, only the portion of the Proposed Action at the Marine Terminal under Alternative 1 is proposed to be carried forward at this time, and the emissions described below reflect the emissions attributable to the Marine Terminal under Alternative 1.

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[2] California Air Pollution Control Officers Association. (2016). California Emissions Estimator Model™ version 2016.3.2. Retrieved from: http://www.aqmd.gov/caleemod/. Accessed on December 10, 2018.

[3] Environment Canada (2012). 2010 National Marine Emissions Inventory for Canada.

[4] California Air Resources Board (CARB) (2021). Speciation profiles used in CARB Modeling. Available online at https://ww2.arb.ca.gov/speciation-profiles-used-carb-modeling.

Construction/Rehabilitation

Construction would include the rehabilitation of existing infrastructure as selected by the lessee as well as potential construction of new infrastructure on previously disturbed land at the 11.1-acre Marine Terminal. The emissions presented below in Table 2 were derived from the total emissions calculated for Alternative 1, which included the acreage for both the Main and Marine terminals. The development of the Marine Terminal represents 20.5 percent of the total acreage and resulting potential emissions from construction. Emissions of Pb would be a fraction of the particulate matter emissions shown in Table 2, and thus are estimated to be well below 1 ton per year.

Table 2. Construction/Rehabilitation Emissions at the Marine Terminal with Evaluation of Conformity

Emission Source	***Emissions (tons/year)***					
	VOCs	***NO_x***	***CO***	***SO_2***	***PM_{10}***	***$PM_{2.5}$***
Construction Emissions – 2022	0.08	0.68	0.64	0.00	0.09	0.05
Conformity *de minimis* Thresholds	**10**	**10**	**100**	**100**	**100**	**70**
Exceeds Conformity *de minimis* Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: The SCAB is in extreme nonattainment of the 2015 and 2008 8-hour O_3 NAAQS, serious nonattainment of the $PM_{2.5}$ NAAQS, nonattainment of the Pb NAAQS, and a maintenance area for CO and PM_{10}, and NO_2.

The emissions shown in this table represent 20.5 percent of the total emissions calculated for Alternative 1, which represent the portion of the emissions that are attributable to the rehabilitation and construction of the 11.1-acre Marine Terminal.

Operations

Activities performed by a commercial lessee during operation are anticipated to include industrial support activities similar to those required to support a fueling mission, such as use of aboveground storage tanks; office industrial, warehouse or storage buildings; outdoor storage areas; and parking areas. The EA also analyzed potential fuel truck operations occurring at the Main and Marine terminals. The land-based emissions from the 11.1-acre Marine Terminal and commercial truck tailpipe emissions presented below in Table 3 again represent 20.5 percent of the total emissions calculated in the EA (which is the portion of Alternative 1 attributable to the Marine Terminal only). Up to 40 workers would commute daily to the Marine Terminal under operations.

If fueling of vessels were to occur at Pier 12 under a commercial lease, it is possible it would occur via barge rather than utilizing pipelines and the total number of ships that would receive fuel during a typical operating year would likely be well below the number of ships analyzed in the Draft EA for the purposes of pipeline-based refueling. While the EA did not model barge-based fueling per se, information from interested parties indicates a limited potential for barge-based fueling operations, and thus operations would be less intensive—and would involve lower levels of emissions—than the pipeline-based fueling at the Marine Terminal analyzed in the EA.

Accordingly, operational emissions associated with a Marine Terminal only lease would be below not only the level of emissions analyzed in the EA for Alternative 1 as a whole (as presented in the emissions calculations included this appendix of the EA), but also below the portion of such emissions in the analysis associated with just the Marine Terminal. Thus, activities during construction and operation at the Marine Terminal would be below *de minimis* thresholds for all criteria pollutants, as shown in Table 3. Emissions of Pb would be a fraction of the particulate matter emissions shown in Table 3, and thus are also estimated to be well below 1 ton per year.

Table 3. Operational Emissions (2023 and Ongoing) at the Marine Terminal with Evaluation of Conformity

Emission Source	***Emissions (tons/year)***					
	VOCs	***NO_x***	***CO***	***SO_2***	***PM_{10}***	***$PM_{2.5}$***
Land-based Emissions	0.99	0.01	0.01	0.00	0.00	0.00
Worker Commute Emissions	0.00	0.01	0.25	0.00	0.00	0.00
Truck Exhaust Emissions	0.00	0.55	0.04	0.00	0.00	0.00
Vessel Emissions	0.67	9.00	1.13	0.28	0.18	0.17
Total Annual Emissions	**1.66**	**9.57**	**1.43**	**0.28**	**0.18**	**0.17**
Conformity *de minimis* Thresholds	**10**	**10**	**100**	**100**	**100**	**70**
Exceeds Conformity *de minimis* Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: The SCAB is in extreme nonattainment of the 2015 and 2008 8-hour O_3 NAAQS, in serious nonattainment of the $PM_{2.5}$ NAAQS, and a maintenance area for CO and PM_{10}, and NO_2.
The land-based and truck exhaust emissions shown in this table represent 20.5 percent of the total emissions calculated for Alternative 1, which represent the portion of the emissions that are attributable to the operation of the 11.1-acre Marine Terminal and associated truck operations.

Based on the air quality analysis for the Proposed Action (the Marine Terminal under Alternative 1) estimated emissions would be below conformity *de minimis* levels.

Affected Air Basins: South Coast Air Basin

Date RONA Prepared: 16 December 2021

PROPOSED ACTION EXEMPTION(s)

The Proposed Action is located within a nonattainment area; therefore, the Proposed Action is subject to the General Conformity Rule requirements. Because project emissions would be below *de minimis* thresholds, the project has demonstrated conformity with the requirements of the General Conformity Rule, and a formal CAA Conformity Determination is not required.

ATTAINMENT AREA STATUS AND EMISSIONS EVALUATION CONCLUSION

Portions of Los Angeles, San Bernardino, Riverside, and Orange counties comprise the SCAB, and the Proposed Action is located in the San Pedro neighborhood of Los Angeles County. The Marine Terminal including Pier 12 is located within the Port of Long Beach, adjacent to the Port of Los Angeles. The SCAB is in extreme nonattainment of the 2015 and 2008 8-hour O_3 NAAQS, serious nonattainment of the $PM_{2.5}$ NAAQS, and nonattainment of the Pb NAAQS; and is a maintenance area for CO, PM_{10}, and NO_2. Emissions associated with the Proposed Action were calculated using data presented in Chapter 2 of the EA, project design details, general air quality assumptions, and calculated using CalEEMod, vessel emissions factors from the San Pedro Bay Ports Emissions Inventory Methodology Report, and commercial truck (diesel) and passenger vehicle (gasoline) exhaust EMFAC2017 emissions factors.

The Navy concludes that *de minimis* thresholds for applicable criteria pollutants would not be exceeded as a result of implementation the Proposed Action (the Marine Terminal under Alternative 1). The emissions data supporting that conclusion, which is a summary of the calculations, methodology, and data, can be found in the calculations attached below. Therefore, the Navy concludes that formal CAA Conformity Determination procedures are not required, resulting in this RONA.

RONA APPROVAL

To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur in the finding that implementation of the Proposed Action does not require a formal CAA Conformity Determination.

Date: ________________________ Signature: _______________________________________

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Annual Construction Estimated Emissions from the Proposed Project at the Marine Terminal within the South Coast Air Quality Management District (SCAQMD) - Alternative 1

ND	VOCs	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Emission Source	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**MT/yr**	**MT/yr**	**MT/yr**	**MT/yr**
Construction Emissions - 2022	0.08	0.68	0.64	0.00	0.09	0.05	108	0.02	0.00	109
Significance Thresholds (tons/year)	**10**	**10**	**100**	**100**	**100**	**70**	**NA**	**NA**	**NA**	**NA**
Exceeds Air Quality Significance Threshold Standards?	**No**	**No**	**No**	**No**	**No**	**No**	**NA**	**NA**	**NA**	**NA**

Legend: CO = carbon monoxide; CO2e = carbon dioxide equivalents; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO_2 = sulfur dioxide; tpy = tons per year; VOCs = volatile organic compounds.

Notes: The South Coast Air Basin (SCAB) is an extreme nonattainment area for the 2008 and 2015 8-hour ozone (O_3) National Ambient Air Quality Standards (NAAQS) (VOCs and NO_x are precursors to the formation of O_3), a serious nonattainment area for $PM_{2.5}$, and a nonattainment area for Pb; and is a maintenance area for CO, PM_{10}., and nitrogen dioxide (NO_2). Pb emissions factors are typically expressed as a propotion of particulate matter factors, and thus Pb emissions from construction would be signifcantly less than 1 ton per year.

*Total developable land area on the Main and Marine Terminal was divided by 3 for emissions calculations, with one third being developed as ASTs, one third being developed as ancillary uses such as administrative or warehousing (with a floor area ratio [FAR] of 1.5 assumed, and one third being developed for parking).

43.1 ac Main Terminal
79.5% % of total
11.1 ac Marine Terminal
20.5% % of total
54.2 Total ac

Annual Estimated Operational Mobile Source Emissions from the Proposed Project at the Marine Terminal within the SCAQMD - Alternative 1

ND	VOCs	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Emission Source	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**MT/yr**	**MT/yr**	**MT/yr**	**MT/yr**
Land-based Emissions - starting in 2023	0.99	0.01	0.01	0.00	0.00	0.00	562	0.01	0.00	563
On-road Worker Commute Emissions - 2022	0.00	0.01	0.25	0.00	0.00	0.00	62	0.00	0.00	62
Truck Exhaust Emissions - starting 2023	0.00	0.55	0.04	0.00	0.00	0.00	310	0.00	0.05	324
Vessel Emissions - starting 2023 0-3 nm (Commercial Vessels Only)	0.67	9.00	1.13	0.28	0.18	0.17	383	ND	ND	383
Total Emissions	**1.66**	**9.57**	**1.43**	**0.28**	**0.18**	**0.17**	**1,255**	**0.01**	**0.05**	**1,270**
Significance Thresholds (tons/year)	**10**	**10**	**100**	**100**	**100**	**70**	**NA**	**NA**	**NA**	**NA**
Exceeds Air Quality Significance Threshold Standards?	**No**	**No**	**No**	**No**	**No**	**No**	**NA**	**NA**	**NA**	**NA**

Assumes all land-based activities are proportional rate of 20.5% of the total calculated for Alt 1

Legend: CO = carbon monoxide; CO_2e = carbon dioxide equivalents; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOCs = volatile organic compounds.

Notes: The SCAB is an extreme nonattainment area for the 2008 and 2015 8-hour O_3 NAAQS (VOCs and NO_x are precursors to the formation of O_3), a serious nonattainment area for $PM_{2.5}$, and a nonattainment area for Pb; and is a maintenance area for CO, PM_{10}., and NO_2. Pb emissions factors are typically expressed as a propotion of particulate matter factors, and thus Pb emissions from operations would be signifcantly less than 1 ton per year.
NA = Not applicable because the SCAB is currently in attainment of the NAAQS for these criteria pollutants or no emissions factor was available.

Annual Estimated Operational Stationary Source Emissions from the Proposed Project within the SCAQMD - Alternative 1

ND	VOCs
Emission Source	**tons/yr**
Fuel Truck Loading Emissions	1.03
Emissions from Storage Tanks	1.40
Total Emissions	**2.44**

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Air Emissions Calculations for Alternative 1 and Alternative 2 as Analyzed in Final EA

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Annual Construction Estimated Emissions from the Proposed Project within the South Coast Air Quality Management District (SCAQMD) - Alternative 1

ND	VOCs	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Emission Source	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**MT/yr**	**MT/yr**	**MT/yr**	**MT/yr**
Construction Emissions - 2021	0.39	3.34	3.10	0.01	0.43	0.27	528	0.11	0.00	530
Construction Emissions - 2022	0.32	2.78	2.84	0.01	0.39	0.23	494	0.10	0.00	496
Construction Emissions - 2023	0.36	2.59	2.94	0.01	0.39	0.22	517	0.11	0.00	520
Construction Emissions - 2024	0.13	1.05	1.33	0.00	0.16	0.07	276	0.05	0.00	277
Significance Thresholds (tons/year)	**10**	**10**	**100**	**100**	**100**	**70**	**NA**	**NA**	**NA**	**NA**
Exceeds Air Quality Significance Threshold Standards?	**No**	**No**	**No**	**No**	**No**	**No**	**NA**	**NA**	**NA**	**NA**

Legend: CO = carbon monoxide; CO_2e = carbon dioxide equivalents; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO_2 = sulfur dioxide; tpy = tons per year; VOCs = volatile organic compounds.
CO2e = CO2 + (CH4 * 25) + (N2O * 298)

Notes: The South Coast Air Basin (SCAB) is an extreme nonattainment area for the 2008 and 2015 8-hour ozone (O_3) National Ambient Air Quality Standards (NAAQS) (VOCs and NO_x are precursors to the formation of O_3), a serious nonattainment area for $PM_{2.5}$, and a nonattainment area for Pb; and is a maintenance area for CO, PM_{10}., and nitrogen dioxide (NO_2). Pb emissions factors are typically expressed as a propotion of particulate matter factors, and thus Pb emissions from construction would be signifcantly less than 1 ton per year.
NA = Not applicable because the SCAB is currently in attainment of the NAAQS for these criteria pollutants; or no emissions factor was available. [illegible] one third being developed as ancillary uses such as administrative or warehousing (with a floor area ratio [FAR] of 1.5 assumed, and one third being developed for parking).

Annual Estimated Operational Mobile Source Emissions from the Proposed Project within the SCAQMD - Alternative 1

ND	VOCs	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Emission Source	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**MT/yr**	**MT/yr**	**MT/yr**	**MT/yr**
Operational Land-based Emissions - 2022	4.83	0.05	0.04	0.00	0.00	0.00	2,742	0.06	0.01	2,748
Added Land-based Emissions - 2023	1.49	0.02	0.01	0.00	0.00	0.00	848	0.02	0.00	850
Added Land-based Emissions - 2024	13.01	0.13	0.11	0.00	0.01	0.01	7,389	0.17	0.04	7,405
Added Land-based Emissions - 2025	0.06	0.00	0.00	0.00	0.00	0.00	33	0.00	0.00	33
Full build-out Land-based Emissions (2026 on)	**19.38**	**0.20**	**0.17**	**0.00**	**0.02**	**0.02**	**11,012**	**0.26**	**0.06**	**11,035**
On-road Worker Commute Emissions 2022	0.01	0.04	0.75	0.00	0.00	0.00	302	0.00	0.00	304
Fuel Truck Exhaust Emissions - starting 2022	0.02	2.70	0.22	0.01	0.02	0.02	1,514	0.00	0.24	1,584
Vessel Emissions										
0-3 nm MIL	0.52	11.00	0.70	2.52	0.21	0.21	855	ND	ND	855
0-3 nm COMM	0.67	9.00	1.13	0.28	0.18	0.17	383	ND	ND	383
0-3 nm TOTAL	**1.19**	**19.99**	**1.83**	**2.80**	**0.38**	**0.37**	**1,238**	**ND**	**ND**	**1,238**
3-12 nm MIL	0.17	8.61	0.67	3.62	0.29	0.29	1,327	ND	ND	1,235
3-12 nm TOTAL	**0.17**	**8.61**	**0.67**	**3.62**	**0.29**	**0.29**	**1,327**	**ND**	**ND**	**1,235**
12-30 nm MIL	0.31	7.69	1.46	2.39	0.14	0.14	595	ND	ND	595
12-30 nm TOTAL	**0.31**	**7.69**	**1.46**	**2.39**	**0.14**	**0.14**	**595**	**ND**	**ND**	**595**
30-100 nm MIL	0.66	16.34	3.10	5.07	0.31	0.31	1,263	ND	ND	1,263
30-100 nm TOTAL	**0.66**	**16.34**	**3.10**	**5.07**	**0.31**	**0.31**	**1,263**	**ND**	**ND**	**1,263**
TOTAL MIL VESSELS - starting 2024	1.67	43.63	5.92	13.61	0.94	0.94	3,948	ND	ND	3,948
TOTAL COMM VESSELS - starting 2022	0.67	9.00	1.13	0.28	0.18	0.17	383	ND	ND	383
TOTAL VESSELS	**2.34**	**52.63**	**7.05**	**13.88**	**1.12**	**1.11**	**4,331**	**ND**	**ND**	**4,331**
Total Emissions	**21.75**	**55.57**	**8.19**	**13.90**	**1.16**	**1.15**	**17,158**	**NA**	**NA**	**17,254**
Significance Thresholds (tons/year)	**10**	**10**	**100**	**100**	**100**	**70**	**NA**	**NA**	**NA**	**NA**
Exceeds Air Quality Significance Threshold Standards?	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**NA**	**NA**	**NA**	**NA**

Legend: CO = carbon monoxide; CO_2e = carbon dioxide equivalents; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOCs = volatile organic compounds.
$CO_2e = CO_2 + (CH_4 * 25) + (N_2O * 298)$

Notes: The SCAB is an extreme nonattainment area for the 2008 and 2015 8-hour O_3 NAAQS (VOCs and NO_x are precursors to the formation of O_3), a serious nonattainment area for $PM_{2.5}$, and a nonattainment area for Pb; and is a maintenance area for CO, PM_{10}., and NO_2. Pb emissions factors are typically expressed as a propotion of particulate matter factors, and thus Pb emissions from operations would be signifcantly less than 1 ton per year.
NA = Not applicable because the SCAB is currently in attainment of the NAAQS for these criteria pollutants or no emissions factor was available.

Annual Estimated Operational Stationary Source Emissions from the Proposed Project within the SCAQMD - Alternative 1

ND	VOCs
Emission Source	**tons/yr**
Fuel Truck Loading Emissions	5.04
Emissions from Storage Tanks	8.97
Total Emissions	**14.01**

Annual Construction Estimated Emissions from the Proposed Project within the SCAQMD - Alternative 2

ND	VOCs	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Emission Source	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**MT/yr**	**MT/yr**	**MT/yr**	**MT/yr**
Construction Emissions - 2021	0.29	2.63	2.39	0.00	0.25	0.18	362	0	0	364
Significance Thresholds (tons/year)	**10**	**10**	**100**	**100**	**100**	**70**	**NA**	**NA**	**NA**	**NA**
Exceeds Air Quality Significance Threshold Standards?	**No**	**No**	**No**	**No**	**No**	**No**	**NA**	**NA**	**NA**	**NA**

Legend: CO = carbon monoxide; CO_2e = carbon dioxide equivalents; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO_2 = sulfur dioxide; tpy = tons per year; VOCs = volatile organic compounds.
$CO_2e = CO_2 + (CH_4 * 25) + (N_2O * 310)$

Notes: The South Coast Air Basin (SCAB) is an extreme nonattainment area for the 2008 and 2015 8-hour ozone (O_3) National Ambient Air Quality Standards (NAAQS) (VOCs and NO_x are precursors to the formation of O_3), a serious nonattainment area for $PM_{2.5}$, and a nonattainment area for Pb; and is a maintenance area for CO, PM_{10}., and nitrogen dioxide (NO_2). Pb emissions factors are typically expressed as a propotion of particulate matter factors, and thus Pb emissions from construction would be signifcantly less than 1 ton per year.
NA = Not applicable because the SCAB is currently in attainment of the NAAQS for these criteria pollutants or no emissions factor was available.

*Total developable land area on the Marine Terminal was divded by 3 for emissions calculations, with one third being developed as ASTs, one third being developed as ancillary uses such as administrative or warehousing (with a floor area ration of 1.5 assumed), and one third being developed for parking.

Annual Estimated Operational Mobile Source Emissions from the Proposed Project within the SCAQMD - Alternative 2

ND	VOCs	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Emission Source	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**tons/yr**	**MT/yr**	**MT/yr**	**MT/yr**	**MT/yr**
Land-based Emissions - 2022	1.00	0.01	0.01	0.00	0.00	0.00	560	0.01	0.00	561
On-road Worker Commute Emissions - 2022	0.00	0.01	0.25	0.00	0.00	0.00	101	0.00	0.00	101
Fuel Truck Exhaust Emissions - 2023	0.01	1.32	0.11	0.01	0.01	0.01	738	0.00	0.12	774
Vessel Emissions										
0-3 nm MIL	0.52	11.00	0.70	2.52	0.21	0.21	855	ND	ND	855
0-3 nm COMM	0.67	9.00	1.13	0.28	0.18	0.17	383	ND	ND	383
0-3 nm TOTAL	**1.19**	**19.99**	**1.83**	**2.80**	**0.38**	**0.37**	**1,238**	**ND**	**ND**	**1,238**
3-12 nm MIL	0.17	8.61	0.67	3.62	0.29	0.29	1,327	ND	ND	1,235
3-12 nm TOTAL	**0.17**	**8.61**	**0.67**	**3.62**	**0.29**	**0.29**	**1,327**	**ND**	**ND**	**1,235**
12-30 nm MIL	0.31	7.69	1.46	2.39	0.14	0.14	595	ND	ND	595
12-30 nm TOTAL	**0.31**	**7.69**	**1.46**	**2.39**	**0.14**	**0.14**	**595**	**ND**	**ND**	**595**
30-100 nm MIL	0.66	16.34	3.10	5.07	0.31	0.31	1,263	ND	ND	1,263
30-100 nm TOTAL	**0.66**	**16.34**	**3.10**	**5.07**	**0.31**	**0.31**	**1,263**	**ND**	**ND**	**1,263**
TOTAL MIL VESSELS - starting 2024	1.67	43.63	5.92	13.61	0.94	0.94	3,948	ND	ND	3,948
TOTAL COMM VESSELS - starting 2023	0.67	9.00	1.13	0.28	0.18	0.17	383	ND	ND	383
TOTAL VESSELS	**2.34**	**52.63**	**7.05**	**13.88**	**1.12**	**1.11**	**4,331**	**ND**	**ND**	**4,331**
Total Emissions	**3.34**	**53.97**	**7.42**	**13.89**	**1.13**	**1.12**	**5,730**	**0.01**	**0.12**	**5,767**
Significance Thresholds (tons/year)	**10**	**10**	**100**	**100**	**100**	**70**	**NA**	**NA**	**NA**	**NA**
Exceeds Air Quality Significance Threshold Standards?	**No**	**Yes**	**No**	**No**	**No**	**No**	**NA**	**NA**	**NA**	**NA**

Legend: CO = carbon monoxide; CO_2e = carbon dioxide equivalents; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO_2 = sulfur dioxide; tpy = tons per year; VOCs = volatile organic compounds.
$CO_2e = CO_2 + (CH_4 * 25) + (N_2O * 310)$

Notes: The SCAB is an extreme nonattainment area for the 2008 and 2015 8-hour O_3 NAAQS (VOCs and NO_x are precursors to the formation of O_3), a serious nonattainment area for $PM_{2.5}$, and a nonattainment area for Pb; and is a maintenance area for CO, PM_{10}., and NO_2. Pb emissions factors are typically expressed as a propotion of particulate matter factors, and thus Pb emissions from construction would be signifcantly less than 1 ton per year.
NA = Not applicable because the SCAB is currently in attainment of the NAAQS for these criteria pollutants or no emissions factor was available.

Annual Estimated Operational Stationary Source Emissions from the Proposed Project within the SCAQMD - Alternative 2

ND	VOCs
Emission Source	**tons/yr**
Fuel Truck Loading Emissions	2.52
Emissions from Storage Tanks	1.81
Total Emissions	**4.33**

Alt 1 Rehabilitation and Operation of Marine and Main Terminals-2021

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.00	1000sqft	18.06	0.00	0
Unrefrigerated Warehouse-No Rail	0.00	1000sqft	18.07	1,167,511.00	0
Parking Lot	0.00	1000sqft	18.07	778,341.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 11 **Operational Year** 2022

Utility Company Los Angeles Department of Water & Power

CO2 Intensity (lb/MWhr) 1227.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume construction begins in 2021 and will last one year

Land Use - Per Chapter 2, 43.1 acres at the Main Terminal and 11.1 acres at the Marine Terminal would be avail for immediate development. Includes proportional development of ASTs, admin/warehouse (1.5 FAR), parking.

Construction Phase - Assume 12 months for Main and Marine Terminal construction of the acreage avaialble in 2021

Off-road Equipment -

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Trips and VMT - Estimated work trips, vendor trips, and hauling trips for all phases

Grading - Assume 1/3 of the site area would be graded.

Vehicle Trips - Left default ops trip rate, based on size metric and land use type.

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - None

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	1,110.00	201.00
tblConstructionPhase	NumDays	75.00	85.00
tblConstructionPhase	PhaseEndDate	5/29/2025	12/3/2021
tblConstructionPhase	PhaseEndDate	9/11/2025	12/31/2021
tblConstructionPhase	PhaseStartDate	5/30/2025	9/6/2021
tblGrading	AcresOfGrading	0.00	18.07
tblLandUse	LandUseSquareFeet	0.00	1,167,511.00
tblLandUse	LandUseSquareFeet	0.00	778,341.00
tblLandUse	LotAcreage	0.00	18.06
tblLandUse	LotAcreage	0.00	18.07
tblLandUse	LotAcreage	0.00	18.07
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	319.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	18.00	60.00
tblTripsAndVMT	WorkerTripNumber	817.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	60.00

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					
2021	0.3923	3.3374	3.1024	5.9800e-003	0.4909	0.1673	0.6582	0.2318	0.1558	0.3876	0.0000	527.5088	527.5088	0.1110	0.0000	530.2842
Maximum	**0.3923**	**3.3374**	**3.1024**	**5.9800e-003**	**0.4909**	**0.1673**	**0.6582**	**0.2318**	**0.1558**	**0.3876**	**0.0000**	**527.5088**	**527.5088**	**0.1110**	**0.0000**	**530.2842**

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					
2021	0.3923	3.3374	3.1024	5.9800e-003	0.2647	0.1673	0.4319	0.1100	0.1558	0.2659	0.0000	527.5083	527.5083	0.1110	0.0000	530.2837
Maximum	**0.3923**	**3.3374**	**3.1024**	**5.9800e-003**	**0.2647**	**0.1673**	**0.4319**	**0.1100**	**0.1558**	**0.2659**	**0.0000**	**527.5083**	**527.5083**	**0.1110**	**0.0000**	**530.2837**

	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**	**46.09**	**0.00**	**34.38**	**52.54**	**0.00**	**31.42**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.1774	1.1774
2	4-1-2021	6-30-2021	0.6809	0.6809
3	7-1-2021	9-30-2021	0.8346	0.8346
		Highest	1.1774	1.1774

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	4.8211	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
Energy	5.4800e-003	0.0498	0.0418	3.0000e-004		3.7800e-003	3.7800e-003		3.7800e-003	3.7800e-003	0.0000	2,741.9396	2,741.9396	0.0645	0.0141	2,747.7624
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.8266**	**0.0498**	**0.0418**	**3.0000e-004**	**0.0000**	**3.7800e-003**	**3.7800e-003**	**0.0000**	**3.7800e-003**	**3.7800e-003**	**0.0000**	**2,741.9396**	**2,741.9396**	**0.0645**	**0.0141**	**2,747.7624**

2.2 Overall Operational

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	4.8211	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
Energy	5.4800e-003	0.0498	0.0418	3.0000e-004		3.7800e-003	3.7800e-003		3.7800e-003	3.7800e-003	0.0000	2,741.9396	2,741.9396	0.0645	0.0141	2,747.7624
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.8266**	**0.0498**	**0.0418**	**3.0000e-004**	**0.0000**	**3.7800e-003**	**3.7800e-003**	**0.0000**	**3.7800e-003**	**3.7800e-003**	**0.0000**	**2,741.9396**	**2,741.9396**	**0.0645**	**0.0141**	**2,747.7624**

	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

Alt 1 Rehabilitation and Operation of Marine and Main Terminals-2022

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.00	1000sqft	5.64	0.00	0
Unrefrigerated Warehouse-No Rail	0.00	1000sqft	5.63	361,037.00	0
Parking Lot	0.00	1000sqft	5.63	240,691.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2023
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume construction begins in 2022 and will last one year

Land Use - Per Chapter 2, 16.9 acres at the Main Terminal would be avail for development after remediation activities are complete in 2022. Includes proportional development of ASTs, admin/warehouse (1.5 FAR), parking.

Construction Phase - Assume 12 months for Main Terminal construction of the acreage avaialble in 2022

Off-road Equipment -

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Trips and VMT - Estimated work trips, vendor trips, and hauling trips for all phases

Grading - Assume 1/3 of the site area would be graded.

Vehicle Trips - Left default ops trip rate, based on size metric and land use type.

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - None

Stationary Sources - Emergency Generators and Fire Pumps -

Alt 1 Rehabilitation and Operation of Marine and Main Terminals-2022 - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	3/10/2023	12/2/2022
tblConstructionPhase	PhaseEndDate	4/7/2023	12/31/2022
tblConstructionPhase	PhaseEndDate	1/14/2022	2/26/2022
tblConstructionPhase	PhaseStartDate	1/15/2022	2/27/2022
tblConstructionPhase	PhaseStartDate	3/11/2023	10/3/2022
tblGrading	AcresOfGrading	0.00	5.64
tblLandUse	LandUseSquareFeet	0.00	361,037.00
tblLandUse	LandUseSquareFeet	0.00	240,691.00
tblLandUse	LotAcreage	0.00	5.64
tblLandUse	LotAcreage	0.00	5.63
tblLandUse	LotAcreage	0.00	5.63
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	99.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	18.00	60.00
tblTripsAndVMT	WorkerTripNumber	253.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	60.00

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					
2022	0.3181	2.7848	2.8429	5.6000e-003	0.4766	0.1327	0.6093	0.2290	0.1238	0.3528	0.0000	493.8014	493.8014	0.1032	0.0000	496.3816
Maximum	**0.3181**	**2.7848**	**2.8429**	**5.6000e-003**	**0.4766**	**0.1327**	**0.6093**	**0.2290**	**0.1238**	**0.3528**	**0.0000**	**493.8014**	**493.8014**	**0.1032**	**0.0000**	**496.3816**

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					
2022	0.3181	2.7848	2.8429	5.6000e-003	0.2544	0.1327	0.3871	0.1077	0.1238	0.2314	0.0000	493.8010	493.8010	0.1032	0.0000	496.3812
Maximum	**0.3181**	**2.7848**	**2.8429**	**5.6000e-003**	**0.2544**	**0.1327**	**0.3871**	**0.1077**	**0.1238**	**0.2314**	**0.0000**	**493.8010**	**493.8010**	**0.1032**	**0.0000**	**496.3812**

	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**	**46.63**	**0.00**	**36.47**	**52.98**	**0.00**	**34.40**	**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	**1-1-2022**	**3-31-2022**	0.9939	0.9939
2	**4-1-2022**	**6-30-2022**	0.6125	0.6125
3	**7-1-2022**	**9-30-2022**	0.6193	0.6193
		Highest	0.9939	0.9939

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	1.4909	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
Energy	1.6900e-003	0.0154	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	847.9077	847.9077	0.0200	4.3700e-003	849.7083
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4925**	**0.0154**	**0.0129**	**9.0000e-005**	**0.0000**	**1.1700e-003**	**1.1700e-003**	**0.0000**	**1.1700e-003**	**1.1700e-003**	**0.0000**	**847.9077**	**847.9077**	**0.0200**	**4.3700e-003**	**849.7083**

2.2 Overall Operational

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	1.4909	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
Energy	1.6900e-003	0.0154	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	847.9077	847.9077	0.0200	4.3700e-003	849.7083
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4925**	**0.0154**	**0.0129**	**9.0000e-005**	**0.0000**	**1.1700e-003**	**1.1700e-003**	**0.0000**	**1.1700e-003**	**1.1700e-003**	**0.0000**	**847.9077**	**847.9077**	**0.0200**	**4.3700e-003**	**849.7083**

	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

Alt 1 Rehabilitation and Operation of Marine and Main Terminals-2023

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.00	1000sqft	48.80	0.00	0
Unrefrigerated Warehouse-No Rail	0.00	1000sqft	48.80	3,146,183.00	0
Parking Lot	0.00	1000sqft	48.80	2,097,456.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 11 **Operational Year** 2024

Utility Company Los Angeles Department of Water & Power

CO2 Intensity (lb/MWhr) 1227.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume construction begins in 2023 and will last one year

Land Use - Per Chapter 2, 146.4 acres at the Main Terminal would be avail for development after remediation activities are complete in 2023. Includes proportional development of ASTs, admin/warehouse (1.5 FAR), parking.

Construction Phase - Assume 12 months for Main Terminal construction of the acreage avaialble in 2023.

Off-road Equipment -

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Trips and VMT - Estimated work trips, vendor trips, and hauling trips for all phases

Grading - Assume 1/3 of the site area would be graded.

Vehicle Trips - Left default ops trip rate, based on size metric and land use type.

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - None

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	3,100.00	200.00
tblConstructionPhase	NumDays	220.00	85.00
tblConstructionPhase	NumDays	120.00	40.00
tblGrading	AcresOfGrading	0.00	48.80
tblLandUse	LandUseSquareFeet	0.00	3,146,183.00
tblLandUse	LandUseSquareFeet	0.00	2,097,456.00
tblLandUse	LotAcreage	0.00	48.80
tblLandUse	LotAcreage	0.00	48.80
tblLandUse	LotAcreage	0.00	48.80
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	859.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	18.00	60.00
tblTripsAndVMT	WorkerTripNumber	2,202.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	60.00

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					
2023	0.3581	2.5853	2.9407	5.8700e-003	0.5069	0.1179	0.6248	0.2335	0.1099	0.3434	0.0000	517.4822	517.4822	0.1091	0.0000	520.2087
Maximum	**0.3581**	**2.5853**	**2.9407**	**5.8700e-003**	**0.5069**	**0.1179**	**0.6248**	**0.2335**	**0.1099**	**0.3434**	**0.0000**	**517.4822**	**517.4822**	**0.1091**	**0.0000**	**520.2087**

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					
2023	0.3581	2.5853	2.9407	5.8700e-003	0.2707	0.1179	0.3886	0.1106	0.1099	0.2206	0.0000	517.4818	517.4818	0.1091	0.0000	520.2082
Maximum	**0.3581**	**2.5853**	**2.9407**	**5.8700e-003**	**0.2707**	**0.1179**	**0.3886**	**0.1106**	**0.1099**	**0.2206**	**0.0000**	**517.4818**	**517.4818**	**0.1091**	**0.0000**	**520.2082**

	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**	**46.60**	**0.00**	**37.81**	**52.62**	**0.00**	**35.78**	**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	1-1-2023	3-31-2023	0.8385	0.8385
2	4-1-2023	6-30-2023	0.5581	0.5581
3	7-1-2023	9-30-2023	0.7038	0.7038
		Highest	0.8385	0.8385

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	12.9917	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
Energy	0.0148	0.1342	0.1127	8.1000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	7,388.9185	7,388.9185	0.1739	0.0381	7,404.6097
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**13.0065**	**0.1342**	**0.1127**	**8.1000e-004**	**0.0000**	**0.0102**	**0.0102**	**0.0000**	**0.0102**	**0.0102**	**0.0000**	**7,388.9185**	**7,388.9185**	**0.1739**	**0.0381**	**7,404.6097**

2.2 Overall Operational

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	12.9917	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
Energy	0.0148	0.1342	0.1127	8.1000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	7,388.9185	7,388.9185	0.1739	0.0381	7,404.6097
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**13.0065**	**0.1342**	**0.1127**	**8.1000e-004**	**0.0000**	**0.0102**	**0.0102**	**0.0000**	**0.0102**	**0.0102**	**0.0000**	**7,388.9185**	**7,388.9185**	**0.1739**	**0.0381**	**7,404.6097**

	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

Alt 1 Rehabilitation and Operation of Marine and Main Terminals-2024

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.00	1000sqft	0.20	0.00	0
Unrefrigerated Warehouse-No Rail	0.00	1000sqft	0.20	14,066.00	0
Parking Lot	0.00	1000sqft	0.20	9,378.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2025
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume construction begins in 2024 and will last one year

Land Use - Per Chapter 2, 0.6 acres at the Main Terminal would be avail for development after remediation activities are complete in 2024. Includes proportional development of ASTs, admin/warehouse (1.5 FAR), parking.

Construction Phase - Assume 12 months for Main Terminal construction of the acreage avaialble in 2024.

Off-road Equipment -

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Off-road Equipment - Construction equipment estimated based on the maximum construction efforts for this phase.

Trips and VMT - Estimated work trips, vendor trips, and hauling trips for all phases

Grading - Assume 1/3 of the site area would be graded.

Vehicle Trips - Left default ops trip rate, based on size metric and land use type.

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - None

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	205.00
tblConstructionPhase	NumDays	5.00	66.00
tblConstructionPhase	NumDays	1.00	40.00
tblGrading	AcresOfGrading	20.00	0.20
tblLandUse	LandUseSquareFeet	0.00	14,066.00
tblLandUse	LandUseSquareFeet	0.00	9,378.00
tblLandUse	LotAcreage	0.00	0.20
tblLandUse	LotAcreage	0.00	0.20
tblLandUse	LotAcreage	0.00	0.20
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	4.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	60.00
tblTripsAndVMT	WorkerTripNumber	10.00	60.00
tblTripsAndVMT	WorkerTripNumber	18.00	60.00

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					
2024	0.1270	1.0509	1.3318	3.0800e-003	0.1146	0.0419	0.1565	0.0307	0.0386	0.0693	0.0000	275.9409	275.9409	0.0522	0.0000	277.2446
Maximum	**0.1270**	**1.0509**	**1.3318**	**3.0800e-003**	**0.1146**	**0.0419**	**0.1565**	**0.0307**	**0.0386**	**0.0693**	**0.0000**	**275.9409**	**275.9409**	**0.0522**	**0.0000**	**277.2446**

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					
2024	0.1270	1.0509	1.3318	3.0800e-003	0.1146	0.0419	0.1564	0.0307	0.0386	0.0693	0.0000	275.9407	275.9407	0.0522	0.0000	277.2444
Maximum	**0.1270**	**1.0509**	**1.3318**	**3.0800e-003**	**0.1146**	**0.0419**	**0.1564**	**0.0307**	**0.0386**	**0.0693**	**0.0000**	**275.9407**	**275.9407**	**0.0522**	**0.0000**	**277.2444**

	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**	**0.05**	**0.00**	**0.04**	**0.03**	**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	**1-1-2024**	**3-31-2024**	0.2448	0.2448
2	**4-1-2024**	**6-30-2024**	0.2521	0.2521
3	**7-1-2024**	**9-30-2024**	0.2548	0.2548
		Highest	0.2548	0.2548

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	0.0581	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
Energy	7.0000e-005	6.0000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	33.0346	33.0346	7.8000e-004	1.7000e-004	33.1048
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0582**	**6.0000e-004**	**5.0000e-004**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**33.0346**	**33.0346**	**7.8000e-004**	**1.7000e-004**	**33.1048**

2.2 Overall Operational

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	0.0581	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
Energy	7.0000e-005	6.0000e-004	5.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	33.0346	33.0346	7.8000e-004	1.7000e-004	33.1048
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0582**	**6.0000e-004**	**5.0000e-004**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**33.0346**	**33.0346**	**7.8000e-004**	**1.7000e-004**	**33.1048**

	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

Alt 2 Rehabilitation and Operation of Marine Terminal

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.00	1000sqft	3.70	0.00	0
Unrefrigerated Warehouse-No Rail	0.00	1000sqft	3.70	241,758.00	0
Parking Lot	0.00	1000sqft	3.70	120,225.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Assume contruction of the Marine Terminal occurs within 12 months.

Land Use - Assume total lot acreage of (11.1 AC-Marine Terminal), per Project Description, w/development of ASTs, adminstrative/warehousing (1.5 FAR), parking.

Construction Phase - Assume 12 months for Marine Terminal construction under potential development scenario.

Off-road Equipment - Assumed Maximum number of equipment and usage to rehabilitate the Marine Terminal.

Off-road Equipment - 1 Grader, 1 Water Truck, 1 Mower, and 1 Pick up truck.

Off-road Equipment -

Off-road Equipment - Assumed default Site Prep Equipment.

Trips and VMT - Estimated worker trips, vendor trips, and hauling trips for all phases

Grading - Assume entire Marine Terminal Area could be graded in order to rehabilitate and construct new AST and Ancillary Buildings.

Vehicle Trips -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Operational Off-Road Equipment - None

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	230.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	PhaseEndDate	3/10/2022	12/2/2021
tblConstructionPhase	PhaseEndDate	4/7/2022	12/31/2021
tblConstructionPhase	PhaseEndDate	1/14/2021	1/31/2021
tblConstructionPhase	PhaseStartDate	3/11/2022	12/3/2021
tblGrading	AcresOfGrading	0.00	3.70
tblLandUse	LandUseSquareFeet	0.00	241,758.00
tblLandUse	LandUseSquareFeet	0.00	120,225.60
tblLandUse	LotAcreage	0.00	3.70
tblLandUse	LotAcreage	0.00	3.70
tblLandUse	LotAcreage	0.00	3.70
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	59.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00
tblTripsAndVMT	WorkerTripNumber	152.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00

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					
2021	0.2904	2.6289	2.3909	4.1600e-003	0.2251	0.1392	0.3642	0.1134	0.1303	0.2437	0.0000	362.3075	362.3075	0.0840	0.0000	364.4078
Maximum	**0.2904**	**2.6289**	**2.3909**	**4.1600e-003**	**0.2251**	**0.1392**	**0.3642**	**0.1134**	**0.1303**	**0.2437**	**0.0000**	**362.3075**	**362.3075**	**0.0840**	**0.0000**	**364.4078**

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					
2021	0.2904	2.6289	2.3909	4.1600e-003	0.1082	0.1392	0.2473	0.0497	0.1303	0.1800	0.0000	362.3071	362.3071	0.0840	0.0000	364.4074
Maximum	**0.2904**	**2.6289**	**2.3909**	**4.1600e-003**	**0.1082**	**0.1392**	**0.2473**	**0.0497**	**0.1303**	**0.1800**	**0.0000**	**362.3071**	**362.3071**	**0.0840**	**0.0000**	**364.4074**

	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**	**51.95**	**0.00**	**32.10**	**56.18**	**0.00**	**26.15**	**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	**1-1-2021**	**3-31-2021**	1.0379	1.0379
2	**4-1-2021**	**6-30-2021**	0.6458	0.6458
3	**7-1-2021**	**9-30-2021**	0.6529	0.6529
		Highest	1.0379	1.0379

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	0.9951	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
Energy	1.1300e-003	0.0103	8.6600e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	559.7950	559.7950	0.0132	2.8900e-003	560.9844
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.9962**	**0.0103**	**8.6600e-003**	**6.0000e-005**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**559.7950**	**559.7950**	**0.0132**	**2.8900e-003**	**560.9844**

2.2 Overall Operational

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	0.9951	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
Energy	1.1300e-003	0.0103	8.6600e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	559.7950	559.7950	0.0132	2.8900e-003	560.9844
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.9962**	**0.0103**	**8.6600e-003**	**6.0000e-005**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**559.7950**	**559.7950**	**0.0132**	**2.8900e-003**	**560.9844**

	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

Warship

DDG 59

	Emissions in lbs										Emissions in tons						Emissions in MT	
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**	
Underway (Transit)	23	23	676	595	352	28	162,631	0	0	162,631	0.01	0.01	0.34	0.30	0.18	0.01	74	
Restricted Waters (Maneuvering)	37	37	825	481	67	6	187,310	0	0	187,310	0.02	0.02	0.41	0.24	0.03	0.00	85	
Not Underway (At Berth)	3	3	154	42	2	0	22,015	0	0	22,015	0.00	0.00	0.08	0.02	0.00	0.00	10	
	63	**63**	**1,655**	**1,118**	**421**	**33**	**371,956**	**0**	**0**	**371,956**	**0.03**	**0.03**	**0.83**	**0.56**	**0.21**	**0.02**	**169**	Total per evolution
	1,134	**1,134**	**29,790**	**20,124**	**7,578**	**600**	**6,695,208**	**0**	**0**	**6,695,208**	**0.57**	**0.57**	**14.90**	**10.06**	**3.79**	**0.30**	**3,037**	Annual (18 ops)

29 <HC
522 <HC

(Starcrest Consulting 2019, p.5)

CO2	1
CH4	25
N2O	298

		Emissions in lbs										Emissions in tons						Emissions in MT	
		PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**	
0-3 nm (Fueling)	Not Underway - 100%	3	3	154	42	2	0	22,015	0	0	22,015	0.00	0.00	0.08	0.02	0.00	0.00	10	
0-3 nm	Restricted/Maneuvering - 25%	9	9	206	120	17	1	46,828	0	0	46,828	0.00	0.00	0.10	0.06	0.01	0.00	21	
3-12 nm	Restricted/Maneuvering - 75%	28	28	619	361	50	4	140,483	0	0	140,483	0.01	0.01	0.31	0.18	0.03	0.00	64	
12-40 nm	Underway - 32%	7	7	216	190	113	9	52,042	0	0	52,042	0.00	0.00	0.11	0.10	0.06	0.00	24	
40-100 nm	Underway - 68%	16	16	460	405	239	19	110,589	0	0	110,589	0.01	0.01	0.23	0.20	0.12	0.01	50	
		63	**63**	**1,655**	**1,118**	**421**	**33**	**371,956**	**0**	**0**	**371,956**	**0.03**	**0.03**	**0.83**	**0.56**	**0.21**	**0.02**	**169**	
		1,134	**1,134**	**29,790**	**20,124**	**7,578**	**600**	**6,695,208**	**0**	**0**	**6,695,208**	**0.57**	**0.57**	**14.90**	**10.06**	**3.79**	**0.30**	**3,037**	Annual (18 ops)

Oiler

T-AO-187

	Emissions in lbs										Emissions in tons						Emissions in MT	
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**	
Underway (Transit)	55	55	6,624	731	478	281	201,840	0	0	201,840	0.03	0.03	3.31	0.37	0.24	0.14	92	
Restricted Waters (Maneuvering)	14	14	1,566	188	104	71	47,191	0	0	47,191	0.01	0.01	0.78	0.09	0.05	0.04	21	
Not Underway (At Berth)	11	11	824	127	49	115	39,845	0	0	39,845	0.01	0.01	0.41	0.06	0.02	0.06	18	
	80	**80**	**9,014**	**1,046**	**631**	**467**	**288,876**	**0**	**0**	**288,876**	**0.04**	**0.04**	**4.51**	**0.52**	**0.32**	**0.23**	**131**	Total per evolution
	320	**320**	**36,056**	**4,184**	**2,524**	**1,868**	**1,155,504**	**0**	**0**	**1,155,504**	**0.16**	**0.16**	**18.03**	**2.09**	**1.26**	**0.93**	**524**	Annual (4 ops)

406 <HC
1624 <HC

(Starcrest Consulting 2019, p.5)

CO2	1
CH4	25
N2O	298

		Emissions in lbs										Emissions in tons						Emissions in MT	
		PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**	
0-3 nm (Fueling)	Not Underway - 100%	11	11	824	127	49	115	39,845	0	0	39,845	0.01	0.01	0.41	0.06	0.02	0.06	18	
0-3 nm	Restricted/Maneuvering - 25%	4	4	392	47	26	18	11,798	0	0	11,798	0.00	0.00	0.20	0.02	0.01	0.01	5	
3-12 nm	Restricted/Maneuvering - 75%	11	11	1,175	141	78	53	35,393	0	0	35,393	0.01	0.01	0.59	0.07	0.04	0.03	16	
12-40 nm	Underway - 32%	18	18	2,120	234	153	90	64,589	0	0	64,589	0.01	0.01	1.06	0.12	0.08	0.04	29	
40-100 nm	Underway - 68%	37	37	4,504	497	325	191	137,251	0	0	137,251	0.02	0.02	2.25	0.25	0.16	0.10	62	
		80	**80**	**9,014**	**1,046**	**631**	**467**	**288,876**	**0**	**0**	**288,876**	**0.04**	**0.04**	**4.51**	**0.52**	**0.32**	**0.23**	**131**	
		320	**320**	**36,056**	**4,184**	**2,524**	**1,868**	**1,155,504**	**0**	**0**	**1,155,504**	**0.16**	**0.16**	**18.03**	**2.09**	**1.26**	**0.93**	**524**	Annual (4 ops)

406 <HC
1624 <HC

Tanker

T-AOT 5419

	Emissions in lbs										Emissions in tons						Emissions in MT	
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**	
Underway (Transit)	132	132	4,697	644	429	168	180,725	0	0	180,725	0.07	0.07	2.35	0.32	0.21	0.08	82	
Restricted Waters (Maneuvering)	23	23	919	124	81	35	35,075	0	0	35,075	0.01	0.01	0.46	0.06	0.04	0.02	16	
Not Underway (At Berth)	62	62	5,094	683	362	231	210,590	0	0	210,590	0.03	0.03	2.55	0.34	0.18	0.12	96	
	217	**217**	**10,710**	**1,451**	**872**	**434**	**426,390**	**0**	**0**	**426,390**	**0.11**	**0.11**	**5.36**	**0.73**	**0.44**	**0.22**	**193**	Total per evolution
	434	**434**	**21,420**	**2,902**	**1,744**	**867**	**852,780**	**0**	**0**	**852,780**	**0.22**	**0.22**	**10.71**	**1.45**	**0.87**	**0.43**	**387**	Annual (2 ops)

377 <HC
754 <HC

(Starcrest Consulting 2019, p.5)

CO2	1
CH4	25
N2O	298

		Emissions in lbs										Emissions in tons						Emissions in MT	
		PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**	
0-3 nm (Fueling)	Not Underway - 100%	62	62	5,094	683	362	231	210,590	0	0	210,590	0.03	0.03	2.55	0.34	0.18	0.12	96	
0-3 nm	Restricted/Maneuvering - 25%	6	6	230	31	20	9	8,769	0	0	8,769	0.00	0.00	0.11	0.02	0.01	0.00	4	
3-12 nm	Restricted/Maneuvering - 75%	17	17	689	93	61	26	26,306	0	0	26,306	0.01	0.01	0.34	0.05	0.03	0.01	12	
12-40 nm	Underway - 32%	42	42	1,503	206	137	54	57,832	0	0	57,832	0.02	0.02	0.75	0.10	0.07	0.03	26	
40-100 nm	Underway - 68%	90	90	3,194	438	292	114	122,893	0	0	122,893	0.04	0.04	1.60	0.22	0.15	0.06	56	
		217	**217**	**10,710**	**1,451**	**872**	**434**	**426,390**	**0**	**0**	**426,390**	**0.11**	**0.11**	**5.36**	**0.73**	**0.44**	**0.22**	**193**	
		434	**434**	**21,420**	**2,902**	**1,744**	**867**	**852,780**	**0**	**0**	**852,780**	**0.22**	**0.22**	**10.71**	**1.45**	**0.87**	**0.43**	**387**	Annual (2 ops)

377 <HC
754 <HC

Military Fueling Totals

0-3 nm (including fueling time)	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
	Emissions in tons						Emissions in MT
DDG-59 - 1 op	0.01	0.01	0.18	0.08	0.01	0.00	31
T-AO-187 - 1 op	0.01	0.01	0.61	0.09	0.04	0.07	23
T-AOT 5419 - 1 op	0.03	0.03	2.66	0.36	0.19	0.12	99
DDG-59 - 18 ops	0.11	0.11	3.24	1.46	0.17	0.01	562
T-AO-187 - 4 ops	0.03	0.03	2.43	0.35	0.15	0.27	94
T-AOT 5419 - 2 ops	0.07	0.07	5.32	0.71	0.38	0.24	199
Annual - ALL MIL	**0.21**	**0.21**	**11.00**	**2.52**	**0.70**	**0.52**	**855**

3-12 nm	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
	Emissions in tons						Emissions in MT
DDG-59 - 1 op	0.01	0.01	0.31	0.18	0.03	0.00	64
T-AO-187 - 1 op	0.01	0.01	0.59	0.07	0.04	0.03	16
T-AOT 5419 - 1 op	0.01	0.01	0.34	0.05	0.03	0.01	12
DDG-59 - 18 ops	0.25	0.25	5.57	3.25	0.45	0.04	1,147
T-AO-187 - 4 ops	0.02	0.02	2.35	0.28	0.16	0.11	64
T-AOT 5419 - 2 ops	0.02	0.02	0.69	0.09	0.06	0.03	24
Annual - ALL MIL	**0.29**	**0.29**	**8.61**	**3.62**	**0.67**	**0.17**	**1,235**

12-30 nm	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
	Emissions in tons						Emissions in MT
DDG-59 - 1 op	0.00	0.00	0.11	0.10	0.06	0.00	24
T-AO-187 - 1 op	0.01	0.01	1.06	0.12	0.08	0.04	29
T-AOT 5419 - 1 op	0.02	0.02	0.75	0.10	0.07	0.03	26
DDG-59 - 18 ops	0.07	0.07	1.95	1.71	1.01	0.08	425
T-AO-187 - 4 ops	0.04	0.04	4.24	0.47	0.31	0.18	117
T-AOT 5419 - 2 ops	0.04	0.04	1.50	0.21	0.14	0.05	52
Annual - ALL MIL	**0.14**	**0.14**	**7.69**	**2.39**	**1.46**	**0.31**	**595**

30-100 nm	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
	Emissions in tons						Emissions in MT
DDG-59 - 1 op	0.01	0.01	0.23	0.20	0.12	0.01	50
T-AO-187 - 1 op	0.02	0.02	2.25	0.25	0.16	0.10	62
T-AOT 5419 - 1 op	0.04	0.04	1.60	0.22	0.15	0.06	56
DDG-59 - 18 ops	0.14	0.14	4.14	3.64	2.15	0.17	903
T-AO-187 - 4 ops	0.07	0.07	9.01	0.99	0.65	0.38	249
T-AOT 5419 - 2 ops	0.09	0.09	3.19	0.44	0.29	0.11	111
Annual - ALL MIL	**0.31**	**0.31**	**16.34**	**5.07**	**3.10**	**0.66**	**1,263**

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
	Emissions in tons						Emissions in MT
Annual MIL Total (0-100 nm)	**0.94**	**0.94**	**43.63**	**13.61**	**5.92**	**1.67**	**3,948**

All Commercial Vessels - Annual

0-3 nm	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
Tanker (Handysize)	0.00	0.00	0.08	0.00	0.01	0.01	4
Tanker (Panamax)	0.02	0.02	1.15	0.04	0.15	0.09	51
Bulk	0.12	0.11	6.05	0.18	0.76	0.45	254
General Cargo	0.03	0.03	1.72	0.05	0.21	0.13	74
Annual - ALL COMM	**0.18**	**0.17**	**9.00**	**0.28**	**1.13**	**0.67**	**383**

	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
Annual COMM Total (0-100 nm)	**0.18**	**0.17**	**9.00**	**0.28**	**1.13**	**0.67**	**383**

Assumptions and Methods

To refine the number of ships that could be accommodated at Pier 12 for fueling each year:
Assuming a 10-hour day, 7 days per week, 50 weeks per year for normal operations = 3,500 hours annually

Military anticipates fueling 24 ships per year under normal operations - assumed a % would be warships, oilers, and tankers

	Total at berth time (per fueling evolution)	Ships per year	Total hrs	
Warship (modeled as a DDG-59)	6	18	108	
Fleet Oiler (modeled as T-AO-187)	20	4	80	List of MSC Oilers: https://www.msc.navy.mil/PM1/
Tanker (model as T-AOT 5419)	35	2	70	List of MSC Tankers: https://www.msc.navy.mil/PM55/
			258	**Total hours annually**

Hours left for commercial fueling at Pier 12	3,242	operating 7 days per week

Assumed the following types of commercial ships could be accommodated at Pier 12
- Bulk
- General Cargo
- Tanker - Handysize
- Tanker - Panamax

Identified surrogate ships of this type in the POLB 2013 Emissions Inventory (had an appendix that listed the OGV information for that year)
(see New Calcs-Background tab, rows 21-37 for the four ships identified)

Type	**General Capacity**	**Approx Time to Fuel @ 6K gal/min (hrs)**
Tanker - Handysize	Cargo capacity (approx range): 224,000-364,800 bbl 9,408,000-15,321,600 gal)	43
Tanker - Panamax	Cargo capacity (approx range): 350,000-500,000 bbl (up to 21,000,000 gal) https://www.britannica.com/technology/tanker	58
Bulk	Bulk carrier of commodities such as grain or coal (500-700 feet): 9,523-19,047 bbl (400,000-800,000 gal)	2
General Cargo	Typ. Oil Bunker Qty for OGV: 50,000-150,000 bbl (2,100,000-6,300,000 gal)	18

Looked at how many of these types of shipped were at the POLB in their 2018 Emissions Inventory:

Vessel Type Distribution (POLB 2018)
2018 POLB EI, pg 7

Vessel Type	**Arr**	**Dep**	**Avg #/2018**
Bulk	202	210	**206**
General Cargo	48	55	**52**
Tanker - Handysize	3	3	**3**
Tanker - Panamax	92	67	**80**
		Annual total	**340**

Used this amount as a starter number for the commercial ships that may visit Pier 12, and adjusted down to match the number of ships that could be accommodated based on the available fueling hours

Operating 7 Days per Week

Type	**# Ships**	**Hrs per evolution**	**Hrs per year**	
Bulk	209	2	418	
General Cargo	53	18	954	
Tanker - Handysize	3	43	129	
Tanker - Panamax	30	58	1740	
Total Commercial Ships	295		3,241	total fueling hours
Total Military Ships	24		258	total military fueling hours
Total Ships per Year	**319**		**3,499**	**(total available per year = 3,500)**

Developed emissions estimates following the methodology provided in the San Pedro Bay Ports Emissions Inventory Methodology Report (Starcrest Consulting 2019)
Detail of calculations is provided in New Cals-Background tab

Referred to POLB's 2013 and 2018 emissions inventories for various information, such as average vessel speeds, distances traveled along shipping routes, to determine the time in each mode (based on the max and average speeds for the surrogate ships selected for modeling).

Calculated the energy (Energy = Load (in kW) x Activity (in hrs)) for each surrogate ship for each mode and time in the various geographical areas: 0-3 nm; 3-12 nm; 12-40 nm; 40-100 nm

Used emissions factors from the San Pedro Bay Ports Emissions Methodology Report.

Used 0.1% Sulfur (S) Marine Gas Oil (MGO) emission factors for 0-3 nm, 3-12 nm, 12-30 nm
(The CARB OGV Fuel Regulation requires the use of marine distillate grade fuel (marine gas oil or marine diesel oil) with a maximum sulfur level of 0.1% while operating auxiliary diesel and diesel-electric engines, main propulsion diesel engines, and auxiliary boilers on ocean-going vessels within Regulated California Waters (all waters within 24 nautical miles of the California baseline).
Used 2.7% S MGO Fuel emission factors for 30-100 nm with a fuel correction factor applied to MGO (0.1)% for 30-100 nm
(While the fuel sulfur limits under the CARB OGV Fuel Regulation and the ECA Regulation are the same (0.1% sulfur), there are provisions in the ECA Regulation that are different from the CARB OGV Fuel Regulation. Examples of provisions in the ECA Regulation that differ from the CARB OGV Fuel Regulation include:
• The ECA is 200 nautical miles from the California shoreline and the United States Coast Guard (USCG) has primary authority for enforcement, while the CARB OGV Fuel Regulation is 24 nautical miles and is enforced by CARB;
• The ECA Regulation allows alternative emissions control technologies such as "scrubbers" to be used, while the CARB OGV Fuel Regulation does not allow compliance via scrubbers; and
• The ECA Regulation requires that a fuel meet the specified percent sulfur requirements (example: ultra-low sulfur fuel oil, ULSFO), while the CARB OGV Fuel Regulation requires that the fuel also meet the specifications for distillate grades (marine gas oil or marine diesel oil).

Tier I emissions factors were used for all commercial ships to be conservative (based on the age of the ships in the 2013 POLB Emissions Inventory, it seemed appropriate)

Note: It is unknown how many of the ships may need harbor craft assists in port, and the emissions are anticipated to be relatively minor within the 0-3 nm range, relative to what was modeled for the commercial vessels. Therefore, these emissions are not modeled and included in the emissions spreadsheet.

Military vessels were modeled using the Navy and MSC Marine Engine Fuel Consumption & Emission Calculator
Emissions were modeled for one visit (transit in, fueling, and transit out), based on the parameters provided in the emissions calculator
Emissions were aggregated for the year by each type of ship (based on the anticipate number of visits) and then divided into the geographical regions to match the commercial emissions modeling

Equation — **E = Energy x EF x FCF** — E = ((MCR * load factor) * time of activity) * EF * FCF — **Don't need fuel correction factor when using the 0.1% sulfur emissions factor from 2019 S — Annex VI regulations include caps on sulfur content of fuel

or — E = Energy x EF x FCF x CF — 0.10% within the SOx ECA for N America (200 nm out)

E - emissions by mode
Energy - Energy demand by mode (kWhr)

Energy formula: **Energy = Load x Activity**

Load - Max Continuous Rated (MCR) propulsion engine power x load factor (KW) — (POLB 2013, p.23) — Propulsion Engine Load Factor - Equation 2.3
or Aux Engine or Aux Boiler — **load factor = (speed-actual/speed-maximum)[3]**
Activity - Time of activity per mode (hours)

EF - emissions factor (g/kWhr)
FCF - fuel correction factor
CF - control factor emissions reduction tech

NOAA LINK: https://response.restoration.noaa.gov/about/media/how-much-oil-ship.html
Fuel stowed onbaord to power ship engines is typically called "bunker fuel"...Typical bunker oil quantities for oceangoing ships are 50,000 to 150,000 bbl (2,100,000 to 6,300,000 gals)

*assume 2 weeks downtime for maintenance

10 hrs/day — 7 days/week — 50 weeks/year — **3,500** hours annually

	Tanker - Handysize	Tanker - Panamax	Bulk	General Cargo
Notes	Cargo capacity (approx range): 224,000-364,800 bbl 9,408,000-15,321,600 gal)	Cargo capacity (approx range): 350,000-500,000 bbl (up to 21,000,000 gal) https://www.britannica.com/technology/tanker	Ref: NOAA LINK. Bulk carrier of commodities such as grain or coal (500-700 feet): 9,523-19,047 bbl (400,000-800,000 gal)	Ref: NOAA LINK. Typ. Oil Bunker Qty for OGV: 50,000-150,000 bbl (2,100,000-6,300,000 gal)
Approx time to fuel @6,000 gal/min: Min	2,554	3,500	133	1050
Hrs	43	58	2	18
	TANKER INFO	TANKER INFO	**BULK INFO**	**GENERAL CARGO**
Type	**Tanker - Handysize**	**Tanker - Panamax**	Bulk	General Cargo
ID	TNH00679	TNP00308	BBB00733	GCC00216
Model Year	2008 (TIER I)	2010 (TIER I)	2011 (TIER I)	2012 (TIER II)
Flag / Country	PAN	LBR	PAN	BHS
DWT	48006	74581	78228	72800
Max Speed	15.1 knots	14.5 knots	14.5 knots	14.5 knots
Aux	2328 kW	4468 kW	1793 kW	3255 kW
Aux Slide Valve	N	N	N	N
Auxiliary Boiler	371 kW	371 kW	132 kW	137 kW
Aux Boiler Slide Valve	N	N	N	N
Main	9480 kW	13560 kW	9170 kW	9450 kW
Main Slide Valve	Y	N	N	N
Propulsion Engine LF within BW- inbound (Avg speed)	0.0363 0-3 nm	0.0410 0-3 nm	0.0410 0-3 nm	0.0410 0-3 nm
Propulsion Engine LF within BW - outbound (Avg speed)	0.1487 0-3 nm	0.1679 0-3 nm	0.1679 0-3 nm	0.1679 0-3 nm
Propulsion Engine LF in PZ (Avg speed)	0.2117 3-12 nm	0.2391 3-12 nm	0.2391 3-12 nm	0.2391 3-12 nm
Propulsion Engine LF VSR (12 knots) out to 40 nm	0.5019 12-40 nm	0.5668 12-40 nm	0.5668 12-40 nm	0.5668 12-40 nm
LF during transit	0.8306 40-100 nm	0.8306 40-100 nm	0.8306 40-100 nm	0.8306 40-100 nm

(USEPA 2009, p.2-9): Table 2-5: Vessel Movements and Time-In-Mode Descriptions within the MEPA Areas
Time at service speed (also called sea speed or normal cruising speed) usually considered to be **94 percent of maximum speed** and 83 percent of MCR.

Vessel Type Distribution (POLB 2018)
2018 POLB EI, pg 7

Vessel Type	Arr	Dep	**Avg #/2018**	% of total	# SHIPS	HRS/evolution	Hrs per year
Bulk	202	210	**206**	61%	206	2	458
General Cargo	48	55	**52**	15%	52	18	910
Tanker - Handysize	3	3	**3**	1%	3	43	128
Tanker - Panamax	92	67	**80**	23%	80	58	4667
		Annual total	**340**		341		6162
		MIL SHIPS	24				3242 Available hours for fueling
							2920 OVER

under normal ops (7 days a week)

	# SHIPS	HRS/evolution	Hrs per year
Bulk	**209**	2	418
General Cargo	**53**	18	954
Tanker - Handysize	**3**	43	129
Tanker - Panamax (lowered number to match hours avail for fueling)	**30**	58	1740
comm ships	295		3241 total fueling hours
mil ships	24		3242 Available hours for fueling
Total ships per year	**319**		

(Starcrest 2019, pg 9) 2.5 Propulsion Engine Load Factor $LF = (SpeedActual\ /\ SpeedMaximum)^3$

(POLB 2013, p.18) Vessel speeds in the Precautionary Zone are not provided by MarEx (see section 2.5.3 for assigned Precautionary Zone speeds by vessel type); however, USCG regulation limits vessel speeds within the Precautionary Zone to 12 knots.[9]

(POLB 2013, p.23) Average vessel speeds in the precautionary zone by vessel type are presented in Table 2.4.

Vessel Type	Vessel Class	Avg Speed (knots)
Bulk	Slow	9
General Cargo	Slow	9
Tanker	Slow	9

(POLB 2013, p.26-30): **2.5.5 Propulsion Engines Low Load Emission Factors**
When vessels travel at slower speeds, such as when traveling in the VSR zone or maneuvering in the harbor, the diesel propulsion engines operate at lower loads, therefore less efficiently.
Table 2.9 lists the low-load adjustment multipliers for diesel propulsion engines operating in low load engine conditions. The emission factors for N2O and CH4 were adjusted based on the NOx
and HC low load adjustments, respectively. **The LLA is not applied at engine loads greater than 20%.** For propulsion engine loads below 20%, the LLA increases, reflecting the increased emission rates due to decreased engine efficiency. Low load emission factors are not applied to steamships or ships that have gas turbines because according to the EEAI study, the increase in emissions rates at low loads was only observed from diesel engines operating at slow speeds.

2.5.6 Propulsion Engine Harbor Maneuvering Loads
Propulsion engine loads for vessels operating within a harbor tend to be very low, especially on inbound trips when the propulsion engines are off for periods of time as the vessels are reducing speed and being maneuvered to their berths

Vessel Type	Vessel Class	Inbound Avg Speed (knots)	Outbound Avg Speed (knots)	
Bulk	Slow	5	8	**Within breakwater
General Cargo	Slow	5	8	
Tanker	Slow	5	8	

(POLB 2014, p.A-7) Vessel Speed Reduction Program: **OGV1 continues and expands the VSR program by continuing the 12-knot VSR zone between Point Fermin and the 20 nm distance, and expanding it to 40 nm from Point Fermin**. There are three primary implementation approaches for this measure: 1) continuation of the voluntary program, 2) incorporation of VSR requirements in new leases, and 3) CARB's VSR strategy. Parallel to the voluntary, incentive based strategies, compliance with the VSR program to 40 nm from Point Fermin will be negotiated into new and re-negotiated lease requirements.

There are four primary shipping routes into the Port as designated by Marine Exchange of Southern California (MarEx).[6] The North route is typically used in West Coast United States/Canada and trans-Pacific voyages, the East route is used in transits to and from El Segundo Bay, the South route is used in Central/South American and Oceania voyages, and the West route is used in Hawaiian and eastern Oceania voyages. Each route is comprised of an inbound and an outbound lane, which separate vessel traffic arriving and departing the Port. The distances of these routes from the outer edge of the precautionary zone (PZ) to the over-water boundary and the distances of these routes from the breakwater (BW) to the outer edge of the PZ are listed in Table 1.1. These distances represent average distances traveled by ships on each route.[6]

Table 1-1 (POLB 2013) Table 1.1: Avg Route Distances, nm

	PZ to Boundary		BW to PZ	
Shipping Route	**Inbound**	**Outbound**	**Inbound**	**Outbound**
Northern	43.3	42.4	9.5	10
Western	40	50	9.9	9.9
Southern	31.3	32.5	8	8.3
Eastern	25.7	25.7	9.5	9.5

*Use 10 nm inbound/outbound from BW to PZ

Table 2.5 (POLB 2018) 2018 Avg Aux Engine Load Defaults by Mode, kW

Vessel	Transit	Maneuvering	At Berth Hotelling
Bulk	313	822	210
Gen Cargo	421	1060	572
Tanker-Handy	559	768	605
Tanker-Pan	596	801	679

	Load Factor		
Aux Eng kW	**Transit**	**Maneuvering**	**At Berth Hotelling**
1793	0.17	0.46	0.12
3255	0.13	0.33	0.18
2328	0.24	0.33	0.26
4468	0.13	0.18	0.15

Table 2.8 (POLB 2018) 2018 Avg Aux Boiler Load Defaults by Mode, kW

Vessel	Transit	Maneuvering	At Berth Hotelling
Bulk	35	94	125
Gen Cargo	56	124	160
Tanker-Handy	144	144	2586
Tanker-Pan	167	351	3421

From google maps - Pier 12 to breakwater is approximately 1.75 nm

Energy = Load (in kW) x Activity (in hrs)

knot = 1 nm/hour
Time (Activity) = Distance/Speed

SCAQMD Requested Emissions Breakdown: distance from shore; 0-3, 3-12, 12-30 and 30-100nm
Activity by area:

Equation **Emissions = Energy x EF x FCF**
Energy = Load x Activity
Load - Max Continuous Rated (MCR) propulsion engine power x load factor (KW), or reported auxiliary engine(s) operational load by mode i, kW; or auxiliary boiler operational load by mode i, kW

Activity - Time of activity per mode (hours)

0-3 nm (Fueling)	At berth, maneuvering (restricted waters) - avg speed 9 knots				/evolution	/evolution
Fueling evolution time (at berth)	/evolution	/year			**Energy - Auxillary Engine**	**Energy - Auxillary Boiler**
Tanker (Handimax)	43 hrs	129		Tanker (Handimax)	0 kWh	0 kWh
Tanker (Panamax)	58 hrs	1740		Tanker (Panamax)	0 kWh	0 kWh
Bulk	2 hrs	418		Bulk	0 kWh	0 kWh
General Cargo	18 hrs	954	3241	General Cargo	0 kWh	0 kWh
Destroyer (DDG-59)	6 hrs	108				
Oiler (USNS Henry J. Kaiser ((T-AO-187))	20 hrs	80				
T-5 Tankers (MT SLNC Goodwill (T-AOT 5419))	35 hrs	70	258			
			3499	(total fueling hours per year (max assumed 3,500)		

**For emissions modeling, assume fueling time at berth is already captured in other Port emissions.

0-3 nm	avg spd 9 knots			**Energy - Propulsion (Main) Engine**		**Energy - Auxillary Engine**		**Energy - Auxillary Boiler**	
All commercial vessels (0-3 nm)	0.44 hrs		Tanker (Handy)	inbound	153 kWh	inbound	341.3333 kWh	inbound	64 kWh
**Assume an average of 4 NM per shift from a different berth in POLB/POLA. Travel distance occurs within 0-3 nm of shore			Tanker (Handy)	outbound	627 kWh	outbound	341.3333 kWh	outbound	64 kWh
			Tanker (Panamax)	inbound	247 kWh	inbound	356 kWh	inbound	156 kWh
			Tanker (Panamax)	outbound	1,012 kWh	outbound	356 kWh	outbound	156 kWh
			Bulk	inbound	167 kWh	inbound	365.3333 kWh	inbound	42 kWh
			Bulk	outbound	684 kWh	outbound	365.3333 kWh	outbound	42 kWh
			Gen Cargo	inbound	172 kWh	inbound	471 kWh	inbound	55 kWh
			Gen Cargo	outbound	705 kWh	outbound	471 kWh	outbound	55 kWh
Destroyer (Maneuver/restricted waters)	0.27 hrs	0.55 hrs - in/out							
Oiler (Maneuver/restricted waters)	0.33 hrs	0.67 hrs - in/out							
Tanker (Maneuver/restricted waters)	0.33 hrs	0.67 hrs - in/out							

3-12 nm	avg spd 9 knots		**Energy - Propulsion (Main) Engine**	**Energy - Auxillary Engine**	**Energy - Auxillary Boiler**
Destroyer (Maneuver/restricted waters)	0.82 hrs	1.64 hrs - in/out			
Oiler (Maneuver/restricted waters)	1.00 hrs	2.00 hrs - in/out			
Tanker (Maneuver/restricted waters)	1.00 hrs	2.00 hrs - in/out			

12-30 nm	avg spd 12 knots	
Destroyer (Underway)	0.6 hrs	1.20 hrs - in/out
Oiler (Underway)	0.9 hrs	1.80 hrs - in/out
Tanker (Underway)	1.2 hrs	2.40 hrs - in/out

30-100 nm	avg spd 12 knots (30-40 nm) max speed (40-100 nm)	
Destroyer (Underway, 30-100 nm)	2.33 hrs	4.67 hrs in/out
Oiler (Underway)	3.50 hrs	7.00 hrs in/out
Tanker (Underway)	4.67 hrs	9.33 hrs in/out

Military Ships/Vessels **Used MSC to calc emissions for MIL vessels/ships

Destroyer (DDG-59, USS Russell) - 6 hours to refuel (from proof of concept timeline provided for EA - barge arrived at 1135, underway at 1800, rounded up)
Underway speed (up to 30 knots) - Wikipedia, couldn't find a better source
Maneuvering speed - assume fast vessel class average speed in PZ = 11 knots (Starcrest Consulting Group 2019, p.10)

Total at berth time (fueling):	6	hr	per fueling evolution
Total maneuvering time:	2.2	hr	
Total underway time:	5.9	hr	
Total at berth time (fueling):	108	hr	per year (18 visits)
Total maneuvering time:	39.3	hr	
Total underway time:	105.6	hr	

Oiler (USNS Henry J. Kaiser ((T-AO-187))
Underway speed (20 knots) https://www.msc.navy.mil/inventory/ships.php?ship=109
Maneuvering speed - assume slow vessel class average speed in PZ = 9 knots (Starcrest Consulting Group 2019, p.10)

Total at berth time (fueling):	20	hr	per fueling evolution
Total restricted waters (maneuvering) time:	2.7	hr	
Total underway time:	8.8	hr	
Total at berth time (fueling):	80	hr	per year (4 visits)
Total restricted waters (maneuvering) time:	10.7	hr	
Total underway time:	35.2	hr	

T-5 Tanker (MT SLNC Goodwill (T-AOT 5419)
Underway speed (15 knots) https://www.msc.navy.mil/inventory/ships.php?ship=207
Maneuvering speed - assume slow vessel class average speed in PZ = 9 knots (Starcrest Consulting Group 2019, p.10)

Total at berth time (fueling):	35	per fueling evolution
Total restricted waters (maneuvering) time:	2.7	
Total underway time:	11.7	
Total at berth time (fueling):	70	per year (2 visits)
Total maneuvering time:	5.3	
Total underway time:	23.5	

TOTAL HOURS FOR MIL FUELING (normal ops)
258
3,242 <<max left for commercial fueling (7 days per week)

(Starcrest Consulting 2019, p.13)

Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh

Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh

Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**15.98**	**0.389**	**1.4**	**0.6**	**589**	**0.029**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	0.255	0.24	0.255	14.38	0.389	1.4	0.6	589	0.029	0.012

(Starcrest Consulting 2019, p.13)

Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh

Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh

Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**17**	**10.5**	**1.4**	**0.6**	**620**	**0.031**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	1.5	1.2	1.5	15.3	10.5	1.4	0.6	620	0.031	0.012

(Starcrest Consulting 2019, p.12)

Table 2.2: Table 2.2: Fuel Correction Factors for Ocean Going Vessels, Dimensionless

Baseline Fuel and %S	Used Fuel and % S	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
HFO (2.7%)	MGO (0.1%)	0.17	0.2	0.17	0.94	0.0037	1	1	0.95	0.94	1

(Starcrest Consulting 2019, p.26-27)

Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr

Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr

Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**12.22**	**0.455**	**1.4**	**0.6**	**686**	**0.029**	**0.012**
Medium speed aux	Tier II	2011 to 2016	0.255	0.24	0.255	10.53	0.455	1.4	0.6	686	0.029	0.012

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.26-27)

Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr

Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr

Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**13**	**12.3**	**1.1**	**0.4**	**722**	**0.031**	**0.008**
Medium speed aux	Tier II	2011 to 2016	1.5	1.2	1.5	11.2	12.3	1.1	0.4	722	0.031	0.008

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.28)

Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr

Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr

Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.136	0.128	0	1.97	0.611	0.2	NA	922	0.075	0.002

(Starcrest Consulting 2019, p.28)

Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr

Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr

Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.8	0.64	0	2.1	16.5	0.2	NA	970	0.08	0.002

(Starcrest Consulting 2019, p.16)

Table 2.6: Low Load Adjustment Multipliers for Emission Factors

Load	PM	NOx	SO2	CO	VOC	CO2	N2O	CH4	
2%	7.29	4.63	3.30	9.68	21.18	3.28	4.63	21.18	
3%	4.33	2.92	2.45	6.46	11.68	2.44	2.92	11.68	**Applies to: 2-stroke (slow speed) non-MAN diesel propulsion engines
4%	3.09	2.21	2.02	4.86	7.71	2.01	2.21	7.71	Tanker (Handisize) in - 0-3 nm
5%	2.44	1.83	1.77	3.89	5.61	1.76	1.83	5.61	
6%	2.04	1.60	1.60	3.25	4.35	1.59	1.60	4.35	
7%	1.79	1.45	1.47	2.79	3.52	1.47	1.45	3.52	
8%	1.61	1.35	1.38	2.45	2.95	1.38	1.35	2.95	
9%	1.48	1.27	1.31	2.18	2.52	1.31	1.27	2.52	
10%	1.38	1.22	1.26	1.96	2.18	1.25	1.22	2.18	
11%	1.30	1.17	1.21	1.79	1.96	1.21	1.17	1.96	
12%	1.24	1.14	1.17	1.64	1.76	1.17	1.14	1.76	
13%	1.19	1.11	1.14	1.52	1.60	1.14	1.11	1.60	
14%	1.15	1.08	1.11	1.41	1.47	1.11	1.08	1.47	
15%	1.11	1.06	1.09	1.32	1.36	1.08	1.06	1.36	Tanker (Handisize) out - 0-3 nm
16%	1.08	1.05	1.06	1.24	1.26	1.06	1.05	1.26	
17%	1.06	1.03	1.05	1.17	1.18	1.04	1.03	1.18	
18%	1.04	1.02	1.03	1.11	1.11	1.03	1.02	1.11	
19%	1.02	1.01	1.01	1.05	1.05	1.01	1.01	1.05	
20%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Tanker (Panamax) in/out - load factor over 20%, adustment - 1.0)
									3-12 nm; 12-30 nm; 30-100 nm

Energy (cacluated on New Calcs Sheet) (/evolution)

		Energy - Propulsion (Main) Engine			Energy - Auxillary Engine		Energy - Auxillary Boiler	
0-3 nm	inbound	153	kWh	inbound	341.333	kWh	64	kWh
	outbound	627	kWh	outbound	341.333	kWh	64	kWh

(Starcrest Consulting 2019, p.5)

CO2	1
CH4	25
N2O	298

E = (Energy) * EF * FCF *Note - no fuel conversion factor needed until past 24 nm (rounded to the 30 nm segement for this analysis)

0-30 nm: use emissions factors for 0.1% MGO emissions factor , as required by CARB / past 30 nm: use 2.7% S emissions factor with FCF

Emissions per Tanker (Handisize) fueling operation (shift)

Note: HC emissions are multiplied by 1.15 to convert to VOC
^

0-3 nm

Propulsion

	Emissions in grams								
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	120.53	113.44	5402.24	120.20	1040.80	813.78	181099.12	9.80	14.15
out	177.35	166.92	10613.23	265.67	1157.89	587.97	398569.43	19.26	10.23

	Emissions in lbs									
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.27	0.25	11.91	0.26	2.29	1.79	399.25	0.02	0.03	406.48
out	0.39	0.37	23.40	0.59	2.55	1.30	878.69	0.04	0.02	891.91

	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
in	0.00013	0.00013	0.00595	0.00013	0.00115	0.00090	0.18
out	0.00020	0.00018	0.01170	0.00029	0.00128	0.00065	0.40

AUX

	Emissions in grams								
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	87.04	81.92	4171.09	155.31	477.87	235.52	234154.67	9.90	4.10
out	87.04	81.92	4171.09	155.31	477.87	235.52	234154.67	9.90	4.10

	Emissions in lbs									
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.19	0.18	9.20	0.34	1.05	0.52	516.22	0.02	0.01	522.95
out	0.19	0.18	9.20	0.34	1.05	0.52	516.22	0.02	0.01	522.95

	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
in	0.00010	0.00009	0.00460	0.00017	0.00053	0.00026	0.24
out	0.00010	0.00009	0.00460	0.00017	0.00053	0.00026	0.24

AUX Boiler

	Emissions in grams								
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	8.70	8.19	126.08	39.10	12.80	0.00	59008.00	4.80	0.13
out	8.70	8.19	126.08	39.10	12.80	0.00	59008.00	4.80	0.13

	Emissions in lbs									
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.02	0.02	0.28	0.09	0.03	0.00	130.09	0.01	0.00	133.25
out	0.02	0.02	0.28	0.09	0.03	0.00	130.09	0.01	0.00	133.25

	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
in	0.00001	0.00001	0.00014	0.00004	0.00001	0.00000	0.06
out	0.00001	0.00001	0.00014	0.00004	0.00001	0.00000	0.06

0-3 nm	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
1 op	0.00	0.00	0.03	0.00	0.00	0.00	1
Annual (3 ops)	0.00	0.00	0.08	0.00	0.01	0.01	4

Double check total - 1 op>	0.00	0.00	0.03	0.00	0.00	0.00	1
Double check total - 3 ops per year>	0.00	0.00	0.08	0.00	0.01	0.01	4

	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
Total per operation (0-100 nm)	0.00	0.00	0.03	0.00	0.00	0.00	1
Annual total (3 operations (0-100 nm)	0.00	0.00	0.08	0.00	0.01	0.01	4

(Starcrest Consulting 2019, p.13)
Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**15.98**	**0.389**	**1.4**	**0.6**	**589**	**0.029**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	0.255	0.24	0.255	14.38	0.389	1.4	0.6	589	0.029	0.012

(Starcrest Consulting 2019, p.13)
Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**17**	**10.5**	**1.4**	**0.6**	**620**	**0.031**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	1.5	1.2	1.5	15.3	10.5	1.4	0.6	620	0.031	0.012

(Starcrest Consulting 2019, p.12)
Table 2.2: Table 2.2: Fuel Correction Factors for Ocean Going Vessels, Dimensionless

Baseline Fuel and %S	Used Fuel and % S	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
HFO (2.7%)	MGO (0.1%)	0.17	0.2	0.17	0.94	0.0037	1	1	0.95	0.94	1

(Starcrest Consulting 2019, p.26-27)
Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr
Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**12.22**	**0.455**	**1.4**	**0.6**	**686**	**0.029**	**0.012**
Medium speed aux	Tier II	2011 to 2016	0.255	0.24	0.255	10.53	0.455	1.4	0.6	686	0.029	0.012

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.26-27)
Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr
Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**13**	**12.3**	**1.1**	**0.4**	**722**	**0.031**	**0.008**
Medium speed aux	Tier II	2011 to 2016	1.5	1.2	1.5	11.2	12.3	1.1	0.4	722	0.031	0.008

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.28)
Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr
Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.136	0.128	0	1.97	0.611	0.2	NA	922	0.075	0.002

(Starcrest Consulting 2019, p.28)
Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr
Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.8	0.64	0	2.1	16.5	0.2	NA	970	0.08	0.002

(Starcrest Consulting 2019, p.16)
Table 2.6: Low Load Adjustment Multipliers for Emission Factors

Load	PM	NOx	SO2	CO	VOC	CO2	N2O	CH4	
2%	7.29	4.63	3.30	9.68	21.18	3.28	4.63	21.18	
3%	4.33	2.92	2.45	6.46	11.68	2.44	2.92	11.68	**Applies to: 2-stroke (slow speed) non-MAN diesel propulsion engines
4%	3.09	2.21	2.02	4.86	7.71	2.01	2.21	7.71	Tanker (Panamax) in - 0-3 nm
5%	2.44	1.83	1.77	3.89	5.61	1.76	1.83	5.61	
6%	2.04	1.60	1.60	3.25	4.35	1.59	1.60	4.35	
7%	1.79	1.45	1.47	2.79	3.52	1.47	1.45	3.52	
8%	1.61	1.35	1.38	2.45	2.95	1.38	1.35	2.95	
9%	1.48	1.27	1.31	2.18	2.52	1.31	1.27	2.52	
10%	1.38	1.22	1.26	1.96	2.18	1.25	1.22	2.18	
11%	1.30	1.17	1.21	1.79	1.96	1.21	1.17	1.96	
12%	1.24	1.14	1.17	1.64	1.76	1.17	1.14	1.76	
13%	1.19	1.11	1.14	1.52	1.60	1.14	1.11	1.60	
14%	1.15	1.08	1.11	1.41	1.47	1.11	1.08	1.47	
15%	1.11	1.06	1.09	1.32	1.36	1.08	1.06	1.36	
16%	1.08	1.05	1.06	1.24	1.26	1.06	1.05	1.26	
17%	1.06	1.03	1.05	1.17	1.18	1.04	1.03	1.18	Tanker (Panamax) out - 0-3 nm
18%	1.04	1.02	1.03	1.11	1.11	1.03	1.02	1.11	
19%	1.02	1.01	1.01	1.05	1.05	1.01	1.01	1.05	
20%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Tanker (Handisize) in/out - load factor over 20%, adustment - 1.0) 3-12 nm; 12-30 nm; 30-100 nm

Energy (cacluated on New Calcs Sheet) (/evolution)

		Energy - Propulsion (Main) Engine		Energy - Auxillary Engine		Energy - Auxillary Boiler
0-3 nm	inbound	247 kWh	inbound	356 kWh	inbound	156 kWh
	outbound	1,012 kWh	outbound	356 kWh	outbound	156 kWh

E = (Energy) * EF * FCF *Note - no fuel conversion factor needed until past 24 nm (rounded to the 30 nm segement for this analysis)
0-30 nm: use emissions factors for 0.1% MGO emissions factor , as required by CARB / past 30 nm: use 2.7% S emissions factor with FCF

(Starcrest Consulting 2019, p.5)

CO_2	1
CH_4	25
N_2O	298

Emissions per Tanker (Panamax) fueling operation (in and out)

Note: HC emissions are multiplied by 1.15 to convert to VOC
^

0-3 nm

Propulsion – Emissions in grams

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	194.71	183.25	8726.74	194.17	1681.31	1314.58	292546.25	15.84	22.86
out	273.58	257.49	16659.31	413.41	1657.90	824.09	620000.10	30.23	14.33

Propulsion – Emissions in lbs

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.43	0.40	19.24	0.43	3.71	2.90	644.95	0.03	0.05	656.62
out	0.60	0.57	36.73	0.91	3.66	1.82	1366.86	0.07	0.03	1387.52

Propulsion – Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
in	0.00021	0.00020	0.00962	0.00021	0.00185	0.00145	0.29784
out	0.00030	0.00028	0.01836	0.00046	0.00183	0.00091	0.62937

AUX – Emissions in grams

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	90.78	85.44	4350.32	161.98	498.40	245.64	244216.00	10.32	4.27
out	90.78	85.44	4350.32	161.98	498.40	245.64	244216.00	10.32	4.27

AUX – Emissions in lbs

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.20	0.19	9.59	0.36	1.10	0.54	538.40	0.02	0.01	545.42
out	0.20	0.19	9.59	0.36	1.10	0.54	538.40	0.02	0.01	545.42

AUX – Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
in	0.00010	0.00009	0.00480	0.00018	0.00055	0.00027	0.24740
out	0.00010	0.00009	0.00480	0.00018	0.00055	0.00027	0.24740

AUX Boiler – Emissions in grams

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	21.22	19.97	307.32	95.32	31.20	0.00	143832.00	11.70	0.31
out	21.22	19.97	307.32	95.32	31.20	0.00	143832.00	11.70	0.31

AUX Boiler – Emissions in lbs

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.05	0.04	0.68	0.21	0.07	0.00	317.09	0.03	0.00	324.80
out	0.05	0.04	0.68	0.21	0.07	0.00	317.09	0.03	0.00	324.80

AUX Boiler – Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
in	0.00002	0.00002	0.00034	0.00011	0.00003	0.00000	0.14733
out	0.00002	0.00002	0.00034	0.00011	0.00003	0.00000	0.14733

0-3 nm – Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
1 op	0.00	0.00	0.04	0.00	0.00	0.00	2
Annual (30 ops)	0.02	0.02	1.15	0.04	0.15	0.09	51

Double check total - 1 op>	0.00	0.00	0.04	0.00	0.00	0.00	2
Double check total - 30 ops per year>	0.02	0.02	1.15	0.04	0.15	0.09	51

Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
Total per operation (0-100 nm)	0.00	0.00	0.04	0.00	0.00	0.00	2
Annual total (30 operations (0-100 nm)	0.02	0.02	1.15	0.04	0.15	0.09	51

(Starcrest Consulting 2019, p.13)
Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**15.98**	**0.389**	**1.4**	**0.6**	**589**	**0.029**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	0.255	0.24	0.255	14.38	0.389	1.4	0.6	589	0.029	0.012

(Starcrest Consulting 2019, p.13)
Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**17**	**10.5**	**1.4**	**0.6**	**620**	**0.031**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	1.5	1.2	1.5	15.3	10.5	1.4	0.6	620	0.031	0.012

(Starcrest Consulting 2019, p.12)
Table 2.2: Table 2.2: Fuel Correction Factors for Ocean Going Vessels, Dimensionless

Baseline Fuel and %S	Used Fuel and % S	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
HFO (2.7%)	MGO (0.1%)	0.17	0.2	0.17	0.94	0.0037	1	1	0.95	0.94	1

(Starcrest Consulting 2019, p.26-27)
Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr
Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**12.22**	**0.455**	**1.4**	**0.6**	**686**	**0.029**	**0.012**
Medium speed aux	Tier II	2011 to 2016	0.255	0.24	0.255	10.53	0.455	1.4	0.6	686	0.029	0.012

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.26-27)
Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr
Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**13**	**12.3**	**1.1**	**0.4**	**722**	**0.031**	**0.008**
Medium speed aux	Tier II	2011 to 2016	1.5	1.2	1.5	11.2	12.3	1.1	0.4	722	0.031	0.008

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.28)
Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr
Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.136	0.128	0	1.97	0.611	0.2	NA	922	0.075	0.002

(Starcrest Consulting 2019, p.28)
Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr
Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.8	0.64	0	2.1	16.5	0.2	NA	970	0.08	0.002

(Starcrest Consulting 2019, p.16)
Table 2.6: Low Load Adjustment Multipliers for Emission Factors

Load	PM	NOx	SO2	CO	VOC	CO2	N2O	CH4	
2%	7.29	4.63	3.30	9.68	21.18	3.28	4.63	21.18	
3%	4.33	2.92	2.45	6.46	11.68	2.44	2.92	11.68	**Applies to: 2-stroke (slow speed) non-MAN diesel propulsion engines
4%	3.09	2.21	2.02	4.86	7.71	2.01	2.21	7.71	Bulk in - 0-3 nm
5%	2.44	1.83	1.77	3.89	5.61	1.76	1.83	5.61	
6%	2.04	1.60	1.60	3.25	4.35	1.59	1.60	4.35	
7%	1.79	1.45	1.47	2.79	3.52	1.47	1.45	3.52	
8%	1.61	1.35	1.38	2.45	2.95	1.38	1.35	2.95	
9%	1.48	1.27	1.31	2.18	2.52	1.31	1.27	2.52	
10%	1.38	1.22	1.26	1.96	2.18	1.25	1.22	2.18	
11%	1.30	1.17	1.21	1.79	1.96	1.21	1.17	1.96	
12%	1.24	1.14	1.17	1.64	1.76	1.17	1.14	1.76	
13%	1.19	1.11	1.14	1.52	1.60	1.14	1.11	1.60	
14%	1.15	1.08	1.11	1.41	1.47	1.11	1.08	1.47	
15%	1.11	1.06	1.09	1.32	1.36	1.08	1.06	1.36	
16%	1.08	1.05	1.06	1.24	1.26	1.06	1.05	1.26	
17%	1.06	1.03	1.05	1.17	1.18	1.04	1.03	1.18	Bulk out - 0-3 nm
18%	1.04	1.02	1.03	1.11	1.11	1.03	1.02	1.11	
19%	1.02	1.01	1.01	1.05	1.05	1.01	1.01	1.05	
20%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Tanker (Handisize) in/out - load factor over 20%, adustment - 1.0)

3-12 nm; 12-30 nm; 30-100 nm

Energy (cacluated on New Calcs Sheet) (/evolution)

		Energy - Propulsion (Main) Engine		Energy - Auxillary Engine		Energy - Auxillary Boiler
0-3 nm	inbound	167 kWh	inbound	365.333 kWh	inbound	42 kWh
	outbound	684 kWh	outbound	365.333 kWh	outbound	42 kWh

E = (Energy) * EF * FCF *Note - no fuel conversion factor needed until past 24 nm (rounded to the 30 nm segement for this analysis)
0-30 nm: use emissions factors for 0.1% MGO emissions factor , as required by CARB / past 30 nm: use 2.7% S emissions factor with FCF

(Starcrest Consulting 2019, p.5)

CO2	1
CH4	25
N2O	298

Emissions per Bulk fueling operation (in and out)

Note: HC emissions are multiplied by 1.15 to convert to VOC
^

0-3 nm

Propulsion — Emissions in grams

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	131.67	123.93	5901.49	131.31	1136.99	888.99	197835.48	10.71	15.46
out	185.01	174.13	11265.92	279.57	1121.16	557.29	419277.35	20.45	9.69

Propulsion — Emissions in lbs

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.29	0.27	13.01	0.29	2.51	1.96	436.15	0.02	0.03	444.04
out	0.41	0.38	24.84	0.62	2.47	1.23	924.35	0.05	0.02	938.31

Propulsion — Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
in	0.00015	0.00014	0.00651	0.00014	0.00125	0.00098	0.20
out	0.00020	0.00019	0.01242	0.00031	0.00124	0.00061	0.43

AUX — Emissions in grams

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	93.16	87.68	4464.37	166.23	511.47	252.08	250618.67	10.59	4.38
out	93.16	87.68	4464.37	166.23	511.47	252.08	250618.67	10.59	4.38

AUX — Emissions in lbs

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.21	0.19	9.84	0.37	1.13	0.56	552.52	0.02	0.01	559.72
out	0.21	0.19	9.84	0.37	1.13	0.56	552.52	0.02	0.01	559.72

AUX — Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
in	0.00010	0.00010	0.00492	0.00018	0.00056	0.00028	0.25
out	0.00010	0.00010	0.00492	0.00018	0.00056	0.00028	0.25

AUX Boiler — Emissions in grams

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4
in	5.68	5.35	82.30	25.53	8.36	0.00	38519.11	3.13	0.08
out	5.68	5.35	82.30	25.53	8.36	0.00	38519.11	3.13	0.08

AUX Boiler — Emissions in lbs

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2	N2O	CH4	CO2e
in	0.01	0.01	0.18	0.06	0.02	0.00	84.92	0.01	0.00	86.98
out	0.01	0.01	0.18	0.06	0.02	0.00	84.92	0.01	0.00	86.98

AUX Boiler — Emissions in tons / Emissions in MT

	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e (MT)
in	0.00001	0.00001	0.00009	0.00003	0.00001	0.00000	0.04
out	0.00001	0.00001	0.00009	0.00003	0.00001	0.00000	0.04

0-3 nm	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
1 op	0.00	0.00	0.03	0.00	0.00	0.00	1
Annual (209 ops)	0.12	0.11	6.05	0.18	0.76	0.45	254

Double check total - 1 op>	0.00	0.00	0.03	0.00	0.00	0.00	1
Double check total - 209 ops per year>	0.12	0.11	6.05	0.18	0.76	0.45	254

	Emissions in tons						Emissions in MT
	PM10	PM2.5	NOx	SOx	CO	VOC	CO2e
Total per operation (0-100 nm)	0.00	0.00	0.03	0.00	0.00	0.00	1
Annual total (209 operations (0-100 nm)	0.12	0.11	6.05	0.18	0.76	0.45	254

(Starcrest Consulting 2019, p.13)

Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**15.98**	**0.389**	**1.4**	**0.6**	**589**	**0.029**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	0.255	0.24	0.255	14.38	0.389	1.4	0.6	589	0.029	0.012

(Starcrest Consulting 2019, p.13)

Table 2.3: Pollutant Emission Factors for Diesel Propulsion and Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Table 2.4: GHG Emission Factors for Diesel Propulsion, Steam (Boiler) Propulsion and Gas Turbine Engines, g/kWh
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Slow speed propulsion	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**17**	**10.5**	**1.4**	**0.6**	**620**	**0.031**	**0.012**
Slow speed propulsion	Tier II	2011 to 2016	1.5	1.2	1.5	15.3	10.5	1.4	0.6	620	0.031	0.012

(Starcrest Consulting 2019, p.12)

Table 2.2: Table 2.2: Fuel Correction Factors for Ocean Going Vessels, Dimensionless

Baseline Fuel and %S	Used Fuel and % S	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
HFO (2.7%)	MGO (0.1%)	0.17	0.2	0.17	0.94	0.0037	1	1	0.95	0.94	1

(Starcrest Consulting 2019, p.26-27)

Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr
Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**0.255**	**0.24**	**0.255**	**12.22**	**0.455**	**1.4**	**0.6**	**686**	**0.029**	**0.012**
Medium speed aux	Tier II	2011 to 2016	0.255	0.24	0.255	10.53	0.455	1.4	0.6	686	0.029	0.012

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.26-27)

Table 2.9: Pollutant Emission Factors for Auxiliary Engines, g/kW-hr
Table 2.10: GHG Emission Factors for Auxiliary Engines, g/kW-hr
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Medium speed aux	**Tier I**	**2000 to 2011**	**1.5**	**1.2**	**1.5**	**13**	**12.3**	**1.1**	**0.4**	**722**	**0.031**	**0.008**
Medium speed aux	Tier II	2011 to 2016	1.5	1.2	1.5	11.2	12.3	1.1	0.4	722	0.031	0.008

*Medium speed diesel engines (most common), having maximum engine speeds over 130 rpm (typically greater than 400 rpm) and less than 2,000 rpm.

(Starcrest Consulting 2019, p.28)

Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr
Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr
Using 0.1% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.136	0.128	0	1.97	0.611	0.2	NA	922	0.075	0.002

(Starcrest Consulting 2019, p.28)

Table 2.11: Pollutant Emission Factors for Auxiliary Boilers, g/kW-hr
Table 2.12: GHG Emission Factors for Auxiliary Boilers, g/kW-hr
Using 2.7% S MGO Fuel

Engine Category	IMO Tier	Model Year Range	PM10	PM2.5	DPM	NOx	SOx	CO	HC	CO2	N2O	CH4
Steam boiler	NA	All	0.8	0.64	0	2.1	16.5	0.2	NA	970	0.08	0.002

(Starcrest Consulting 2019, p.16)

Table 2.6: Low Load Adjustment Multipliers for Emission Factors

Load	PM	NOx	SO2	CO	VOC	CO2	N2O	CH4	
2%	7.29	4.63	3.30	9.68	21.18	3.28	4.63	21.18	
3%	4.33	2.92	2.45	6.46	11.68	2.44	2.92	11.68	**Applies to: 2-stroke (slow speed) non-MAN diesel propulsion engi
4%	3.09	2.21	2.02	4.86	7.71	2.01	2.21	7.71	Gen Cargo in - 0-3 nm
5%	2.44	1.83	1.77	3.89	5.61	1.76	1.83	5.61	
6%	2.04	1.60	1.60	3.25	4.35	1.59	1.60	4.35	
7%	1.79	1.45	1.47	2.79	3.52	1.47	1.45	3.52	
8%	1.61	1.35	1.38	2.45	2.95	1.38	1.35	2.95	
9%	1.48	1.27	1.31	2.18	2.52	1.31	1.27	2.52	
10%	1.38	1.22	1.26	1.96	2.18	1.25	1.22	2.18	
11%	1.30	1.17	1.21	1.79	1.96	1.21	1.17	1.96	
12%	1.24	1.14	1.17	1.64	1.76	1.17	1.14	1.76	
13%	1.19	1.11	1.14	1.52	1.60	1.14	1.11	1.60	
14%	1.15	1.08	1.11	1.41	1.47	1.11	1.08	1.47	
15%	1.11	1.06	1.09	1.32	1.36	1.08	1.06	1.36	
16%	1.08	1.05	1.06	1.24	1.26	1.06	1.05	1.26	
17%	1.06	1.03	1.05	1.17	1.18	1.04	1.03	1.18	Gen Cargo out - 0-3 nm
18%	1.04	1.02	1.03	1.11	1.11	1.03	1.02	1.11	
19%	1.02	1.01	1.01	1.05	1.05	1.01	1.01	1.05	
20%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Tanker (Handisize) in/out - load factor over 20%, adustment - 1.0) 3-12 nm; 12-30 nm; 30-100 nm

Energy (cacluated on New Calcs Sheet) (/evolution)

		Energy - Propulsion (Main) Engine		**Energy - Auxillary Engine**		**Energy - Auxillary Boiler**
0-3 nm	inbound	172 kWh	inbound	471 kWh	inbound	55 kWh
	outbound	705 kWh	outbound	471 kWh	outbound	55 kWh

(Starcrest Consulting 2019, p.5)

CO2	1
CH4	25
N2O	298

E = (Energy) * EF * FCF *Note - no fuel conversion factor needed until past 24 nm (rounded to the 30 nm segement for this analysis)
0-30 nm: use emissions factors for 0.1% MGO emissions factor, as required by CARB / past 30 nm: use 2.7% S emissions factor with FCF

Emissions per General Cargo fueling operation (in and out)

Note: HC emissions are multiplied by 1.15 to convert to VOC
^

0-3 nm

Propulsion	Emissions in grams									Emissions in lbs										Emissions in tons						Emissions in MT
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**
in	135.69	127.71	6081.69	135.32	1171.71	916.13	203876.26	11.04	15.93	0.30	0.28	13.41	0.30	2.58	2.02	449.47	0.02	0.04	457.60	0.00015	0.00014	0.00670	0.00015	0.00129	0.00101	0.21
out	190.66	179.45	11609.92	288.11	1155.39	574.31	432079.72	21.07	9.99	0.42	0.40	25.60	0.64	2.55	1.27	952.57	0.05	0.02	966.96	0.00021	0.00020	0.01280	0.00032	0.00127	0.00063	0.44

AUX	Emissions in grams									Emissions in lbs										Emissions in tons						Emissions in MT
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**
in	120.13	113.07	5756.98	214.36	659.56	325.07	323182.22	13.66	5.65	0.26	0.25	12.69	0.47	1.45	0.72	712.49	0.03	0.01	721.78	0.00013	0.00012	0.00635	0.00024	0.00073	0.00036	0.33
out	120.13	113.07	5756.98	214.36	659.56	325.07	323182.22	13.66	5.65	0.26	0.25	12.69	0.47	1.45	0.72	712.49	0.03	0.01	721.78	0.00013	0.00012	0.00635	0.00024	0.00073	0.00036	0.33

AUX Boiler	Emissions in grams									Emissions in lbs										Emissions in tons						Emissions in MT
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2**	**N2O**	**CH4**	**CO2e**	**PM10**	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**
in	7.50	7.05	108.57	33.67	11.02	0.00	50812.44	4.13	0.11	0.02	0.02	0.24	0.07	0.02	0.00	112.02	0.01	0.00	114.74	0.00001	0.00001	0.00012	0.00004	0.00001	0.00000	0.05
out	7.50	7.05	108.57	33.67	11.02	0.00	50812.44	4.13	0.11	0.02	0.02	0.24	0.07	0.02	0.00	112.02	0.01	0.00	114.74	0.00001	0.00001	0.00012	0.00004	0.00001	0.00000	0.05

0-3 nm	Emissions in tons						Emissions in MT
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**
1 op	0.00	0.00	0.03	0.00	0.00	0.00	1
Annual (53 ops)	0.03	0.03	1.72	0.05	0.21	0.13	74

Double check total - 1 op>	0.00	0.00	0.03	0.00	0.00	0.00	1
Double check total - 53 ops per year>	0.03	0.03	1.72	0.05	0.21	0.13	74

	Emissions in tons						Emissions in MT
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**VOC**	**CO2e**
Total per operation (0-100 nm)	0.00	0.00	0.03	0.00	0.00	0.00	1
Annual total (53 operations (0-100 nm)	0.03	0.03	1.72	0.05	0.21	0.13	74

Alternative 1

Daily number of worker trips	240	120	workers total	
Average trip length (miles/truck)	17	80	Main Terminal	66.7%
Total miles driven annually (operating 260 days per year)	1,035,840	40	Marine Terminal	33.3%

Emissions Factors	g/mi	lb/mi
VOC	0.0093591	0.0000206
CO	0.6545162	0.0014430
NOx	0.0343848	0.0000758
PM10	0.0015833	0.0000035
PM2.5	0.0014558	0.0000032
SOx	0.0026179	0.0000058
CO2	264.5441837	0.5832231
CH4	0.0024880	0.0000055
N2O	0.0041840	0.0000092

Emissions	lbs/yr	tons/yr
VOC	21	0.01
CO	1,495	0.75
NOx	79	0.04
PM10	4	1.81E-03
PM2.5	3	1.66E-03
SOx	6	2.99E-03
CO2	604,126	302.06
C4	6	2.84E-03
N2O	10	4.78E-03

Alternative 2

Daily number of worker trips	80	
Average trip length (miles/truck)	17	
Total miles driven annually (operating 260 days per year)	345,280	
Emissions Factors	g/mi	lb/mi
VOC	0.0093591	0.0000206
CO	0.6545162	0.0014430
NOx	0.0343848	0.0000758
PM10	0.0015833	0.0000035
PM2.5	0.0014558	0.0000032
SOx	0.0026179	0.0000058
CO2	264.5441837	0.5832231
CH4	0.0024880	0.0000055
N2O	0.0041840	0.0000092
Emissions	lbs/yr	tons/yr
VOC	7	0.00
CO	498	0.25
NOx	26	0.01
PM10	1	6.03E-04
PM2.5	1	5.54E-04
SOx	2	9.96E-04
CO2	201,375	100.69
C4	2	9.47E-04
N2O	3	1.59E-03

Notes:

Emisssions factor used: LDA - Passenger Cars - GAS, EMFAC2017 (v1.0.2) Emission Rates for calendar year 2023 for the South Coast Air Basin://www.arb.ca.gov/emfac/2017/

Average trip length uses the CalEEMod default value of 16.6 miles for a home to work commute.

Alternative 1

Daily number of trucks	41	
Average trip length (round trip, miles/truck)	100	
Total miles driven annually (operating 260 days per year)	1,066,000	
Emissions Factors	g/mi	lb/mi
VOC	0.0176564	0.0000389
CO	0.1861345	0.0004104
NOx	2.2998983	0.0050704
PM10	0.0205134	0.0000452
PM2.5	0.0196260	0.0000433
SOx	0.0121688	0.0000268
CO2	1288.0405506	2.8396582
CH4	0.0008201	0.0000018
N2O	0.2024620	0.0004464
Emissions	lbs/yr	tons/yr
VOC	41	0.02
CO	437	0.22
NOx	5,405	2.70
PM10	48	0.02
PM2.5	46	0.02
SOx	29	0.01
CO2	3,027,076	1513.54
C4	2	0.00
N2O	476	0.24

Alternative 2

Daily number of trucks	20	
Average trip length (round trip, miles/truck)	100	
Total miles driven annually (operating 260 days per year)	520,000	

Emissions Factors	g/mi	lb/mi
VOC	0.0176564	0.0000389
CO	0.1861345	0.0004104
NOx	2.2998983	0.0050704
PM10	0.0205134	0.0000452
PM2.5	0.0196260	0.0000433
SOx	0.0121688	0.0000268
CO2	1288.0405506	2.8396582
CH4	0.0008201	0.0000018
N2O	0.2024620	0.0004464

Emissions	lbs/yr	tons/yr
VOC	20	0.01
CO	213	0.11
NOx	2,637	1.32
PM10	24	0.01
PM2.5	22	0.01
SOx	14	0.01
CO2	1,476,622	738.31
C4	1	0.00
N2O	232	0.12

Notes:

Emisssions factor used: T7 tractor - DSL, Heavy-Heavy Duty Diesel Tractor Truck. EMFAC2017 (v1.0.2) Emission Rates for calendar year 2023 for the SCAQMD: https://www.arb.ca.gov/emfac/2017/

Average trip length was estimated based on an average round-trip distance of 100 miles, assuming mainly local pick ups and deliveries (considered less than 100 miles by the American Transportation Research Institute-a 501(c)(3) not-for-profit research organization). The DOT Bureau of Transportation Statistics also shows the average distance per shipment for Class 3 Flammable Materials to be 93 miles.

Estimated Emissions from Fuel Storage in ASTs

Alternative 1 — **Annual Losses (VOCs) per AST**

Tank Type	Fuel	lbs	tons	# tanks	Emissions (tons\year)
280' dia, 50ft high	Jet kerosene	46.52	0.02	7	0.16
280' dia, 50ft high	Gas RVP 7	1,889.20	0.94	3	2.83
280' dia, 50ft high	Gas RVP 10	2,938.28	1.47	3	4.41
280' dia, 50ft high	Distillate Fuel Oil No. 2	45.49	0.02	7	0.16
180' dia, 45ft high	Gas RVP 7	1,081.22	0.54	1	0.54
180' dia, 45ft high	Gas RVP 10	1,681.52	0.84	1	0.84
150' dia, 45ft high	Jet kerosene	22.33	0.01	1	0.01
150' dia, 45ft high	Distillate Fuel Oil No. 2	21.86	0.01	1	0.01
			Alt 1 (annual VOCs from storage)		**8.97**

Alternative 2

Tank Type	Fuel	lbs	tons	# tanks	Emissions (tons\year)
180' dia, 45ft high	Gas RVP 7	1,278.68	0.64	1	0.64
180' dia, 45ft high	Gas RVP 10	1,878.97	0.94	1	0.94
150' dia, 45ft high	Jet kerosene	228.04	0.11	1	0.11
150' dia, 45ft high	Distillate Fuel Oil No. 2	230.50	0.12	1	0.12
			Alt 2 (annual VOCs from storage)		**1.81**

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TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 280 Dia Tank - jet kerosene - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Jet kerosene	3.64	38.76	4.13	0.00	46.52

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 280 Dia Tank - Gas RVP 7 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 7)	870.69	31.01	987.50	0.00	1,889.20

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 280 Dia Tank - Gas RVP 10 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	1,362.25	31.01	1,545.02	0.00	2,938.28

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 280 Dia Tank - Distillate no. 2 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Distillate fuel oil no. 2	2.89	39.31	3.28	0.00	45.49

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 180 Dia Tank - Gas RVP 7 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 7)	559.73	17.95	503.55	0.00	1,081.22

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 180 Dia Tank - Gas RVP 10 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	875.73	17.95	787.83	0.00	1,681.52

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 150 Dia Tank - jet kerosene - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Jet kerosene	1.95	18.70	1.68	0.00	22.33

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 150 Dia Tank - Distillate no. 2 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Distillate fuel oil no. 2	1.55	18.97	1.34	0.00	21.86

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 180 Dia Tank - Gas RVP 7 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 7)	559.73	215.40	503.55	0.00	1,278.68

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 180 Dia Tank - Gas RVP 10 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	875.73	215.40	787.83	0.00	1,878.97

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 150 Dia Tank - jet kerosene - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Jet kerosene	1.95	224.41	1.68	0.00	228.04

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank Type: 150 Dia Tank - Distillate no. 2 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Distillate fuel oil no. 2	1.55	227.61	1.34	0.00	230.50

Tanker Truck Fugitive VOC Emissions from Loading

Emission Factor (lb/1,000 gal)	0.08	*Maximum allowed emissions, per SCAQMD Rule 462 for Class A faciltiies
Alt 1 annual throughput by truck (bbl)	3,000,000	10% of total annual throughput
Converted to gallons	126,000,000	gal
Throughput in 1,000 gallons loaded	126,000	
	10,080.00	lbs/yr
Alterative 1 - VOCs from Truck Loading	**5.04**	**tons/year**
Alt 2 annual throughput by truck (bbl)	1,500,000	5% of total annual throughput
Converted to gallons	63,000,000	gal
Throughput in 1,000 gallons loaded	63,000	
	5,040.00	lbs/yr
Alterative 2 - VOCs from Truck Loading	**2.52**	**tons/year**

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