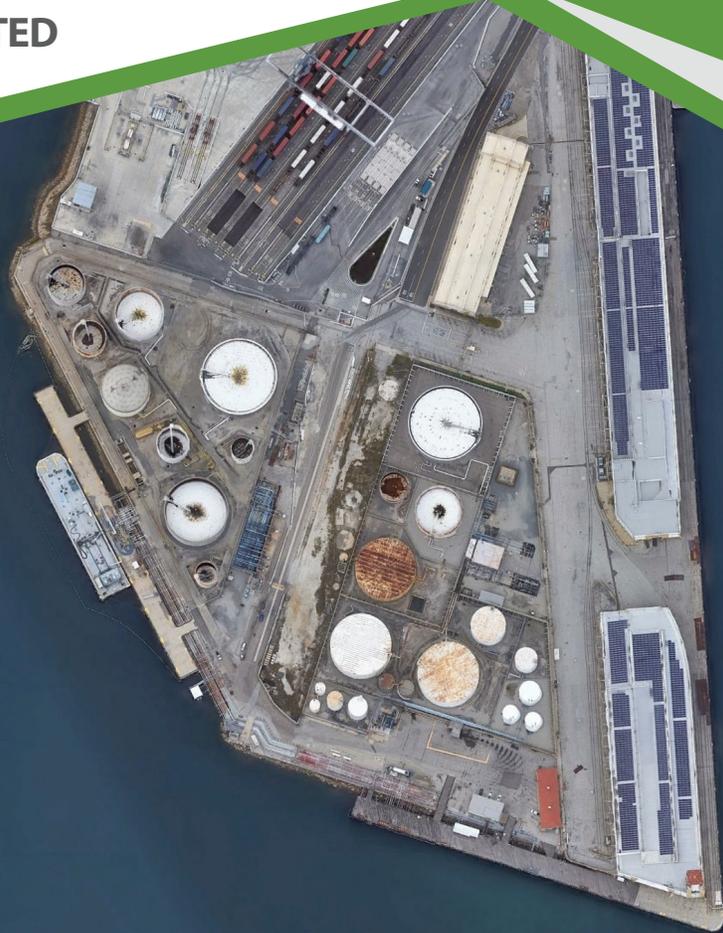


APP Nos. 161019-159, 170209-017, 170221-024, 200402-057, and 200402-058

BERTHS 148-151 [Phillips 66] MARINE OIL TERMINAL AND WHARF IMPROVEMENT PROJECT

**DRAFT INITIAL STUDY/ MITIGATED
NEGATIVE DECLARATION**



November 2021

PREPARED BY:

Environmental Management Division
Los Angeles Harbor Department
425 S. Palos Verdes Street
San Pedro, CA 90731

with assistance from:

RAMBOLL

**DRAFT INITIAL STUDY/MITIGATED NEGATIVE
DECLARATION**

**Berths 148-151 (Phillips 66) Marine Oil Terminal and Wharf
Improvement Project**

**APP Nos. 161019-159, 170209-017, 170221-024, 200402-057, and
200402-058**

November 2021



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**Draft Berths 148-151 (Phillips 66) Marine Oil Terminal and
Wharf Improvement Project**

Initial Study/Mitigated Negative Declaration

APP Nos. **161019-159, 170209-017, 170221-024, 200402-057, and
200402-058**

Los Angeles Harbor Department
Environmental Management Division
425 South Palos Verdes Street
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1. INTRODUCTION

The City of Los Angeles Harbor Department (LAHD) has prepared this Initial Study and Mitigated Negative Declaration (IS/MND) to address the environmental effects associated with the Berths 148-151 (Phillips 66) Marine Oil Terminal (MOT) and Wharf Improvement Project (proposed Project) at the Port of Los Angeles (Port). LAHD is the lead agency under the California Environmental Quality Act (CEQA). Phillips 66 Company (Phillips 66) is the applicant for the proposed Project.

The primary objective of the proposed Project is to comply with the State of California's Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). The proposed Project includes vessel berthing improvements at Berth 148-149 and demolition and reconstruction of the Phillips 66 wharf structures at Berth 150-151 in compliance with MOTEMS to allow for continued operation as a marine oil terminal. The proposed Project also includes shoreline protection improvements and the installation or modification of various landside marine oil terminal components, including piping, pumps, pollution control systems (e.g., vapor recovery, spill containment, storm water management) and tankage, to support future operations at the new wharf at Berth 150-151. See Section 2.2.1, Project Background, for more information. The proposed Project also includes consideration of a new 20-year entitlement (with two potential 10-year additional options) to Phillips 66 for continued operations at Berths 148-151.

1.1 CEQA PROCESS

This document has been prepared in accordance with CEQA, California Public Resources Code Section 21000 *et seq.*, CEQA Guidelines (14 California Code of Regulations [CCR] 15000 *et seq.*), and the City of Los Angeles CEQA Thresholds Guide (2006). One of the main objectives of CEQA is to disclose the potential environmental effects of proposed activities to the public and decision-makers. CEQA requires that the potential environmental effects of a project be evaluated prior to implementation. This IS/MND includes a discussion of the proposed Project's potential impact on the existing environment. LAHD has determined that an IS/MND is the appropriate level of CEQA document for the proposed Project because potential environmental impacts resulting from proposed Project implementation would, with implementation of mitigation, be below significance thresholds.

Under CEQA, the lead agency is the public agency with primary responsibility over approval of a proposed Project. Pursuant to Section 15367, of the CEQA Guidelines (14 CCR 15000 *et seq.*), LAHD is the lead agency for the proposed Project and has prepared an environmental document that complies with CEQA. The LAHD Board of Harbor Commissioners will consider the information in this document when determining whether to approve the proposed Project.

The preparation of an IS is guided by Section 15063 of the State CEQA Guidelines, whereas Sections 15070-15075 guide the process for the preparation of a Negative Declaration or a MND (14 CCR 15000, *et seq.*). Where appropriate and supportive to an understanding of the issues, reference will be made to the statute, the State CEQA Guidelines, City of Los Angeles Guidance, or appropriate case law.

This IS/MND meets CEQA content requirements by including a project description; a description of the environmental setting and project location, a finding that the proposed Project will not have

Draft Initial Study and Mitigated Negative Declaration

Berths 148-151 (Phillips 66) Marine Oil Terminal and Wharf Improvement Project

a significant effect on the environment, and inclusion of any feasible mitigation measures, if necessary, to avoid potentially significant effects.

In accordance with the CEQA statutes and Guidelines, this IS/MND will be circulated for a period of 30 days for public review and comment. The public review period is scheduled to begin on November 18, 2021 and concludes on December 20, 2021. This Draft IS/MND will be distributed to responsible public agencies, other interested or involved agencies, organizations, and private individuals for review and will be made available for general public review online at the Port website at <http://www.portoflosangeles.org>. A copy of the document is also available for public review at the Harbor Department Environmental Management Division (EMD) located at 425 S. Palos Verdes Street, San Pedro. Due to COVID-19 restrictions, please send your request to ceqacomment@portla.org or call (310) 732-3675 to schedule an appointment to pick up a copy.

During the 30-day public review period, the public has an opportunity to provide written comments on the information contained within this IS/MND. The public comments on the IS/MND and responses to public comments will be included in the record and considered by LAHD during deliberation as to whether or not necessary approvals should be granted for the proposed Project. A project will only be approved when LAHD finds “that there is no substantial evidence that the proposed Project will have a significant effect on the environment and that the negative declaration or mitigated negative declaration reflects the lead agency’s independent judgment and analysis” (14 CCR 15070). Responses to all public comments on the Draft IS/MND will be included in the Final IS/MND.

In reviewing the document, affected public agencies and interested members of the public should focus on the sufficiency of the document in identifying and analyzing potential project impacts on the environment. Comments on the IS/MND should be submitted in writing either through mail or email prior to the end of the 30-day public review period, and comments submitted by mail must be postmarked by December 20, 2021. All correspondence, through mail or e-mail, should include the proposed Project title “Berths 148-151 (Phillips 66) Marine Oil Terminal and Wharf Improvement Project” in the subject line.

Please submit written comments to:

Christopher Cannon, Director
City of Los Angeles Harbor Department
Environmental Management Division
425 South Palos Verdes Street
San Pedro, California 90731

Written comments sent via email should be addressed to ceqacomment@portla.org.

For additional information, please contact the LAHD Environmental Management Division at (310) 732-3675.

1.2 DOCUMENT FORMAT

This IS/MND contains the following eight sections:

Section 1.0. Introduction. This section provides an overview of the proposed Project and the CEQA environmental documentation process.

Section 2. Project Description. This section provides a detailed description of the proposed Project's objectives and components.

Section 3. Initial Study Checklist. This section presents the CEQA checklist for all impact areas and mandatory findings of significance.

Section 4. Impacts and Mitigation Measures. This section presents the environmental analysis for each issue area identified on the environmental checklist form. If the proposed Project does not have the potential to significantly impact an issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the proposed Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts and the appropriate mitigation measures that would reduce those impacts to a less-than-significant level.

Section 5. Proposed Finding. This section presents the proposed finding regarding environmental impacts.

Section 6. Preparers and Contributors. This section provides a list of key personnel involved in the preparation of the IS/MND.

Section 7. Acronyms and Abbreviations. This section defines acronyms and abbreviations used throughout the IS/MND.

Section 8. References. This section provides a list of reference materials used to support preparation of the IS/MND.

The environmental analysis included in Section 4, *Impacts and Mitigation Measures*, is consistent with the CEQA IS/MND format presented in Section 3, *Initial Study Checklist*. Impacts under CEQA are separated into the following categories:

Potentially Significant Impact. This category is applicable where there is substantial evidence that an effect may be significant and no feasible mitigation measures can be identified to reduce impacts to a less-than-significant level. Upon completion of the IS, no impacts were identified that fall into this category.

Less-than-Significant After Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less-than-significant level (mitigation measures from earlier analyses may be cross-referenced).

Less-than-Significant Impact. This category is identified when the proposed Project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when implementation of a proposed project would not result in an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by information sources cited by the lead agency and

show that the impact does not apply to the specific project. A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards.

2. PROJECT DESCRIPTION

2.1 Project Overview

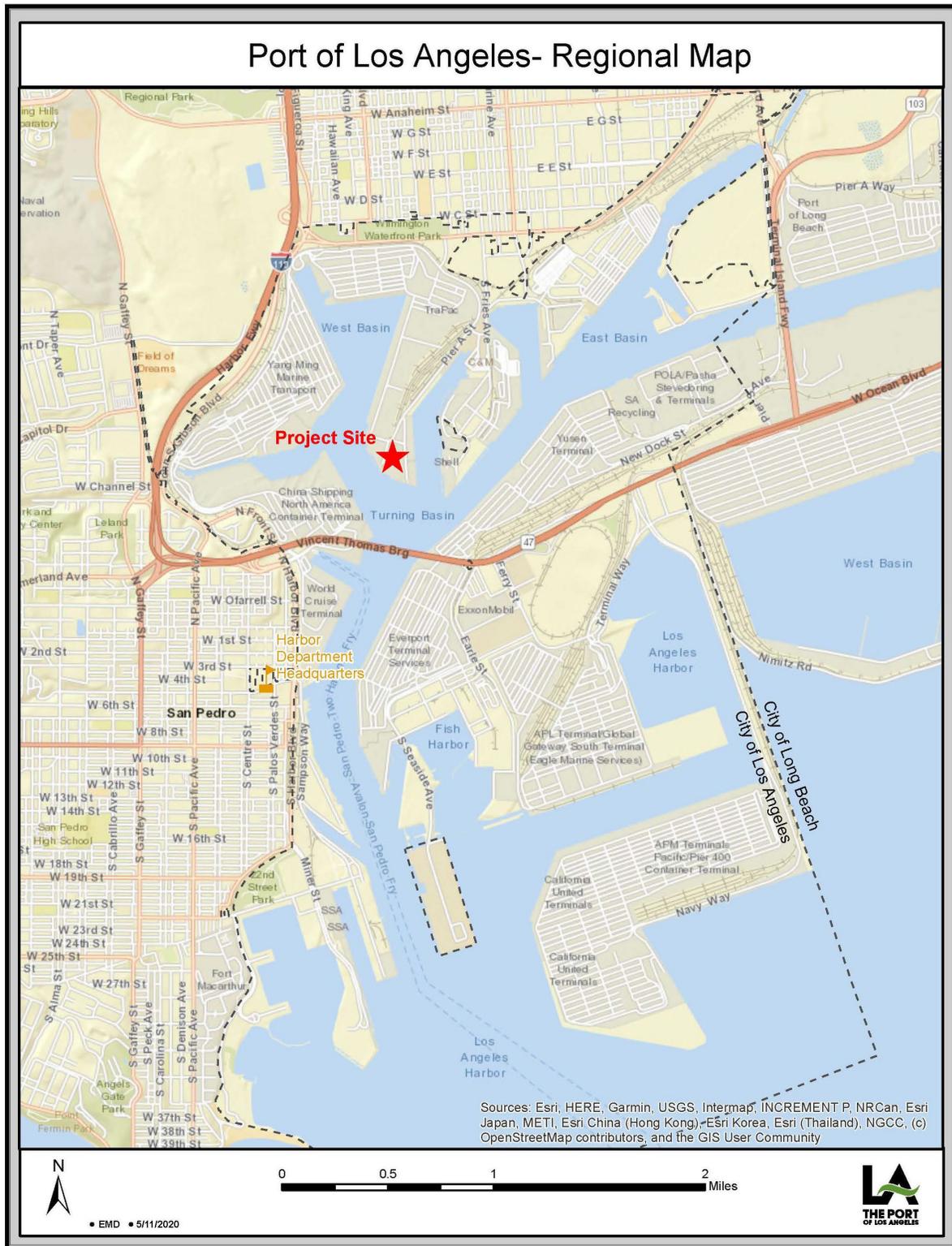
This IS/MND has been prepared to evaluate the potential environmental impacts associated with improvements to the Berths 148-151 wharf area for the purpose of complying with the MOTEMS. The project site is operated as a marine oil terminal by Phillips 66. Project elements include: vessel berthing improvements at Berth 148-149; demolition of the existing timber wharf at Berth 150-151; construction of a MOTEMS-compliant concrete wharf with associated mooring and berthing elements, oil commodity transfer, and pollution control facilities at Berth 150-151; installation or modification of oil commodity transfer facilities and supporting infrastructure in the backlands of Berths 148-151; shoreline reinforcement improvements; and decommissioning of Berth 148-149 from oil commodity transfer activities. The proposed Project also includes consideration by the Board of Harbor Commissioners of entitlement for up to 40 years to Phillips 66 for continued operations at Berths 148-151. To be conservative, this IS/ND assumes 40 years of operation for the analysis.

2.1.1 Project Location

Regional Setting

The Port is located in San Pedro Bay, approximately 20 miles south of downtown Los Angeles (Figure 2.1-1). The Port encompasses approximately 7,500 acres of land and water along 43 miles of waterfront and provides a major gateway for international goods and services. The Port comprises approximately 25 cargo terminals, including dry and liquid bulk, container, breakbulk, automobile, and passenger facilities (LAHD 2018a). In addition to cargo business operations, the Port is home to commercial fishing vessels, shipyards, boat repair facilities, and recreational, community, and educational facilities. The Port also provides slips for approximately 3,800 recreational vessels, 78 commercial fishing boats, 35 miscellaneous small-service crafts, and 15 charter vessels that handle sport fishing and harbor cruises. The Port has retail shops and restaurants primarily located along the west side of the Main Channel. It also accommodates recreation, community, and educational facilities, such as a public swimming beach, Cabrillo Beach Youth Waterfront Sports Center, the Cabrillo Marine Aquarium, the Los Angeles Maritime Museum, 22nd Street Park, and the Wilmington Waterfront Park.

Figure 2.1-1. Project Vicinity



Project Setting

The Project site is located at the southern end of Pier “A” Street on approximately 13.8 acres of land, including approximately 1,800 feet of Turning Basin waterfront. The Project site is bounded by the TraPac Container Terminal (Berths 135-147) to the north, the West Basin to the west, the Turning Basin to the south, and Slip No. 1 to the east. Nearby land uses are all marine cargo terminals and access roads.

Direct landside access to the Project site is provided via Pier “A” Street. Regional landside access is provided by a network of freeways and arterial routes and is available via Harry Bridges Boulevard and Fries Avenue. The freeway network consists of the Harbor Freeway (Interstate [I]-110), Long Beach Freeway (I-710), San Diego Freeway (I-405), and Seaside Freeway (State Route [SR]-47). Harry Bridges Boulevard connects I-110 to Pier “A” Street. Active train tracks managed by Pacific Harbor Line, Inc. extend the length of Pier “A” Street between Fries Avenue and the waterfront. Security and gating are located at the terminus of Pier “A” Street to control access to Berths 148-151.

Land Use and Zoning

The proposed Project is located in the Port, which is part of the City of Los Angeles General Plan. The Port Master Plan (PMP) established policies and guidelines to direct the future development of the Port (LAHD 2018a). The PMP includes five planning areas. The Project site is located within Planning Area 2 of the Port Master Plan, which encompasses the West Basin and Wilmington areas between the intersection of Harbor Freeway and Harry Bridges Boulevard to Commodore Schuyler F. Helm Bridge along the boundary of the Port and the Port of Long Beach. Planning Area 2 extends from Berths 96 to 204 and includes a range of land use activities (LAHD 2018a). The West Basin area primarily consists of container terminals, while the Wilmington area consists of liquid bulk at Berths 148-151, along with liquid and dry bulk uses on Mormon Island, recreational boating and open spaces along Anchorage Road, and public access provided at Berths 183-186. Planning Area 2 continues to be developed with new recreational and visitor-serving commercial use along the Avalon Boulevard Corridor and at Banning’s Landing. The proposed Project site is designated for liquid bulk uses in the PMP.

The Project site includes Assessor’s Parcel Numbers (APN Nos.) 7440018909, 74400118810, and 7440018905 as the location of the proposed wharf and topside improvements. The proposed wharf area is currently designated as General/Bulk Cargo (Non-Hazardous Industrial and Commercial) under the City of Los Angeles General Plan and is zoned [Qualified] Heavy Industrial ([Q]M3-1) under the City of Los Angeles Zoning Ordinance. The [Q]M3-1 zoning designation allows heavy industrial uses.

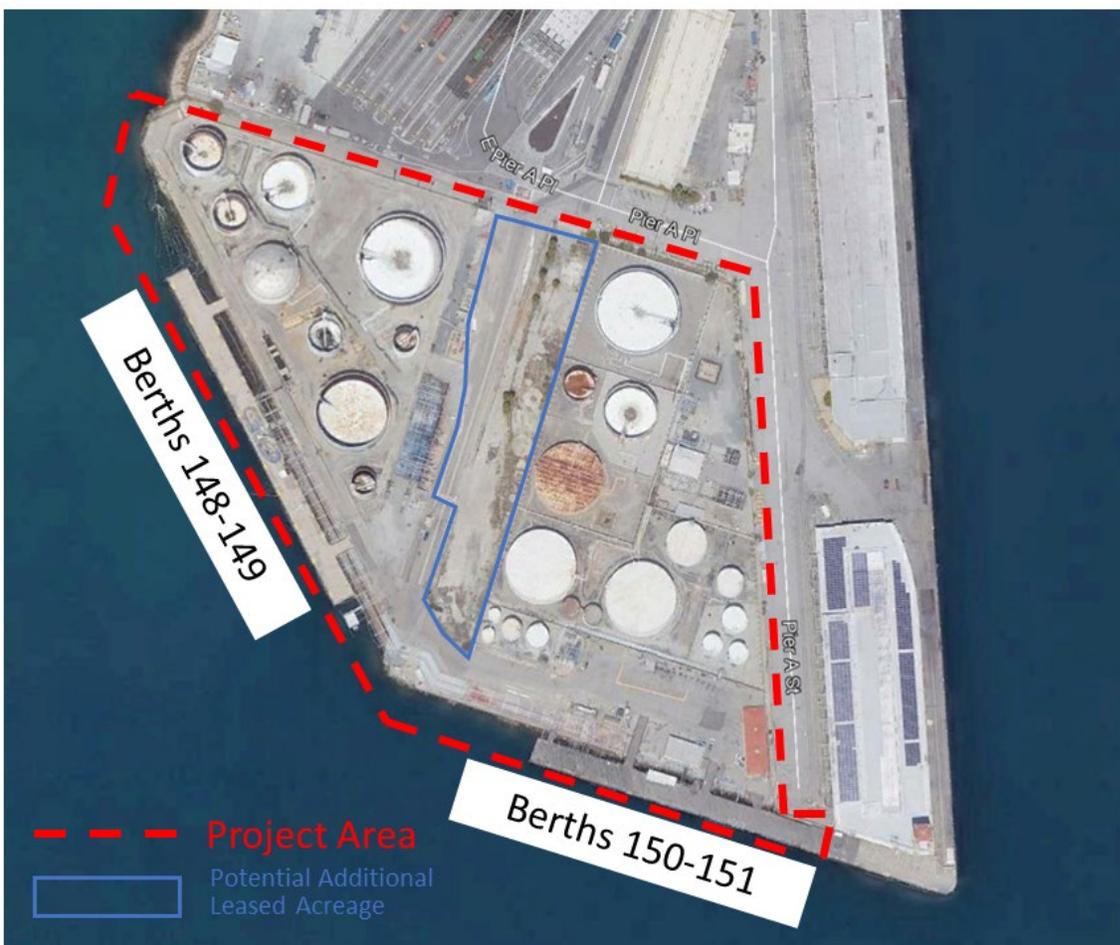
2.1.2 Existing Conditions

Facilities

The current Phillips 66 MOT consists of approximately 13.8 acres of backlands and a currently non-operational wharf at Berths 150-151, and the adjacent wharf at Berths 148-149 at which the MOT’s marine tanker vessel operations are conducted. The site has been a MOT since 1919, when Union Oil commenced operations using a wharf that has since been replaced. As stated above, the proposed Project also includes consideration of a new 20-year entitlement (with two potential 10-year additional options) to Phillips 66 for continued operations at Berths 148-151.

Phillips 66 and LAHD are in negotiations for that entitlement, which may include additional acreage at Berths 148-151 to be used for laydown/staging and parking or storage, bringing the total acreage to approximately 15.7 acres. Figure 2.1-2 roughly illustrates the Proposed Project Area. The additional acreage consists of three parcels depicted by the colored outline in Figure 2.1-2. For purposes of the analysis contained in this Initial Study and Mitigated Negative Declaration, it is assumed that Phillips 66 and LAHD will conclude negotiations for the entitlement and that the entire approximately 15.7-acre property will become entitled going forward. If, however, the additional parcels depicted in Figure 2.1-2 are not part of the entitlement going forward, the environmental analysis and conclusions contained in this Initial Study and Mitigated Negative Declaration remain substantively the same.

Figure 2.1-2. Proposed Project Area (Berths 148-151)



The existing 575-foot-long timber wharf at Berths 150-151 was originally constructed in 1919-1927 and is supported by hundreds of timber pilings, which have been replaced over time as needed. Extensive structural deterioration has occurred on the western side of the wharf, rendering this facility unsuitable for continued operation. The initial 2009 Port MOTEMS program audit identified the wharf at Berths 150-151 as “high risk” and subsequently classified it as “not fit

for service” per MOTEMS. As a result, the existing wharf at Berths 150-151 has not been utilized as a MOT since 2008, although the wharf is intermittently used for temporary berthing of tugs.

Phillips 66 currently conducts vessel loading and unloading operations only at Berths 148-149. Berths 148-149, built in 1955, consist of a 608-foot-long concrete wharf and a 432-foot-long concrete pipe-support structure. To support the transfer of oil commodities, this facility contains a vapor recovery system, risers, oil spill containment gear, and other associated equipment. While determined by California State Lands Commission (CSLC) to be in acceptable condition for temporary ongoing use, the concrete wharf at Berths 148-149 is not fully MOTEMS-compliant.

The Phillips 66 site includes tank farms containing 26 storage tanks of varying sizes. The tanks are located within spill containment walls approximately 15 feet high with a total storage capacity of approximately 850,000 barrels. Other landside facilities on the site include piping systems, pumps and compressors, vapor-recovery equipment used when loading (i.e., exporting) lighter commodities, a dock house, a gatehouse, a truck loading rack, a warehouse, an office building, and electrical substations.

Operations

The Phillips 66 MOT loads and unloads oil commodities products such as gas oils, residual fuel, dark oils, lube oil stocks, naphthas, gasoline/gasoline blend stocks, diesel and jet fuels, and distillate blend stocks, as well as renewables and renewable feedstocks, recovered oil, and water, to and from tanker vessels, both oceangoing vessels (OGVs) and barges. These products are transported by pipeline between the MOT and the nearby Phillips 66 refineries in Carson and Wilmington or other facilities connected to the USDOT pipeline network. Vessels calling at the terminal vary in size; currently, the largest are Panamax tankers (with typical maximum loads of approximately 75,000 deadweight tons). Only one vessel, whether barge or tanker, can be accommodated at a time at the existing Berth 148-149 wharf. Terminal operations occur 24 hours per day and 365 days per year to support existing operations at nearby facilities.

The terminal also loads imported lube oil onto trucks for distribution within an approximately 15-mile radius of the terminal. The MOT does not have any rail operations. Activity levels in 2019 are summarized in Table 2.2-1 along with projected maximum future activity levels after completion of the proposed Project as described in Section 2.2; Phillips 66 represents that, although vessel and truck numbers vary from year to year, the 2019 activity levels are typical of terminal operations in recent years. For purposes of this IS/MND evaluation, therefore, the 2019 vessel calls and throughput volume in Table 2.2-1 are considered to be the CEQA baseline for the evaluations herein. They represent both typical existing conditions as well as actual throughput for 2019, which was the most recent full calendar year prior to the COVID-19 pandemic and the preparation of this CEQA document.

Table 2.2-1. Baseline and Projected Future Year Operational Activity Levels.

Annual Activity	2019 Baseline	Projected with Project
Oceangoing Tankers	25	40
Barges	204	266
Total Vessel Calls ¹	229	306
Trucks (round trips)	1,951	1,951
Terminal Throughput (barrels)	7,658,573	13,724,000

1: All vessels in 2019 called at Berth 149

2: No changes in truck trips are anticipated in the future since most products are moved via pipeline transfer to and/or from the marine terminal and the truck rack handles only lube oil

2.1.3 Project Background and Objectives

Project Background

The MOTEMS are comprehensive engineering standards for the analysis, design, inspection, and maintenance of existing and new marine oil terminals. The MOTEMS were approved by the California Building Standards Commission on January 19, 2005, became effective on January 6, 2006 (CSLC 2005), and are codified as part of CCR Title 24, Part 2, Marine Oil Terminals, Chapter 31F.

The MOTEMS apply to all existing and proposed marine oil terminals in California and include criteria for inspection, structural analysis and design, mooring and berthing, geotechnical considerations, fire, piping, mechanical, and electrical systems. The CSLC oversees the MOTEMS program. Through ongoing discussions with the CSLC, the LAHD developed an implementation strategy to complete the necessary MOTEMS requirements. The Phillips 66 MOT is one of seven existing MOTs at the Port.

MOTEMS require each MOT to conduct an audit to evaluate the facility's compliance and confirm its fitness-for-purpose. Depending on audit results, the terminal owner and/or terminal operators must determine what actions are required to bring facilities into compliance with established standards and to provide a schedule for implementation of deficiency corrections and/or rehabilitation. The standards define criteria in the following areas:

- Audit and Inspection
- Structural Loading
- Seismic Analysis and Structural Performance
- Mooring and Berthing Analysis and Design
- Geotechnical Hazards and Foundations
- Structural Analysis and Design of Components
- Fire Prevention, Detection, and Suppression
- Piping and Pipelines
- Mechanical and Electrical Equipment
- Electrical Systems.

The MOTEMS audits performed for the Phillips 66 MOT at Berths 148-149 identified existing infrastructure deficiencies related to structural, mooring, berthing, and piping systems that require upgrading. The proposed Project would correct the identified deficiencies by constructing a new, MOTEMS-compliant berthing facility at Berths 150-151 and limiting the future uses of Berths 148-149 to non-MOT uses such as, the occasional mooring of harbor craft (e.g., boom deployment boats, tugboats, and barges) to reduce congestion in the channel, and storage of topside equipment. These uses are similar to the current uses of Berths 150-151.

Project Objectives

The primary goal of the proposed Project is to ensure that the Phillips 66 MOT at Berths 148-151 complies with MOTEMS to protect public health, safety, and the environment and to ensure

continued viability of MOT operations within the Port. To achieve that goal, the proposed Project has the following objectives:

- Construct improvements to the wharf at Berths 148-149 to allow limited, temporary operation as a MOT while the new MOTEMS facility is built.
- Construct a new MOTEMS-compliant berthing and loading/unloading facility at Berths 150-151.
- Optimize the use of existing land at the terminal and associated waterways in a manner that is consistent with the LAHD's public trust obligations by maintaining the existing facility's throughput capabilities and operational parameters through a new, long-term entitlement.
- Ensure continued reliability and availability of fuel supplies to help meet Southern California's energy needs given evolving market conditions and business cycle variability.

Together, these four objectives define the project need, and are consistent with those set forth by LAHD for MOT operations.

2.2 Project Description

The proposed Project would consist of three primary elements that would provide improvements to ensure operation and viability of the Phillips 66 marine oil terminal. Details about each task and each phase of construction for Berths 148-149 and Berths 150-151 are included in the Air Quality Technical Appendix (Appendix A).

Berths 148-149 Improvements: Improvements to Berths 148-149 are included as part of this project. These improvements would allow these berths to be utilized while the Berths 150-151 MOTEMS compliant wharf is built. Improvements for non-MOT uses are also included such as, the occasional mooring of harbor craft (e.g., boom deployment boats, tugboats, and barges) to reduce congestion in the channel, and storage of topside equipment.

Berths 150-151 Improvements: This element consists of demolition of the existing timber wharf at Berths 150-151 and construction of a concrete wharf and loading platform designed and engineered to be MOTEMS-compliant, including the installation of mooring and breasting dolphins, access ramps, and catwalks (Figure 2.2-1).

Marine Oil Terminal Topside and Landside Improvements: Topside facilities and pipeline systems at Berths 150-151 (Figure 2.2-1) would be constructed to allow transfer of commodities between the dock and landside tanks and pipeline systems. The existing marine vapor recovery system at Berths 148-149 would be transferred to Berths 150-151, after which the wharf at Berths 148-149 would be limited to future non-MOT uses as indicated above.

Figure 2.2-1a. Berths 148-151 (Phillips 66) Marine Oil Terminal and Wharf Improvement Project

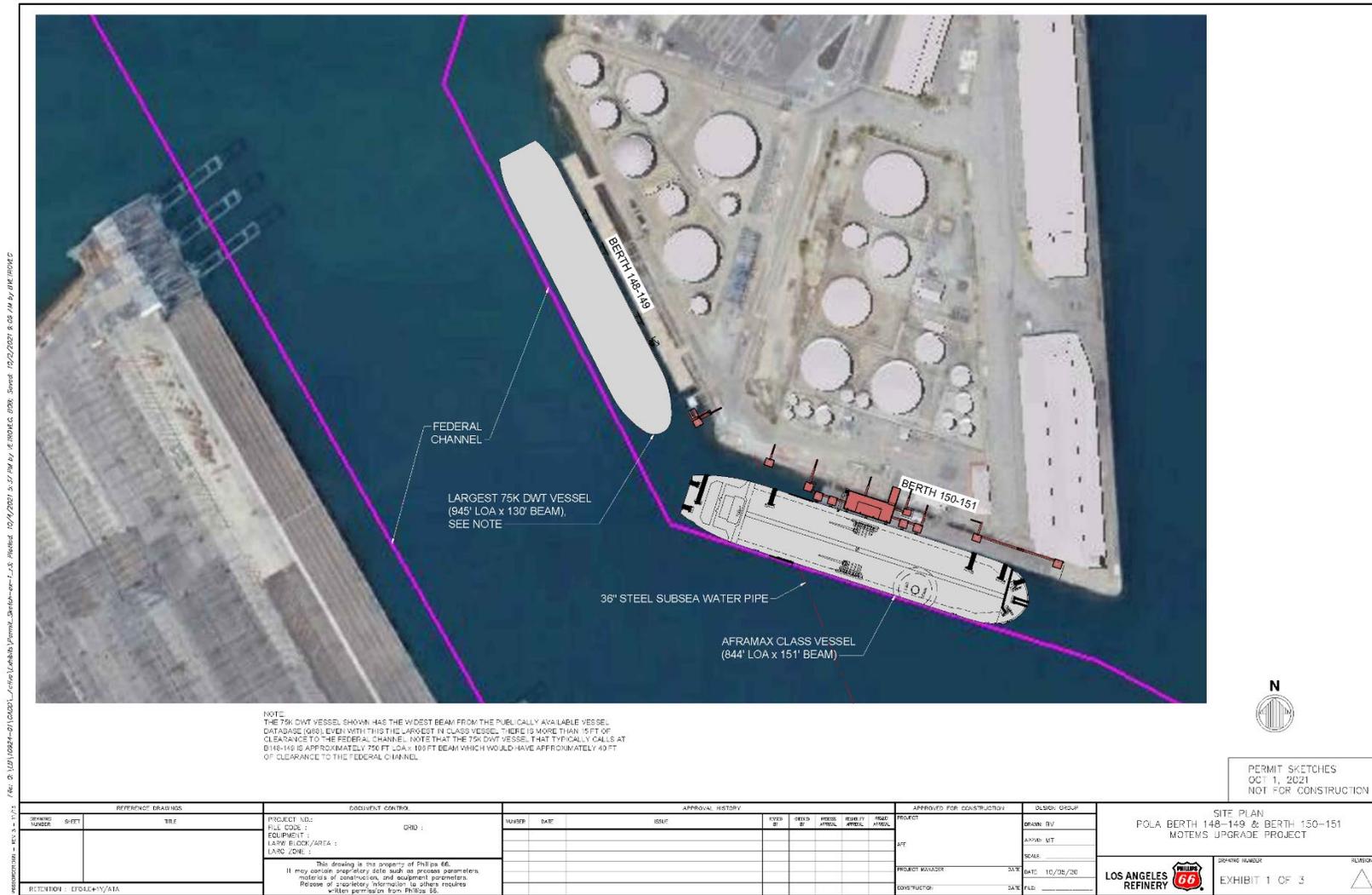


Figure 2.2-1b. Berths 150-151 (Phillips 66) Marine Oil Terminal and Wharf Improvement Project

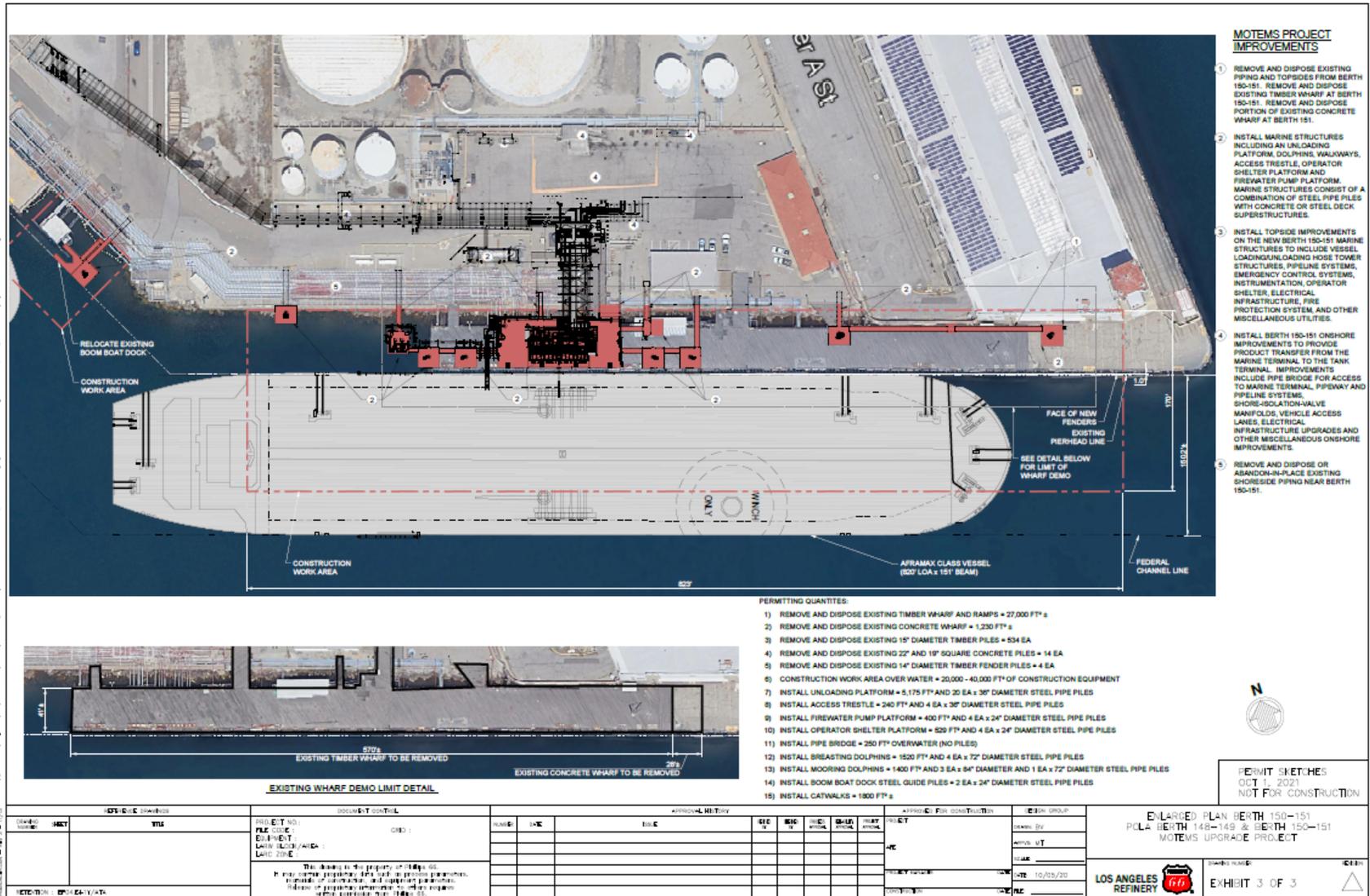
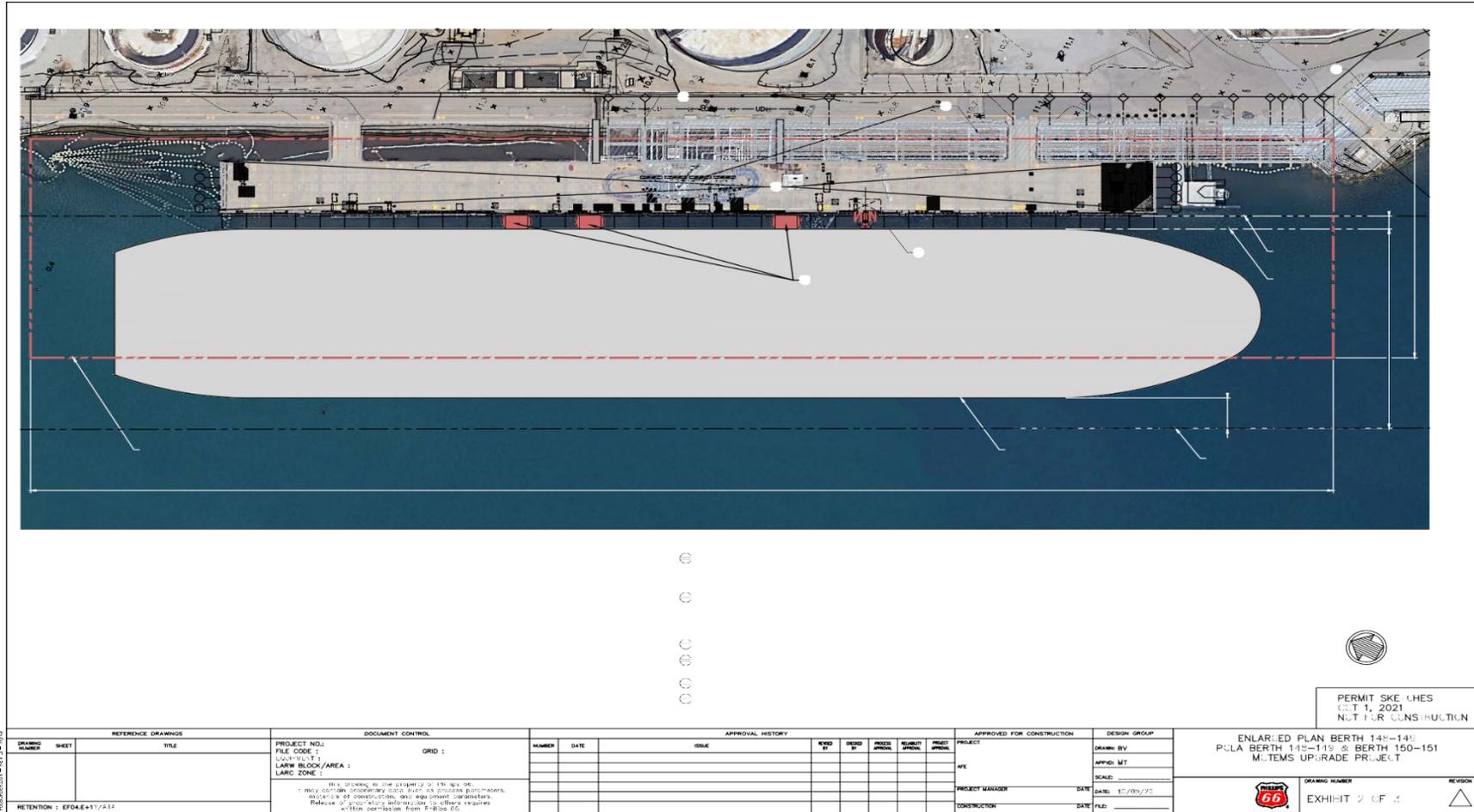


Figure 2.2-1c. Berths 148-149 (Phillips 66) Marine Oil Terminal and Wharf Improvement Project



In-Water Improvements

Before any work is started at Berths 150-151, Berths 148-149 would be upgraded for temporary use for marine vessel mooring and loading/unloading during construction of the facilities at Berths 150-151. Construction would include partial demolition of the existing concrete deck, partial removal and disposal of the existing timber fender system, timber and marine fenders, and installation of approximately 39 steel fender piles. The existing bulkhead wall would also be repaired with concrete. This work would take approximately three months.

Once the Berths 148-149 improvements were completed, the existing wharf structure at Berths 150-151 would be demolished and the new, MOTEMS-compliant structure would be built. The new structure would be constructed of reinforced concrete and supported by steel pilings of up to 72 inches in diameter. The new structure would consist of a loading platform, mooring and breasting dolphins, access ramps, and catwalks. The new berth would be able to accommodate OGVs of up to “Aframax” size (123,000 deadweight tonnage [DWT]) as well as barges.

The loading platform would be approximately 45 feet wide and 115 feet long to accommodate topside facilities necessary for safe unloading and loading of OGVs. Topside facilities would include hose handling equipment, manifolds, piping, fire protection equipment, and spill prevention and response equipment. The platform would be surrounded by a spill containment curb to contain and collect runoff or spills. Mooring and breasting dolphins would consist of small, pile-supported concrete platforms with quick-release mooring gear and fendering structures, and would be connected to one another, the loading platform, and the shore by pile-supported catwalks. The new wharf would include a small, pile-supported platform for handling the spill containment boom. The various platforms and catwalks comprising the new wharf would extend along approximately 1,100 feet of the shoreline, but the open nature of the structure means that the over-water footprint would be approximately 12,000 square feet, a reduction of approximately 16,000 square feet from the footprint of the existing timber wharf.

An existing underwater concrete bulkhead underneath the timber wharf needs minor repairs and reinforcement, which would be conducted following the removal of the wharf. Clean-up dredging would also be done to maintain historical subsurface contours.

Landside Improvements

Under the proposed Project, Phillips 66 would install necessary topside improvements for MOT operations on the new concrete wharf at Berths 150-151. Landside improvements would include refurbishment of 11 idle storage tanks, construction of three new tanks for the pollution control and fire protection systems, installation of equipment and pipelines to allow transfers of petroleum commodities between the new wharf and the landside storage tanks and to existing pipeline systems that run to the refinery, and flushing, blinding and removal or abandonment of out of service pipelines as appropriate. Phillips 66 would also relocate the marine vapor recovery system (e.g., thermal oxidizer, dockside safety unit) currently at Berths 148-149 to Berths 150-151. The firewater system at Berths 150-151 would be reconstructed to comply with MOTEMS, and the electrical distribution system would be modified to support operations at Berths 150-151. Approximately 17 new pipelines from the new wharf to onshore facilities within the Project site would be installed to transport oil commodities and water for fire protection, similar to the number of pipelines currently in operation. These pipelines would range from 2 to 12 inches in diameter.

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Approximately 2.2 acres of unpaved areas may be graded and paved for use as laydown/staging and parking or storage areas.

Operations at Berths 148-149 would continue while construction activities are ongoing, but these operations would be relocated to Berths 150-151 following completion of the new wharf and equipment, and Berths 148-149 would be limited to non-MOT uses as indicated above.

Project Schedule

For the purposes of this analysis, it has been assumed that construction of the proposed Project would occur in multiple phases. Demolition and construction of the wharf elements, topside and landside improvements would occur over a period of approximately three years, from approximately 2022 to 2025, at which time the new berth would become operational. Refurbishment of the tank farm would proceed in three phases from 2025-2028.

Construction

Prior to construction, the necessary permits and pre-construction surveys would be completed. Construction of the proposed Project would begin with the work at Berths 148-149 described above.

Prior to demolition of the existing wharf at Berths 150-151, Phillips 66 would demolish all existing topside improvements (i.e., pipelines and utility feeder lines). Following removal of wooden decking, the existing timber piles would be removed and/or extracted intact and cut at the mud line). Demolition of the existing wharf would require the use of barges supporting floating cranes, tugs to move/steady barges, and heavy-haul trucks to remove demolition debris to an appropriate disposal location.

Construction of the new wharf structure would require vibratory hammers and diesel pile drivers to sink steel piles into the sediment; crews would construct the wharf, the platforms, the access ramps, and other facilities using concrete trucks, pumps, and similar equipment. It is anticipated that deliveries of support piles would occur via barge.

Clean-up dredging of up to 2,000 cubic yards of sediment could be required at Berth 150-151 if post-construction surveys indicate insufficient depth alongside the new unloading structure. In that case, a derrick barge, tugboat, and disposal scow would be employed. Dredge material would be disposed of at a permitted upland site.

Phillips 66's construction and installation of topside improvements would occur following completion of the new wharf, and would proceed primarily from the landside, requiring only minor in-water work to construct/emplace utility pipelines and service fields over and under the new wharf deck.

Operations at Berths 148-151

Operations at Berths 150-151 would occur in the same manner as existing operations at Berths 148-149. Upon completion of product transfer and refueling, OGVs would depart from the facility with assistance from tugs and then proceed under their own power when safe to transition. Inbound and outbound OGVs would use the same transit lanes within the Outer Harbor and the Port to reach Berths 150-151.

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Phillips 66 would manage future operations at Berths 148-151. Operational activities would require the same number of staff as existing operational activities. The facility would be permitted to operate 24 hours per day and 365 days per year to support existing operations at nearby facilities as it is today. The number of OGV berthings and throughput volume of petroleum products at Berths 150-151 would vary depending on periods of scheduled and unscheduled maintenance of nearby refineries as well as economic cycles. Berths 150-151 would continue to serve barges, tugs, and a range of OGV sizes from barges up to Aframax-class OGVs (123,000 DWT). On average, approximately 15 additional tanker vessel calls per year are expected in the future. Since most products are moved via pipeline transfer to and/or from the marine terminal and the truck rack handles only lube oil, no changes in truck trips are anticipated in the future. Berths 148-149 would no longer be used as a MOT; future use of Berths 148-149 would be limited to non-MOT uses such as, the occasional mooring of harbor craft (e.g., boom deployment boats, tugboats, and barges) to reduce congestion in the channel, and storage of topside equipment.

2.4 Project Approvals and Permits

Under CEQA, the Lead Agency is the public agency with primary responsibility over approval of a proposed Project. Pursuant to Section 15367, the CEQA Lead Agency for the proposed Project is the LAHD.

Anticipated permits and approvals that may be required to implement to the proposed Project include but are not limited to the following:

- U.S. Army Corps of Engineers (USACE) Letter of Permission (LOP)
- Los Angeles Regional Water Quality Control Board (LARWQCB) Clean Water Act Section 401 Water Quality Certification
- LARWQCB Storm Water Pollution Prevention Plan (SWPPP)
- LARWQCB National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities
- California State Lands Commission
- LAHD Coastal Development Permit issued by the Los Angeles Board of Harbor Commissioners
- LAHD Entitlement
- LAHD Harbor Engineers Permit
- South Coast Air Quality Management District (SCAQMD) Permit to Construct/Operate
- City of Los Angeles Fire Department
- City of Los Angeles Building Permit
- City of Los Angeles Grading Permit
- City of Los Angeles Electrical Permit

3. Initial Study Checklist

1.	Project Title:	Berths 148-151 (Phillips 66) Marine Oil Terminal and Wharf Improvement Project
2.	Lead Agency Name and Address:	LAHD Environmental Management Division 425 South Palos Verdes Street San Pedro, California 90731
3.	Contact Person and Phone Number:	Leah Kohler, Project Manager, Environmental Management Division, LAHD, (310) 732-3675
4.	Project Location:	Berths 148 – 151, Port of Los Angeles Pier “A” St. Wilmington, CA 90744
5.	Project Sponsor’s Name and Address:	Phillips 66 Company 1660 West Anaheim Street Wilmington, CA 90744
6.	Port Master Plan Designation:	Liquid Bulk Cargo
7.	Zoning:	Qualified Heavy Industrial [Q]M3-1
8.	Description of Project:	The proposed Project consists of vessel berthing improvements at Berth 148-149; demolition of the existing timber wharf at Berth 150-151; construction of a MOTEMS-compliant concrete wharf with associated mooring and berthing elements, petroleum transfer, and pollution control facilities at Berth 150-151; installation or modification of petroleum transfer facilities and supporting infrastructure in the backlands of Berths 148-151; shoreline reinforcement improvements; and decommissioning of Berth 148-149 from petroleum transfer activities. The proposed Project also includes consideration of a new 20-year entitlement to Phillips 66 by the Board of Harbor Commissioners.
9.	Surrounding Land Uses/Setting:	The overall character of the surrounding area is primarily industrial. The Project site and adjacent properties to the north and west are all zoned for heavy industrial uses ([Q] M3-1), similar to the Project site. The project area is adjacent to the City of Los Angeles communities of San Pedro and Wilmington. The Project site is located at the southern end of Pier “A” Street and is bounded by the TraPac Container Terminal (Berths 135-147) to the north, the West Basin to the west, the Turning Basin to the south, and Slip No. 1 to the east. Nearby land uses are all marine cargo terminals and access roads. The nearest residential receptor community is an apartment complex on N. Harbor Blvd. in San Pedro, approximately two-thirds of a mile southwest of the Project site.
10.	Other Public Agencies Whose Approval is Required:	<ul style="list-style-type: none"> • USACE • LARWQCB • CSLC • SCAQMD • LADBS • LAFD

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11.	Have California Native American Tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code 21808.3.1?	Yes (see Section 4.18)
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3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project (i.e., the proposed Project would involve at least one impact that is a “potentially significant impact” prior to mitigation, as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology and Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation and Traffic | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfires | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

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3.2 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

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

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

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

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

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



Signature

11/11/2021

Date

Christopher Cannon, Director
Environmental Management Division
City of Los Angeles Harbor Department

Environmental Checklist

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
1. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. BIOLOGICAL RESOURCES. Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the City or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. CULTURAL RESOURCES. Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. ENERGY. Would the project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
8. GREENHOUSE GAS EMISSIONS. Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. HYDROLOGY AND WATER QUALITY. Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. LAND USE PLANNING. Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. MINERAL RESOURCES. Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. NOISE. Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14. POPULATION AND HOUSING. Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
15. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. RECREATION				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. TRANSPORTATION. Would the project:				
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18. TRIBAL CULTURAL RESOURCES				
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
(i) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code §5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20. WILDFIRE. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21. MANDATORY FINDINGS OF SIGNIFICANCE				
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. Environmental Analysis and Discussion of Impacts and Mitigation Measures

4.1 AESTHETICS

- a. Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. The Conservation Element of the City of Los Angeles General Plan defines a scenic vista as a panoramic public view with access to natural features, including views of the ocean, striking or unusual natural terrain, or unique urban or historic features (City of Los Angeles, 2001). The Project site is industrial in nature, is located inside a working port, and is not within or near any protected or designated scenic vistas. The site consists of large storage tanks, a timber wharf, a concrete wharf, and offices and other associated industrial structures. The Project site is surrounded by other port uses, including container terminals and other bulk cargo facilities, in an area of the Port rarely visited by the general public (i.e., at the end of Pier “A” Street), and it is not an individually prominent feature from any scenic vista in the area. Further, the new loading platform, catwalks, and topside equipment would be at nearly the same location as the existing features and would be similar in appearance; thus, the Project improvements would not result in a substantive change in the visual character or quality of the site.

The Port of Los Angeles Master Plan Update Draft Environmental Impact Report (LAHD, 2013) identifies important and representative public views, including panoramic views of the Pacific Ocean and near and distant views that are representative of a working port environment, including vessels, wharves, cranes, and other dockside facilities. These critical views occur from points including the Main Channel and the San Pedro Waterfront, Harbor Freeway, Banning’s Landing, San Pedro Bluffs and Lookout Point Park, Wilmington Waterfront Park, and “C” Street residential area in Wilmington. Due to the combination of topography, intervening development, and distance, visibility of the Project site from many of these locations, or from higher locations, is limited. The critical views would not be obstructed by any of the elements of the proposed Project such as the new loading platform, mooring dolphins, catwalks, and topside equipment.

Construction of the proposed Project would involve construction equipment (i.e., cranes and barges) that could temporarily alter views of the Project site; however, this equipment would not obscure views, would be consistent with activities within the Port, and would be used over a short duration. Therefore, construction of the proposed Project would not introduce a new visual element that could have a substantial adverse effect on a scenic resource.

In the future, the Phillips 66 terminal would be used by vessels of the same types as those that are currently accommodated under baseline conditions. The largest vessels under baseline conditions are Panamax-class tankers (up to 80,000 DWT) while the largest vessels that would be able to be accommodated after completion of the proposed Project would be Aframax class tankers (up to 123,000 DWT, which would be expected to visit the terminal up to six times per year). Introduction of these somewhat larger but similar looking vessels would not substantially alter the visual characteristics of terminal operations. Furthermore, there would be no increase in the maximum number of vessels at the terminal

at one time. Accordingly, operation of the proposed Project would not substantially change views of the site or any scenic vista.

In summary, the proposed Project would not introduce a new visual element that could alter or obstruct recognized and valued views and would not have a substantial adverse effect on a scenic vista. This impact is would be less than significant and no mitigation is required.

- b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less-than-Significant Impact. The Project site is not located near an eligible or designated state scenic highway, nor are there scenic resources located at the Project site; therefore, the proposed Project activities would not have the potential to damage scenic resources within a state scenic highway. The California Department of Transportation (Caltrans) is responsible for the official nomination and designation of eligible scenic highways. The nearest officially designated state scenic highway is located approximately 32 miles north of the proposed Project (State Highway 2, north of Interstate (I)-210 in La Cañada to the San Bernardino County Line) (Caltrans 2013a). The nearest eligible state scenic highway is approximately 8 miles northeast of the proposed Project (State Highway 1 near Long Beach to I-5 south of San Juan Capistrano) (Caltrans 2013a). The Project site is not visible from either of these locations. Therefore, proposed Project activities would not affect the quality of the scenic views from these locations.

The City of Los Angeles has City-designated scenic highways that are considered during local planning and development decisions, several of which are in the vicinity of the proposed Project (City of Los Angeles 1999). John S. Gibson Boulevard, Pacific Avenue (from Crescent Avenue to Paseo del Mar), Front Street, and Harbor Boulevard (between Front Street and Crescent Avenue) are City-designated scenic highways because they afford views of the Port and the Vincent Thomas Bridge. However, views of the Project site from the City-designated scenic highways are either very limited or non-existent due to topography and/or intervening development, including buildings, gantry cranes, and stacked containers. The visual elements associated with the proposed project have either a low profile (loading platform, catwalks and associated improvements) or would be consistent with the existing terminal features (topside improvements), and would not have any impact on the views of the Vincent Thomas Bridge or from a City-designated scenic highway.

The Vincent Thomas Bridge is not a designated scenic route, but provides brief panoramic views of the Main Channel, West Turning Basin, and Port to observers on the bridge. Although the views of the Port and the Pacific Ocean from the bridge are panoramic, they are generally fleeting and highly obstructed by the bridge structure itself. Furthermore, the bridge is accessible to vehicles only: no provisions are made for pedestrian or bicycle use. The relatively narrow lanes of the bridge are the primary features of forward views.

The proposed Project would not result in additional vessels moored at the new loading platform. Because the vessels that would visit the terminal would be consistent with existing terminal operations and a working port, they would not have an impact on the fleeting views from the Vincent Thomas Bridge or City-designated scenic highways.

The Project site is located within an existing marine oil terminal. No scenic trees or rock outcroppings exist at the Project site. Improvements associated with the proposed Project,

including the loading platform, catwalks, and topside equipment would look similar to the existing facilities, would be consistent with the existing visual context of a working port and would not alter scenic resources visible from a City-designated scenic highway. Therefore, impacts to scenic resources from the proposed Project would be less than significant and no mitigation is required.

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

No Impact. The Project site is within an urbanized area and would not conflict with the applicable zoning at the site or surrounding areas, which is [Q] M3-1 (Qualified-Heavy Industrial). The appearance of the facilities in the area of the Project site is functional in nature and is characterized by exposed infrastructure, open storage, the use of unfinished or unadorned building materials, and the use of safety-conscious, high-visibility colors for mobile equipment such as cranes, containers, and railcars. The proposed Project would continue the existing use, which is consistent with the zoning of the site, and would maintain the visual character of the site and its vicinity. Accordingly, the proposed Project would not conflict with existing zoning or regulations governing visual quality, and neither construction nor operations would degrade the existing visual character or quality of public views. No impacts would occur and no mitigation is required.

- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. The Port is an area of high ambient lighting that includes approximately 25 terminals and other facilities, all of which are illuminated at night. The overall lighting environment includes two types of light sources: 1) fixed or stationary light sources associated with terminals (including crane lights), parking lot and backland light standards, building security lighting, and terminal access road or rail spur lighting; and 2) mobile light sources associated with ship, rail and truck traffic, cargo-moving equipment, and other vehicles on interior Port roadways.

The Project site has existing security and general nighttime lighting on the property and along the wharf, but lighting levels are generally lower than in nearby container terminals, which typically have much higher lighting levels associated with illuminated backlands, dockyards, and gantry cranes. Mobile light sources at the Project site include ships berthed at the wharf, trucks, and cars on the site and on the access road leading to the site.

Construction of the proposed Project would require construction lighting, but that lighting would be similar to existing conditions. Therefore, construction lighting would not cause a substantial change in the light environment. The existing wharf lighting or any unnecessary lighting would be removed from the wharf structures and replaced with new lighting. Lights along the new loading platform, the catwalks, and on some topside equipment would comply with the permit requirements of the Port of Los Angeles. The new lighting will provide the same function as existing lighting to provide safe visibility during nighttime operations and will not differ significantly from the existing lighting. Thus, the proposed Project would not result in a substantial increase in light.

Operation of the proposed Project would not result in an increase above baseline conditions in vessels at berth on any given day or truck trips and thus would not cause a substantial increase in light or glare which would adversely affect day or nighttime views in the area.

The proposed Project would not include elements that can cause glare, such as windows, light-color building surfaces, or metal or other reflective surfaces. Therefore, the proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts to nighttime or daytime views from light or glare from the proposed Project would be less than significant and no mitigation is required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

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

No Impact. The Project site does not contain any Farmland and is not located within any agricultural land use designation. The proposed Project is located in a highly developed area with existing petroleum tanks, piping and related equipment. Although the California Department of Conservation's Farmland Mapping and Monitoring Program has not mapped the Project site, the developed urban character of the surrounding area suggests that the appropriate Farmland Mapping and Monitoring Program mapping designation would be Urban and Built-Up Land (CDOC, 2011a, 2013). Therefore, the proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impacts would occur, and no mitigation is required.

- b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Williamson Act, also known as the California Land Conversion Act of 1969 (14 CCR Section 51200 *et seq.*), preserves agricultural and open space lands from the conversion to urban land uses by establishing a contract between local governments and private landowners to voluntarily restrict their land holdings to agricultural or open space use. Williamson Act contracts only apply to agricultural or related open spaces (CDOC, 2020). The Project site is not located on any lands with Williamson Act contracts. The Project site is located in a highly developed area currently designated as [Qualified] Heavy Industrial ([Q]M3-1) and does not support any agricultural uses. As such, the proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. No impacts would occur, and no mitigation is required.

- c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The Project site is currently zoned for qualified heavy industrial uses ([Q] (M3-1) and is within the Harbor Gateway State Enterprise Zone (ZI-2130). The Project site does not support timberland or forest land. Therefore, the proposed Project would not conflict with

existing zoning of, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. Therefore, no impact would occur and no mitigation is required.

- d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As discussed in Section 4.2(c) above, the Project site does not support forest land, nor is any forest land located in the vicinity. Therefore, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. No impacts would occur, and no mitigation is required.

- e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. As discussed in Sections 4.2(a) through (d) above, the Project site is developed and does not have any Farmland or forest land, nor is any Farmland or forest land located in the vicinity. Therefore, the proposed Project would not result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. No impacts would occur, and no mitigation is required.

4.3 AIR QUALITY

- a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact

Air Quality Management Plan. The federal Clean Air Act (CAA) of 1970 and its subsequent amendments form the basis for the nation's air pollution control effort. The United States Environmental Protection Agency (EPA) is responsible for implementing most aspects of the CAA. A key element of the CAA is the national ambient air quality standards (NAAQS) for major air pollutants. The CAA delegates enforcement of the NAAQS to the states. In California, the California Air Resources Board (CARB) is responsible for enforcing air pollution regulations. CARB, in turn, delegates to local air agencies the responsibility of regulating stationary emission sources.

The South Coast Air Quality Management District (SCAQMD) monitors air quality within the proposed Project site and the South Coast Air Basin (Air Basin or Basin), which includes Orange County and portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. For regions that do not attain the NAAQS, the CAA requires the preparation of a State Implementation Plan (SIP).

The SCAQMD 2016 Air Quality Management Plan (AQMP) (SCAQMD 2017) focuses on attainment of the ozone and particulate matter less than 2.5 microns in diameter (PM_{2.5}) NAAQS through the reduction of ozone and PM_{2.5} precursor nitrogen oxides (NO_x), as well as through direct control of PM_{2.5}. The 2016 AQMP reported that although the population in the Southern California Association of Governments (SCAG) region has increased by more than 20% since 1990, air quality has improved due to air quality control programs at the local, state, and federal levels. In particular, 8-hour ozone levels have been

reduced by more than 40%, 1-hour ozone levels by close to 60%, and annual PM_{2.5} levels by close to 55% since 1990 (SCAQMD 2017).

The AQMP proposes emission-reduction measures designed to bring the Basin into attainment of the national and state Ambient Air Quality Standards (AAQS). AQMP attainment strategies include mobile source control measures and clean fuel programs enforced at the state and federal levels on engine manufacturers and petroleum refiners and retailers. As a result, the proposed Project construction and operational activities would be required to comply with all applicable current local, state, and federal air quality regulations along with any development in the future as part of the AQMP. This would further ensure that the proposed Project's activities would not obstruct implementation of the AQMP.

San Pedro Bay Ports Clean Air Action Plan. The LAHD adopted the San Pedro Bay Ports Clean Air Action Plan (CAAP), designed to reduce the health risks posed by air pollution from all port-related emissions sources, including ships, trains, trucks, terminal equipment, and harbor craft, in 2006 and adopted updates in 2010 and 2017 (LAHD 2006, LAHD 2017a). The CAAP 2017 Update contains strategies to reduce emissions from sources in and around the Ports, plan for zero-emissions infrastructure, encourage freight efficiency, and address energy resources.

Sustainable Construction Guidelines. As part of LAHD's overall environmental goals and CAAP strategies, any construction at the Port must follow the Sustainable Construction Guidelines. The latest Guideline is attached as Appendix C.

At-Berth Regulation. On August 27, 2020, CARB adopted new requirements for their At-Berth Regulation for controlling emissions from ocean-going vessels. The new requirements include controlling emissions from tanker vessels by 2025. Emissions can be controlled in one of three ways: 1) a vessel turns off auxiliary engines and connects to shore power, 2) use of a CARB approved emission control strategy, or 3) use of an innovative concept that reduces emission greater than or equal to emissions reductions achieved by using either control measure 1 or 2. By December 1, 2021, Phillips 66 terminal will be required to submit a terminal plan to CARB on their proposed control strategy to meet the At-Berth Regulation.

As mentioned above, the proposed Project's construction and operational activities would be required to comply with all applicable air quality regulations as they are developed further ensuring that the proposed Project's activities would not obstruct implementation of the AQMP, CAAP, the Sustainable Construction Guidelines, or the At-Berth Regulation. Therefore, a less than significant impact is expected and no mitigation is required.

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

Less-than-Significant Impact with Mitigation. NAAQS and CAAQS have been established for the following criteria pollutants: CO, ozone, sulfur dioxide, nitrogen dioxide, PM₁₀, PM_{2.5}, and lead. Areas are classified under the federal CAA areas as attainment, nonattainment, or maintenance for each criteria pollutant based on whether the NAAQS have been achieved. The County is designated as a federal nonattainment area for ozone and PM_{2.5} and state nonattainment area for ozone, PM₁₀, and PM_{2.5}. The Los Angeles

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County area of the South Coast Air Basin, which includes the Port, is also in federal nonattainment for lead. SCAQMD has developed maximum daily emissions significance thresholds for all criteria pollutants (see Table 4.3-1) for both the assessment of construction and operational impacts. The proposed Project would not increase lead emissions above baseline; therefore, lead is not a pollutant of concern for the proposed Project.

It should be noted that air quality in the South Coast Air Basin has improved over the last several decades due to emission reductions from industrial sources, introduction of low-emission fuels used in on-road motor vehicles (e.g., low-sulfur fuels, reformulated gasoline, and low-carbon fuel standards), state regulations, implementation of CAAP strategies, and implementation of the AQMPs which identify emission reductions strategies and which are subsequently promulgated as enforceable regulations.

Table 4.3-1. SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds ^a		
Pollutant	Construction ^b	Operation ^c
NO _x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (includes carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO _{2eq} for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants ^d		
NO ₂ 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM ₁₀ 24-hour average annual average	10.4 µg/m ³ (construction) ^e & 2.5 µg/m ³ (operation) 1.0 µg/m ³	
PM _{2.5} 24-hour average	10.4 µg/m ³ (construction) ^e & 2.5 µg/m ³ (operation)	
SO ₂ 1-hour average 24-hour average	0.25 ppm (state) and 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m ³ (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 µg/m ³ (state) 0.15 µg/m ³ (federal)	

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^a Source: SCAQMD CEQA Handbook (South Coast AQMD, 1993)

^b Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).

^c For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.

^d Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

^e Ambient air quality threshold based on SCAQMD Rule 403

KEY: lbs/day – pounds per day ppm – parts per million $\mu\text{g}/\text{m}^3$ – microgram per cubic meter

MT/yr CO_{2eq} – metric tons per year ≥ - greater than or equal to > greater than
of CO₂ equivalents

Construction Impacts

For purposes of this analysis, project construction emissions were calculated for every year of construction, beginning in 2021 through 2026, in accordance with the anticipated Project construction schedule presented in Appendix A. The actual construction schedule may differ from the one used in the analysis, depending on requirements of the Project proponent and construction contractor. The schedule used in the analysis is anticipated to result in conservative emission estimates because assumptions reflect an accelerated schedule and early construction years; postponement of construction activities would result in lower impacts as more stringent regulatory requirements are implemented in later years, when construction may take place, than those assumed in the analysis years.

The proposed Project would include both land-based and in-water construction activities. Land-based construction activities would require the use of off-road construction equipment and on-road vehicles. In-water construction activities would require the use of barges and tugboats. These emission sources would primarily use diesel fuel, resulting in combustion exhaust emissions in the form of volatile organic compounds (VOCs), carbon monoxide (CO), NO_x, SO_x, and particulate matter. Earth-moving activities, such as excavation/grading and driving over paved and unpaved surfaces, would also generate particulate emissions (PM₁₀ and PM_{2.5}) in the form of fugitive dust.

Land-based construction-related emissions were quantified using emission factors and construction parameters from CARB's on-road emissions model (EMFAC), CAPCOA's California Emissions Estimator Model (CalEEMod) and fugitive dust emissions from EPA's Compilation of Air Pollutant Emission Factors AP-42 and CARB roadway silt loading values as described in Appendix A. Marine equipment emissions related to construction barges and tugs were quantified using average harbor craft specifications from the 2019 Port of Los Angeles Inventory of Air Emissions (Emissions Inventory) (LAHD, 2020a) and USEPA emission standards for compression ignition marine engines (details provided in Appendix A). Activity related to construction (phasing of activities, hours of operations, days of construction, number of truck trips, equipment requirements) was estimated based on the Project Description (LAHD 2020b) and are detailed in Appendix A.

The year with the largest construction emissions is estimated to be the first year of construction (which was assumed to be 2021 for purposes of these calculations) for PM₁₀ and PM_{2.5}, 2022 for NO_x and 2023 for SO_x, CO and VOC; these maximum daily emissions were compared to the SCAQMD regional CEQA significance thresholds for construction

activities. Table 4.3-2 presents the proposed Project’s regional construction impacts for each source category and shows that peak day construction emissions would not exceed SCAQMD CEQA significance thresholds. Additional details on emission calculations are included in Appendix A.

Table 4.3-2. Peak Construction Emissions (lbs/day)						
Source Category	PM₁₀	PM_{2.5}	NOx	SOx	CO	VOC
2021						
Offroad Construction Equipment	0.0	0.0	1.0	0.0	20.7	0.5
Onroad Construction Vehicles	3.4	1.2	40.2	0.2	2.3	0.1
Marine Equipment	0.6	0.6	12.5	0.0	7.6	0.7
Fugitive Emissions	7.7	1.2	0.0	0.0	0.0	0.0
Total Construction Year 2021	11.7	2.9	53.7	0.2	30.5	1.3
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2022						
Offroad Construction Equipment	0.2	0.2	21.3	0.2	99.8	2.4
Onroad Construction Vehicles	2.1	0.7	18.2	0.1	4.6	0.2
Marine Equipment	1.2	1.1	23.4	0.0	7.6	0.7
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2022	3.6	2.0	62.9	0.3	112.0	3.2
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2023						
Offroad Construction Equipment	0.4	0.4	49.1	0.3	162.6	4.1
Onroad Construction Vehicles	1.7	0.5	6.7	0.1	7.7	0.2
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.3	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2023	2.4	1.0	55.8	0.3	170.3	4.3
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2024						
Offroad Construction Equipment	0.2	0.2	52.8	0.2	132.1	3.4
Onroad Construction Vehicles	1.0	0.3	0.2	0.0	3.6	0.1
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0

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Total Construction Year 2024	1.2	0.5	53.0	0.2	135.7	3.5
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2025						
Offroad Construction Equipment	0.2	0.2	50.2	0.2	118.3	3.2
Onroad Construction Vehicles	0.9	0.3	0.1	0.0	2.5	0.0
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2025	1.1	0.5	50.3	0.2	120.8	3.2
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2026						
Offroad Construction Equipment	0.0	0.2	22.6	0.1	69.6	1.7
Onroad Construction Vehicles	0.0	0.1	0.1	0.0	2.4	0.0
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.6	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2026	0.7	0.3	22.8	0.1	72.0	1.8
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No

Operational Impacts

Project operational emissions were estimated for the 2019 baseline and the year following Project build-out, which for purposes of emissions estimates was assumed to be 2025.

Marine oil terminal emissions are primarily comprised of in-water sources including OGVs (i.e., tankers), ocean-going barges, bunkering barges, and assist tugboats. Terminal landside emissions sources also include tanker trucks, storage tanks, vapor control unit, and fugitives from tank farm piping. The following analysis describes operational emission sources, general source characteristics, and facility activities. For all sources described below, Appendix A presents product throughput, hours of activity, source characteristics, and emission factors; sections 2.1.2 and 2.2 present comprehensive descriptions of facility operations for the 2019 baseline period and future Project operational emissions.

OGVs: In 2019, product was transported to the terminal via OGV tankers (i.e., Chemical, Handysize, and Panamax), articulated tug barges (ATBs), and tug-pulled ocean-going barges, and transported from the terminals via trucks, ocean-going barges and tug-pulled bunkering barges. This practice would continue during operation of the proposed Project.

ATBs are barges that consist of a tank vessel (barge) and a tug that is positioned in a notch in the stern of the barge, which enables the tug to propel and maneuver the barge. Ocean-going barges are pushed or pulled by separate tugboats. The types of vessels visiting the marine terminal are not expected to change appreciably in the future from the 2019 baseline, except for the introduction of occasional visits from Aframax class OGV tankers. During the baseline period, there were 84 total annual vessel calls (ATBs, OGV barges and tankers) to the terminal. Under future operations, annual vessel calls are estimated to be 117, of which approximately 6 would be by Aframax vessels.

Peak daily emissions of criteria pollutants from OGV tankers, ATBs, and ocean-going barges were calculated using engine characteristics and loads in the 2019 Emissions Inventory (LAHD 2020a) and 2019 terminal call data as presented in Table 2.2-1. Emission factors and calculations followed the methodology described in the 2019 San Pedro Bay Ports Emissions Inventory Methodology Report (LAHD 2019b).

Although implementation of the CARB At-Berth control measure has yet to occur, for purposes of calculating annual Project emissions, hotelling emissions from future OGV tankers visits are assumed to meet requirements of the At-Berth Regulation using a barge-based bonnet emissions capture and treatment system. This is a conservative approach as GHG emissions with this control measure in place would be slightly higher than without it due to the use of barge-mounted generators. However, peak-day hotelling emissions are assumed to be uncontrolled, i.e., the peak day is assumed to be associated with a vessel or terminal Incident Event (VIE/TIE) as accommodated under the CARB rule during which at-berth controls are not used.

Bunkering Barges: Bunkering barges are relatively small fuel barges that are loaded with fuel at the terminal, using shore-side pumps, and are then pushed/pulled by a tugboat to fuel other vessels within and near the Port. Emissions associated with bunkering barge activity are from on-board auxiliary engines and tugboats which are used to push/pull the bunkering barges and are discussed below. During the 2019 baseline year, 147 bunkering barges called to the terminal. Under the Project, future annual bunkering barge visits are estimated to total 189 calls.

Tugboats: Tugboats are used to assist OGV tankers, ocean-going barges, ATBs, and bunkering barges during transit and maneuvering. Two tugboats are needed to assist each OGV tanker, one to assist each ATB, two to assist each ocean-going barge, and one to assist each bunkering barge. Tugboat criteria pollutant emissions from fuel combustion were calculated using engine characteristics and loads in the 2019 Emissions Inventory (LAHD 2020a), emission factors specified in the CARB Harbor Craft Emissions Inventory Database (CARB 2011), and vessel activity presented in Table 2.2-1.

Trucks: Product is loaded to tanker trucks and delivered to destinations within a radius of 15 miles from the marine terminal. Annual trucking days and corresponding annual activity are anticipated to remain constant as compared to the 2019 baseline, as presented in Table 2.2-1. Truck criteria pollutant emission factors were calculated using the CARB's EMFAC 2021 web-based database (CARB 2021).

Worker Vehicles: Emissions associated with worker vehicles were calculated using CARB's EMFAC 2021 web-based database and activity presented in Appendix A.

Landside Stationary Sources: Emissions from stationary sources associated with landside operations were obtained from the facility permit reports for 2019. Landside operations are not expected to change during the Project. However, emissions from these sources were conservatively scaled upwards based on the estimated increase in annual product throughput listed in Table 2.2-1. Details are provided in Appendix A.

Significance of regional air quality impacts was determined by comparing the proposed Project's reasonable, peak day emissions to the SCAQMD thresholds. The baseline (2019) peak day activity consisted of a Handysize tanker discharging at berth for 18 hours and then leaving, a Panamax tanker arriving from anchorage to take its place at berth, and two vessels (an OGV barge and another Handysize tanker) at anchorage during the 24-hr period. Under the proposed Project, a reasonable future peak day would consist of an Aframax tanker discharging at berth for 18 hours and then leaving, a Handysize tanker that was waiting at the anchorage taking its place for the last 5 hours, and an OGV barge at anchorage for 20 hours, followed by 4 hours of transit. Tug assist emissions in the peak day would be consistent with vessel transit requirements per vessel type, as explained above. Background operations of trucking, worker vehicles, and landside sources are also included in the peak day activities but are not expected to change significantly between the baseline and future operational scenarios.

Criteria pollutant impacts were based on incremental peak day emissions from the proposed Project that would occur within the borders of the South Coast Air Basin compared against SCAQMD's peak day regional emission thresholds for determination of significance. Table 4.3-3 summarizes 2019 baseline operational peak day emissions and the Project peak day operational emissions, which represent the buildout year of the Project (assumed as calendar year 2025 for purposes of these calculations). Emissions from construction phases involving refurbishment of the tank farm (assumed to occur during 2024 – 2026 for purposes of these calculations) which are scheduled to occur after start of Project operations at Berths 150-151 are added to the operational emissions in Table 4.3-3. The table shows that the incremental impacts of the proposed Project and overlapping construction, as calculated by the difference between Project and baseline emissions for all criteria pollutants, would be below SCAQMD significance thresholds for all pollutants except NO_x. The increase in NO_x emissions is primarily a result of increased vessel transiting emissions from the larger Aframax tanker when compared to the smaller vessels (i.e., Panamax, Handysize, or Chemical) that visited during the baseline period. More details on methodology and assumptions used to prepare the peak day operational emissions calculations can be found in Appendix A.

Table 4.3-3. Peak Daily Operational Emissions Without Mitigation (lbs/day)						
Source Category	PM₁₀	PM_{2.5}	NOx	SOx	CO	VOC
2019 Baseline						
Ships - at Berth	29	27	792	104	83	40
Ships - Transit	9	9	713	18	38	23
Ships - Anchorage	16	15	674	38	73	33
Tugboats	2	2	60	0	44	6
Trucks	0.03	0.01	0.75	0.00	0.05	0.02
Worker Vehicles	0.00	0.00	0.01	0.00	0.12	0.00
Landside Sources	0	0	0	0	0	35
2019 Baseline Total	56	53	2240	160	238	137
Future Project						
Ships - at Berth	41	38	886	157	98	48
Ships - Transit	17	16	1101	31	70	27
Ships - Anchorage	7	7	347	15	36	17
Tugboats	6	6	158	0	116	17
Trucks	0.02	0.01	0.25	0.00	0.01	0.00
Worker Vehicles	0.00	0.00	0.00	0.00	0.08	0.00
Landside Sources	0	0	0	0	0	63
Project Total	71	67	2493	203	322	171
Overlapping Construction	1	0.48	53	0.23	136	4
Project Total with Overlapping Construction	72	67	2546	203	457	175
CEQA Impacts of Project and Overlapping Construction						
Project Minus CEQA Baseline	16	14	306	43	219	38
SCAQMD Significance Threshold	150	55	55	150	550	55
Significant?	No	No	Yes	No	No	No

Notes:

Emissions may not add exactly due to rounding.

Schedule for construction is tentative and overlapping of construction and Project peak day operations may not occur in every year of the 2024-2026 tank farm refurbishment construction period but is conservatively estimated here. Peak day construction emissions used here represent 2024 due to its higher value.

Cumulative impacts may result from individually minor but collectively significant projects. CEQA Guidelines Section 15355 define cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” CEQA Guidelines Section 15064(h)(4) also state that “the mere existence of cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed Project’s incremental effects are cumulatively considerable.”

The proposed Project would be considered cumulatively significant if its contribution to impacts of related projects in the area would be considerable. Per SCAQMD policy (SCAQMD 2003), a project’s contribution is considered cumulatively considerable if the project’s impacts exceed SCAQMD project-specific significance thresholds. As discussed above, construction of the proposed Project would not exceed SCAQMD thresholds for regional emissions. However, operation of the proposed Project without mitigation would exceed the SCAQMD project-specific significance threshold for NOx. Therefore, the proposed Project’s contribution would be considered cumulatively considerable under SCAQMD’s policy, the impact is significant and mitigation is required.

Emissions of NOx during operations and overlapping construction will be reduced by Mitigation Measures MM AQ-1 and MM AQ-2, respectively:

Mitigation Measures

MM AQ-1 Vessel Speed Reduction. Emissions from visiting vessels will be reduced by requiring all Aframax-class vessels calling on the Phillips 66 marine oil terminal to maintain in-bound and out-bound speeds of no greater than 9 nautical miles per hour (knots) between the terminal and the outer boundary of the South Coast Air Basin, i.e., 40 nautical miles seaward of Point Fermin.

MM AQ-2 Temporary Construction Restrictions During Project Operations. Upon commencement of Project operations at the new MOTEMS-compliant Berth 150-151, any remaining on-going Project construction such as refurbishment of petroleum storage tanks or other emissions-generating Project construction work, will be halted whenever a vessel (in particular, an Aframax class vessel) larger than the largest vessel to have called at the Phillips 66 Marine Oil Terminal during the 2019 CEQA baseline period is berthed at the Phillips 66 Marine Oil Terminal.

Peak daily operational emissions with Mitigation Measures MM AQ-1 and MM AQ-2 in place are summarized in Table 4.3-4. Mitigation MM AQ-1 reduces Project operational emissions related to ship transiting, while Mitigation MM AQ-2 nullifies overlapping construction emissions during peak day Project operations, i.e., when an Aframax vessel is berthed at the terminal. Combined mitigated peak day construction and operations emissions would be below the SCAQMD significance thresholds for all pollutants. Therefore, the proposed Project’s mitigated contribution would not be cumulatively considerable and the impact of the proposed Project with mitigation is not cumulatively significant.

Source Category	PM₁₀	PM_{2.5}	NOx	SOx	CO	VOC
2019 Baseline						
Ships - at Berth	29	27	792	104	83	40
Ships - Transit	9	9	713	18	38	23
Ships - Anchorage	16	15	674	38	73	33
Tugboats	2	2	60	0	44	6
Trucks	0.03	0.01	0.75	0.00	0.05	0.02
Worker Vehicles	0.00	0.00	0.01	0.00	0.12	0.00
Landside Sources	0	0	0	0	0	35
2019 Baseline Total	56	53	2240	160	238	137

Source Category	PM₁₀	PM_{2.5}	NO_x	SO_x	CO	VOC
<i>Future Project</i>						
Ships - at Berth	41	38	886	157	98	48
Ships - Transit	9	8	839	22	56	20
Ships - Anchorage	7	7	347	15	36	17
Tugboats	6	6	158	0	116	17
Trucks	0.02	0.01	0.25	0.00	0.01	0.00
Worker Vehicles	0.00	0.00	0.00	0.00	0.08	0.00
Landside Sources	0	0	0	0	0	63
<i>Mitigated Project Total</i>	63	59	2230	193	307	165
Mitigated Overlapping Construction	0	0	0	0	0	0
<i>Project Total with Overlapping Construction</i>	63	59	2230	193	307	165
CEQA Impacts of Project and Overlapping Construction with Mitigation						
Project Minus CEQA Baseline	6	6	-10	34	70	28
SCAQMD Significance Threshold	150	55	55	150	550	55
Significant?	No	No	No	No	No	No

Notes:

Emissions may not add exactly due to rounding.

Mitigation MM AQ-1 is applied to Project operational emissions for Ships – Transit emissions.

Mitigation MM AQ-2 is applied to overlapping construction emissions.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. Sensitive receptors include residences, hospitals, or convalescent facilities. The nearest sensitive receptors would be residents of the apartment complex on N. Harbor Blvd. in San Pedro located approximately 3,500 feet (1,067 meters) southwest of the proposed Project site. Impacts to sensitive receptors are typically evaluated in terms of exposure to toxic air contaminants, in accordance with EPA's Office of Environmental Health Hazard Assessment (OEHHA) Guidelines (OEHHA 2015).

Proposed Project construction activities would occur over a period of approximately 67 months and would result in short-term emissions of DPM from the combustion of diesel fuel in off-road construction equipment engines and on-road vehicles.

Although, as shown in Table 4.3-4, mitigated Project operational activities would result in peak daily emissions below significance thresholds, the increase in annual vessel activity would increase annual DPM emissions above baseline emissions from sources such as vessel hotelling at berth. Vessels at anchor and in transit would also result in annual DPM emissions; however, these sources would be sufficiently distant from sensitive receptors such that their impact contribution would not be considerable. SCAQMD has determined

that that toxic air contaminant impacts are localized in nature and that exposure from toxic air contaminants decline by 90% at 300 to 500 feet from the emissions source (SCAQMD 2005). The nearest sensitive residential receptors are more than 3,500 feet (1,067 meters) from the Project site and therefore impacts at these locations can be expected to fall below health-protective significance thresholds for sensitive receptors.

In order to meet AQMP and SIP requirements, the SCAQMD has developed health-protective significance thresholds for emissions for use in CEQA documents¹. SCAQMD recommends using their regional and localized thresholds to evaluate whether a proposed Project’s criteria pollutant emissions would violate any AAQS or contribute substantially to an existing or projected air quality violation. Whereas regional thresholds are mass emission thresholds that are the same for all projects, localized thresholds vary depending on project location. Comparison to the AAQS, which are localized concentration-based standards, requires air dispersion modeling and can be time consuming. To address this, the SCAQMD developed the Localized Significance Thresholds (LST) screening methodology that allows users to determine, in lieu of conducting air dispersion modeling, if a project would cause or contribute to an exceedance of the AAQS (SCAQMD 2015).

LSTs apply to on-site emissions and are dependent upon the location and size of the project area and the separation distance of the emissions from a human receptor. Proposed Project construction would cover approximately 1 acre, in what is considered SCAQMD source-receptor area (SRA) 4: South Coastal LA County. Construction activities would occur more than 500 meters from the closest residential receptor and 50 meters from the closest off-site worker receptor. LSTs used for evaluation of operational emission impacts were conservatively assumed to be for a 5-acre operational area. Table 4.3-5 shows regional and localized thresholds of significance which were applied in evaluating the proposed Project’s impacts.

Table 4.3-5. SCAQMD Localized Significance Thresholds for Daily Emissions and Ambient Pollutant Concentrations

Localized Significance Thresholds (lbs/day)		
Air Pollutant	Construction	Operations
NO ₂ (residential/worker)	142 / 58	179 / 118
CO (residential/worker)	7558 / 789	10,198 / 1,982
PM ₁₀ (residential)	158	46
PM _{2.5} (residential)	93	29

Source: SCAQMD CEQA Thresholds 2015.

Appendix C Mass Lookup Table. SCAQMD LST Thresholds 2008.

Notes:

PM₁₀ and PM_{2.5} LSTs are relevant to sensitive receptors reasonably likely to be present for 24 hours or more. Since off-site worker receptors are not expected to be present for this duration, significance for particulates have been omitted for off-site worker receptors.

SCAQMD LSTs are based on:

- Daily area disturbed of 1 acre for construction and 5 acres for operational activities.

¹ SCAQMD has determined that toxic air contaminant impacts are localized in nature and that exposure from toxic air contaminants decline by approximately 90% at 300 to 500 feet from the emissions source (SCAQMD 2005).

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- 500-meter separation distance to the closest residential/sensitive receptor. This results in a conservative threshold because the actual separation distance is over 1,000 meters at the apartment complex on N. Harbor Blvd in San Pedro.
- 50-meter separation distance to the closest off-site worker receptor to the north, based on Trapac Terminal site location
- Source Receptor Area: 4

Table 4.3-6 presents the proposed Project’s localized construction impacts and shows that peak day construction emissions would not exceed SCAQMD’s LST significance thresholds. Therefore, construction-related impacts would be less than significant and no mitigation is required.

Table 4.3-6. Localized Peak Daily Construction Emissions (lbs/day)

Year	Residential Receptors				Off-site Worker Receptors	
	PM ₁₀	PM _{2.5}	NO ₂	CO	NO ₂	CO
2021	8.3	1.7	13.5	28.4	13.5	28.4
2022	1.5	1.3	44.8	107.6	44.8	107.6
2023	0.8	0.5	49.1	162.8	49.1	162.8
2024	0.2	0.2	52.8	132.1	52.8	132.1
2025	0.2	0.2	50.2	118.3	50.2	118.3
2026	0.6	0.2	22.6	69.6	22.6	69.6
<i>LST Threshold</i>	<i>158</i>	<i>93</i>	<i>142</i>	<i>7,558</i>	<i>58</i>	<i>789</i>
Significant?	No	No	No	No	No	No

Notes:

Emissions may not add exactly due to rounding.

PM₁₀ and PM_{2.5} LST thresholds are relevant to sensitive receptors reasonably likely to be present for 24 hours or more. Since off-site worker receptors are not expected to be present for this duration, significance for particulates has been omitted for off-site worker receptors.

SCAQMD LST thresholds are based on:

- Daily area disturbed of 1 acre for construction activities.
- 500-meter separation distance to the closest residential/sensitive receptor, residents of the apartment complex on N. Harbor Blvd. in San Pedro located approximately 3,500 feet (1,067 meters) southwest of the proposed Project site.
- 50-meter separation distance to the closest off-site worker receptor.
- Source Receptor Area: 4.

Per SCAQMD guidance, only on-site sources for construction are included, which are marine equipment, off-road construction equipment and on-site fugitive dust.

In addition to evaluating operational emissions against CEQA significance thresholds (Table 4.3-4), the change (Project minus baseline) in on-site operational emissions under the proposed Project was compared to SCAMD’s operational LSTs. The overlapping unmitigated construction emissions were conservatively added to the Project onsite emissions and compared to the operational LSTs. Table 4.3-7 shows that the localized emissions of the proposed Project, as calculated by the difference between Project with overlapping construction against the baseline emissions for all criteria pollutants, would be

below LSTs for emissions near residential receptors and for CO for the offsite worker receptor, but above the LST for NO_x peak daily emissions at the nearest Offsite Worker receptor.

Table 4.3-7. Localized Peak Daily Operational Emissions – Onsite Emissions and Unmitigated Overlapping Construction (lbs/day)

Operational Source	Peak Day Emissions - Residential Receptors				Peak Day Emissions - Offsite Worker Receptors	
	PM ₁₀	PM _{2.5}	NO ₂	CO	NO ₂	CO
2019 Baseline						
Ships - at Berth	29	27	792	83	792	83
Stationary Sources	0	0	0	0	0	0
Total Onsite 2019	29	27	792	83	792	83
Project						
Ships - at Berth	41	38	886	98	886	98
Stationary Sources	0	0	0	0	0	0
Overlapping Construction	1	0.5	53	136	53	136
Total Onsite Project	42	39	939	234	939	234
<i>CEQA Increment</i>	13	11	147	151	147	151
LST Threshold	46	29	179	10,198	118	1,982
Significant?	No	No	No	No	Yes	No

Notes:

Emissions may not add exactly due to rounding.

PM₁₀ and PM_{2.5} LST thresholds are relevant to sensitive receptors reasonably likely to be present for 24 hours or more. Since off-site worker receptors are not expected to be present for this duration, significance for particulates has been omitted for off-site worker receptors.

SCAQMD LST thresholds are based on:

- Operations area is 5 acres
- 500-meter separation distance to the closest residential/sensitive receptor, residents of the apartment complex on N. Harbor Blvd. in San Pedro located approximately 3,500 feet (1,067 meters) southwest of the proposed Project site.
- 50-meter separation distance to the closest off-site worker receptor, north adjacent Trapac terminal.
- Source Receptor Area: 4.

Per SCAQMD guidance, only on-site sources for operations are included, which consist of ships at berth (hoteling) and landside stationary sources.

Since mitigation measure MM AQ-1 would only affect off-site vessel transit emissions, it would not change emissions from onsite sources evaluated against the LSTs. However, MM AQ-2 would remove overlapping construction emissions during the peak day. As shown in Table 4.3-8, peak-day on-site incremental operational emissions under the Project with Mitigation would not exceed SCAQMD LST significance thresholds. The nearest residential receptors are approximately 3,500 feet (1,067 meters) from the Project site and calculated emissions after mitigation would not exceed the health-protective LST significance

thresholds. Therefore, operational-related impacts would be less than significant after mitigation.

Table 4.3-8. Localized Peak Daily Operational Emissions – Onsite Emissions and Overlapping Construction with Mitigation (lbs/day)

Operational Source	Peak Day Emissions - Residential Receptors				Peak Day Emissions - Offsite Worker Receptors	
	PM ₁₀	PM _{2.5}	NO ₂	CO	NO ₂	CO
2019 Baseline						
Ships - at Berth	29	27	792	83	792	83
Stationary Sources	0	0	0	0	0	0
Total Onsite 2019	29	27	792	83	792	83
Project						
Ships - at Berth	41	38	886	98	886	98
Stationary Sources	0	0	0	0	0	0
Overlapping Construction	0	0	0	0	0	0
Total Onsite Project	41	38	886	98	886	98
CEQA Increment	12	11	94	15	94	15
LST Threshold	46	29	179	10,198	118	1,982
Significant?	No	No	No	No	No	No

Notes:

Emissions may not add exactly due to rounding.

PM10 and PM2.5 LST thresholds are relevant to sensitive receptors reasonably likely to be present for 24 hours or more. Since off-site worker receptors are not expected to be present for this duration, significance for particulates has been omitted for off-site worker receptors.

SCAQMD LST thresholds are based on:

- Operations area is 5 acres
- 500-meter separation distance to the closest residential/sensitive receptor, residents of the apartment complex on N. Harbor Blvd. in San Pedro located approximately 3,500 feet (1,067 meters) southwest of the proposed Project site.
- 50-meter separation distance to the closest off-site worker receptor, north adjacent Trapac terminal.
- Source Receptor Area: 4.

Per SCAQMD guidance, only on-site sources for operations are included, which consist of ships at berth (hoteling) and landside stationary sources.

Mitigation measure MM AQ-1 does not affect onsite operational emissions

Mitigation measure MM AQ-2 is applied to overlapping construction.

As discussed above, the proposed Project construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant and no additional mitigation is required.

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

Less-than-Significant Impact. Short-term odors from the use of diesel-powered, heavy-duty equipment and tugs may occur during construction. The existing industrial setting of the proposed Project represents an already complex odor environment. Odors from operation of the proposed Project would be similar to odors produced from existing marine oil terminal operations and related activity and would be primarily associated with vessels berthed at the terminal. Within this context, the proposed Project would not likely result in changes to the overall odor environment in the vicinity

The distances between proposed Project emission sources and the nearest sensitive receptors, residents at the apartment complex on N. Harbor Blvd. in San Pedro located approximately 3,500 feet (1,067 meters) to the southwest are far enough away to allow for adequate dispersion of these emissions to below objectionable odor levels. No new odor sources are anticipated upon final Project buildout. Impacts would be less than significant and no mitigation is required.

In summary, the proposed Project would not exceed SCAQMD thresholds of significance for regional and localized air quality impacts, would not obstruct implementation of the AQMP or the CAAP, and would not result in any other emissions (including odors) affecting a substantial number of people. Therefore, impacts would be less than significant with or without mitigation.

4.4 BIOLOGICAL RESOURCES

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

Less-than-Significant Impact with Mitigation. The proposed Project involves both in-water and on-land construction. In-water construction would include demolition and pulling of piles, driving new piles, and repairing a portion of the seawall, and on-land construction would include minor trenching and excavation, installation and relocation of utilities and pipelines, and minor grading and repaving. The new concrete vessel unloading facility at Berth 151 would replace the existing treated timber piles with steel and concrete piles and would be substantially smaller than the existing wooden wharf, thereby reducing the amount of shaded water area by approximately 16,000 ft².

Special-Status Plants

The land-based portion of the Project site consists largely of paved surfaces surrounding industrial facilities. A small amount of vegetation is present, consisting of common weedy species, patches of grass, and ornamental trees and shrubs. No candidate, sensitive, or special-status plant species are known to occur on the Project site and there is no habitat that would support such species. Accordingly, no impacts would occur to special-status plants.

Special-Status Wildlife

A number of Federal and state-listed threatened and endangered species are found in Los Angeles Harbor area (Table 4.4-1). As mentioned above, the current Project area is an active marine oil terminal. Given the industrialized and largely paved nature of these berths, the Project site is highly unlikely to serve as nesting habitat for any of the listed bird species, and it is not considered critical foraging habitat for any of the special-status bird species, including the endangered California least tern (*Sternula antillarum brownii*). Furthermore, construction would not remove the small amount of vegetation present that could be nesting habitat for species afforded protection under the Migratory Bird Treaty Act. As operational activity would be similar to existing conditions, operations would not result in increased disruption of bird activity. Accordingly, impacts on listed bird species would be less than significant and no mitigation is required.

Five species of marine mammals are known to forage in the Port (Table 4.4-1), but none breeds there. Sea lions were observed throughout the Port, including near Berth 148-151, in all of the Biosurveys conducted in the Port Complex (MEC 2002, SAIC 2010, MBC 2016, Wood E&S 2021), while harbor seals, which were far less abundant than sea lions, were largely limited to Outer Harbor waters and have rarely been observed in the vicinity of the Project site. Neither of these species is endangered, and there are no designated significant ecological areas for either species within the Port.

Table 4.4-1. Special Status Species (Designated by CDFW and USFWS) Observed in the Port Area

Species	Agency/Designation	Notes
Birds		
Belding's Savannah Sparrow (<i>Passerculus sandwichensis</i>)	CDFW – SE	Inhabits coastal salt marches of southern California. Not observed in POLA and POLB Biosurveys performed from 2000 to present (2018-2019)
Black Oystercatcher (<i>Haematopus palliatus</i>)	USFWS – BCC	Known to nest in the Port Complex. 320 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Species observed along Middle Breakwater.
Black Skimmer (<i>Rhyncops niger</i>)	USFWS – BCC CDFW – SCC	Year-round species. Known to nest annually at Pier 400. 184 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Most observations at Cabrillo Beach.
Black-crowned Night Heron (<i>Nycticorax nycticorax</i>)	CDFW – SA	Year-round species. No nesting was observed during the 2018-2019 POLA and POLB Biosurvey, but 37 individuals sighted in the Port Complex.
Brant (<i>Branta bernicla</i>)	CDFW – SA	Uncommon in the Port, but found regionally. No known nesting has occurred in the Port Complex. 1 individual observed during the 2018-2019 POLA and POLB Biosurvey.

Table 4.4-1. Special Status Species (Designated by CDFW and USFWS) Observed in the Port Area

Species	Agency/Designation	Notes
Brown Pelican (<i>Pelecanus occidentalis</i>)	CDFW – FP	No known nesting site in the Port Complex. 2,780 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Observation primarily recorded in Outer Harbor along breakwaters and shallow water habitats.
Burrowing Owl (<i>Athene cunicularia</i>)	USFWS – BCC	Primarily transient. Last observed nesting in Port Complex during the 2008 POLA and POLB Biosurvey. Not observed during the 2018-2019 POLA and POLB Biosurvey. However, they are occasionally observed transiting during their migration season.
California Gull (<i>Larus californicus</i>)	CDFW – WL	Year-round species. 261 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
California Least Tern (<i>Sterna antillarum browni</i>)	USFWS – FE CDFW – SE, FP	Migratory species. Designated nesting site at Pier 400. 90 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Foraging occurs primarily around Pier 400, the breakwater and shallow water habitats.
Caspian Tern (<i>Hydroprogne caspia</i>)	USFWS – BCC	Migratory species. Known to nest at Pier 400 CLT nesting site. 210 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Most observations at Pier 300, Pier 400, and Cabrillo Beach.
Common Loon (<i>Gavia immer</i>)	CDFW – SCC	Migratory species. Not known to nest in the Port complex. 3 individuals observed roosting in the Port complex during the 2018-2019 POLA and POLB Biosurvey.
Double-crested Cormorant (<i>Phalacrocorax auratus</i>)	CDFW – WL	Year-round species. Known to nest in Port Complex. 1,894 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Observed primarily along the Middle Breakwater.
Elegant Tern (<i>Thalasseus elegans</i>)	CDFW – WL	Migratory species. Known to nest at the Pier 400 CLT nesting site. 5,127 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Observed regularly foraging at the shallow water habitat at Cabrillo Beach and Seaplane Lagoon during the 2018-2019 POLA and POLB Biosurvey.
Great Blue Heron (<i>Ardea herodias</i>)	CDFW – SA	Resident species. Known to nest in trees near POLA Main Channel Wilmington marinas. 704 individuals recorded

Table 4.4-1. Special Status Species (Designated by CDFW and USFWS) Observed in the Port Area

Species	Agency/Designation	Notes
		throughout the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Great Egret (<i>Ardea alba</i>)	CDFW – Sensitive	Resident species but rare in the Port Complex. Not known to nest in the Port Complex. 6 individuals recorded in the Port complex during the 2018-2019 POLA and POLB Biosurvey.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	USFWS – BCC	Migratory species. Last observed in Port Complex during 2000 POLA and POLB Biosurvey. Not observed in 2018-2019 POLA and POLB Biosurvey.
Long-billed Curlew (<i>Numenius americanus</i>)	USFWS – BCC	Migratory species. Not known to nest in the Port Complex. 2 individuals recorded in the Port complex during the 2018-2019 POLA and POLB Biosurvey.
Marbled Godwit (<i>Limosa fedoa</i>)	USFWS – BCC	Migratory species. 3 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Observed primarily at Cabrillo Beach.
Osprey (<i>Pandion halieatus</i>)	CDFW – WL	Migratory species. Known to nest at Pier E-D in POLB. 43 observations in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Peregrine Falcon (<i>Falco occidentalis</i>)	USFWS – BCC CDFW – FP	Resident species. Known to nest on Schuyler F. Heim Bridge and former Gerald Desmond Bridge in POLB. 1 individual recorded at Pier 400 during the 2018-2019 POLA and POLB Biosurvey.
Scripps's Murrelet (<i>Synthliboramphus scrippsi</i>)	USFWS – BCC	Ocean-dwelling species rarely observed on land. Not observed in 2018-2019 POLA and POLB Biosurvey. Last observed in Port Complex during 2013-2014 POLA and POLB Biosurvey.
Snowy Egret (<i>Egretta thula</i>)	CDFW – SA	Known to nest in the Port Complex in 2018-2019. 145 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey, primarily at Cabrillo Beach.
Tufted Puffin (<i>Fratercula cirrhata</i>)	CDFW – SSC	Not observed in the 2018-2019 POLA and POLB Biosurvey. Last observed in the Port Complex during the 2000 POLA and POLB Biosurvey.
Western Snowy Plover (<i>Charadrius nivosus nivosus</i>)	USFWS – BCC, ESA Threatened	Migratory. Not observed in POLA and POLB Biosurveys performed from 2000 to present (2018-2019)

Table 4.4-1. Special Status Species (Designated by CDFW and USFWS) Observed in the Port Area

Species	Agency/Designation	Notes
Whimbrel (<i>Numenius phaeopus</i>)	USFWS – BCC	Migratory species. 42 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey. Observed primarily at Cabrillo Beach.
White-faced Ibis (<i>Plegadis chihi</i>)	CDFW – WL	Resident species. Not observed in 2018-2019 POLA and POLB Biosurvey. Last observed in the Port Complex during the 2000 POLA and POLB Biosurvey.
Marine Mammals		
California Sea Lion (<i>Zalophus californianus</i>)	USFWS, NMFS – MMPA Protected	Resident species. Common. 587 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Common Bottlenose Dolphin (<i>Tursiops truncatus</i>)	USFWS, NMFS – MMPA Protected	18 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Common Dolphin (<i>Delphinus</i> spp.)	USFWS, NMFS – MMPA Protected	40 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Gray Whale (<i>Eschrichtius robustus</i>)	USFWS, NMFS – MMPA Protected	Transitory. 1 observation recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Harbor Seal (<i>Phoca vitulina</i>)	USFWS, NMFS – MMPA Protected	Resident species. Common. 223 individuals recorded in the Port Complex during the 2018-2019 POLA and POLB Biosurvey.
Other		
Green Sea Turtle (<i>Chelonia mydas</i>)	USFWS, NMFS – ESA Protected	Not observed in POLA and POLB Biosurveys performed from 2000 to present (2018-2019). Known in region.

Notes: USFWS = United States Fish and Wildlife Service; NMFS = National Marine Fisheries Service; CDFW = California Department of Fish and Wildlife; CDF = California Department of Forestry and Fire Protection; MMPA = Marine Mammal Protection Act; ESA = Endangered Species Act; BCC = Bird of Conservation Concern; SA = Special Animal; SSC = Species of Special Concern; FP = Fully Protected; FE = Federally Endangered; WL = Watch List; SE = State Endangered

Outside the breakwater, a variety of marine mammals use nearshore waters. The most common whale species is the gray whale (*Eschrichtius robustus*), which migrates from the Bering Sea to Mexico and back each year, as well as several species of dolphin and porpoises. During the 2018-2019 Biosurvey, a gray whale mother-calf pair was observed in the vicinity of Cabrillo Beach (Wood E&S 2021), but gray whales have never been observed in the Inner Harbor vicinity of the Project site. Bottlenose and common dolphins are most frequently observed in the open water of the Outer Harbor; however, the 2008 and 2018-2019 Biosurveys also observed bottlenose dolphins in the Main Channel and the East Basin. No cetaceans (i.e., whales or dolphins) have been observed in the West Basin, which is the location of Berths 148-151, during any of the Biosurveys.

Turbidity caused by in-water construction would be temporary and localized and would not substantially reduce foraging by marine mammals (i.e., sea lions) in the vicinity of the construction zone. However, the proposed Project would drive steel pipe piles, and underwater noise from this construction would likely exceed criteria for Level B harassment (i.e., the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns; NOAA Fisheries 2016) of marine mammals that could be present at the Project site, and could potentially result in Level A injury (the potential to injure a marine mammal or marine mammal stock in the wild) if animals were to get very close to the driving operation. This exceedance represents a significant impact on federally-protected marine mammal species, and requires the implementation of mitigation.

Pile-driving could result in temporary avoidance of the construction area and cause mortality of some fish in the Coastal Pelagics Fish Management Plan (FMP), especially smaller fish such as northern anchovy, which are very abundant in the Harbor, as well as Pacific sardine and topsmelt. Although individuals of these species could be adversely affected by pile-driving, the limited area of potential effect and the abundance of Coastal Pelagic species in the Harbor means that populations of these species in the Harbor would not be substantially reduced.

Turbidity and underwater noise from pile driving would affect some individuals of managed fish species. However, due to the limited areal extent and duration of construction, and implementation of a mitigation measure intended to protect marine mammals from underwater noise, construction would not have substantial adverse effects on Essential Fish Habitat (EFH) or managed species, and impacts would be less than significant.

The new loading/unloading platform would have a substantially smaller overwater footprint than the existing wharf and would be of a more open design. Accordingly, potential adverse effects of shading would be reduced compared to baseline conditions. No operational conditions would change from baseline; accordingly, impacts of operation of the proposed Project on EFH and managed species would be less than significant and mitigation is not required.

Mitigation Measure

Impacts on marine mammals resulting from noise associated with pile driving would be reduced with implementation of MM-BIO-1. This measure would ensure that marine mammals would be readily able to avoid pile driving areas, and no injury to marine mammals from pile driving sounds would be expected.

MM-BIO-1 Protect Marine Mammals. Although it is expected that marine mammals will voluntarily move away from the area at the commencement of the vibratory or “soft start” of pile driving activities, as a precautionary measure, pile driving activities occurring as part of the pile installation will include establishment of a safety zone, by a qualified marine mammal professional, and the area surrounding the operations (including the safety zones) will be monitored for marine mammals by a qualified

marine mammal observer.² The pile driving site will move with each new pile; therefore, the safety zones will move accordingly.

MM BIO-1 is based on available information on animal behavior and the characteristics of underwater noise (e.g., LAHD 2017b). It is expected that marine mammals would voluntarily move away from the construction area at the commencement of pile-driving activities, but the mitigation measure minimizes the chance that animals would be injured or harassed by noise before they could get to a safe distance. The safe distances for injury and harassment would be based on the expected noise level from the size and type of piles to be driven and the assumption of impact hammer pile driving. The safety zone distances may be adjusted once contractor-specific pile-driving parameters and other site-specific factors are available.

The “soft start” of the mitigation measure applies to impact-hammer pile drivers and requires that the initial strikes on a piling are performed at a significantly reduced force and slowly build up to full force over several strikes. In a typical scenario the hammer is operated at approximately 40–60% of full energy over a five-minute period with no less than one minute between strikes.

With implementation of MM BIO-1, impacts of the proposed Project on listed and other sensitive species, including marine mammals, would be less than significant.

- b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the City or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-than-Significant Impact. There is no riparian habitat at the Project site or in the vicinity. Wharf demolition and construction activities would have temporary adverse effects on marine biota through resuspension of sediments and disturbance of benthic communities. However, the impact would be limited in extent and duration (i.e., the period of construction), and the soft-bottom benthic community would re-establish itself.

Eelgrass (*Zostera marina*), which is identified as a special aquatic site in the Clean Water Act, occurs in several locations of the Los Angeles and Long Beach Harbors, primarily Cabrillo Beach and the Pier 300 Seaplane Lagoon area, that are shallow enough (i.e., less than 14 feet) to support it (MBC, 2016). Eelgrass has not been observed at Berths 148 – 151 during any of the Biosurveys. The nearest eelgrass occurs in small patches (less than one acre total) in Slip 1 and at Berth 170 on the Main Channel, approximately 900 feet east of Berth 151, as observed during the 2018 Biosurvey (Wood E&IS, 2021). Increased turbidity during construction of the proposed Project could have temporary adverse effects on those patches, but their distance from the construction site and the controls that would be placed on in-water

² Marine mammal professional qualifications shall be identified based on criteria established by LAHD during the construction bid specification process. Upon selection as part of the construction award winning team, the qualified marine mammal professional shall develop site-specific pile driving safety zone requirements, which shall follow NOAA Fisheries Technical Guidance Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NOAA Fisheries 2016) in consultation with the acoustic threshold white paper prepared for this purpose by LAHD (LAHD 2017b). Final pile driving safety zone requirements developed by the selected marine mammal professional shall be submitted to LAHD Construction and Environmental Management Divisions prior to the commencement of pile driving.

construction (see Section 4.10 Hydrology and Water Quality) would limit those effects, and impacts would be less than significant.

There are at least 27 non-native aquatic species in the Port Complex and another 95 of uncertain origin (MBC, 2016). Many of these species are present at the Project site in the benthic infauna and riprap community. Construction activities have the potential to redistribute non-native species locally within the Port through disturbance of the bottom sediments and removal of pilings. However, in general, existing non-native species are widely distributed in the Harbor, so that redistribution from the Project site during construction would not adversely affect the natural community throughout the Harbor and elsewhere in Southern California. In addition, the proposed Project would substantially reduce the number of pilings (a potential habitat for non-native species) at the site, thereby reducing the surface area that could be colonized by invasive species.

The invasive algae *Caulerpa* (*C. taxifolia*) is listed as a federal noxious weed under the U.S. Plant Protection Act. In areas outside its native range, it can grow very rapidly, causing ecological devastation by overwhelming local seaweed species and altering fish distributions. Although this species has never been observed in the Port Complex, it is a threat in Southern California, having been found in two Southern California coastal lagoons in 2000 (MBC, 2016). This has prompted regulatory control measures described in the *Caulerpa* Control Protocol prior to specific underwater construction activities such as bulkhead repair, dredging, and pile driving (NOAA Fisheries, 2008). As required by the US Army Corps of Engineers Rivers and Harbors Act Section 10 permit and the *Caulerpa* Control Protocol, a *Caulerpa* survey would be conducted at the Project site prior to the start of construction activities.

The proposed Project also has the potential to introduce invasive non-native species under operational conditions as a result of organisms attached to the hulls and anchors or living in the ballast water of vessels arriving from outside the U.S. Exclusive Economic Zone (EEZ) or other regions of the Pacific Coast. The potential for such an introduction of invasive non-native species exists because the facility would accommodate an approximately 30 percent increase in annual vessel calls (from 229 to 306 vessel calls per year). However, there are numerous regulations in place to regulate ballast water discharges, including the following: the federal Ballast Water Management Programs (one enforced by the U.S. Coast Guard and another enforced by the EPA under the Clean Water Act), EPA's Vessel General Permit, and California's Marine Invasive Species Act (enforced by the California State Lands Commission). In addition, vessel hulls are generally coated with antifouling paints and cleaned at intervals to reduce the frictional drag from growths of organisms on the hull, which would reduce the potential for transport of exotic species. California also has regulations regarding biofouling management, including cleaning management of niche areas and anchor chains. In addition, by 2032, all ships should be meeting performance standards enforced adopted by U.S. Coast Guard and California State Lands Commission. For these reasons, the proposed Project has a low potential to increase the introduction of non-native species into the Harbor that could substantially disrupt local biological communities.

Because operational activities would be similar to baseline conditions, operation of the proposed Project would not have a significant impact on eelgrass. Accordingly, impacts of

operation on sensitive habitats or natural communities would be less than significant and no mitigation is required.

- c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. The proposed Project would not affect state or federally protected wetlands during in-water construction activities (i.e., wharf demolition and replacement) because there are no state or federally protected wetlands in the Project area. The only federally protected wetlands in the Los Angeles Harbor are the Anchorage Road Salt Marsh and the Cabrillo Salt Marsh, approximately 1.2 and 3.4 miles from the Project site, respectively. Neither of these wetlands would be affected or otherwise disturbed by the construction or operation of the proposed Project. Therefore, there would be no impacts to state or federally protected wetlands and no mitigation is required.

- d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact. There are no known terrestrial or marine mammal migration corridors within the Port Complex, including the Project site, because the Port is not located between natural resource areas that terrestrial wildlife would need to traverse. Therefore, the proposed Project would not interfere with terrestrial wildlife migration.

There are only a few species of fish in southern California with true migrations (salmonids and white sturgeon), and they are not known to occur in the Port Complex (Miller and Lea, 1972; SAIC, 2010; Wood E&IS, 2021). Therefore, the proposed Project would not interfere with migratory fish. Project construction could result in temporary avoidance of the construction areas by resident fish species; however, these effects would be temporary, lasting for a few days at a time. Construction activities within the study area would not block or interfere with migration or movement of any of the species covered under the Migratory Bird Treaty Act (MBTA), because the work would be in a small portion of the Harbor area and any birds present could easily fly around or over the work.

The approximately 14-acre terminal area is developed and offers minimal habitat for wildlife or bird nesting. The nearest wildlife nesting area is the designated California least tern nesting site located three miles southeast of the Project site on Pier 400; the proposed Project would have no direct or indirect impacts to that nesting site.

Given the limited extent of the Project area, the absence of wildlife corridors and nesting habitat, and the short duration of construction activities, the proposed Project's impacts on the movement of any native resident or migratory fish or wildlife species would be less than significant, and no mitigation is required.

- e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The only biological resources protected by City of Los Angeles ordinance (City of Los Angeles 2006b) are certain native tree species, none of which occur on the Project site. The Project site is industrialized, paved, and occupied by existing oil terminals. It does not contain any known protected biological resources. The proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; therefore, there would be no impact and no mitigation is required.

- f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is not located within an adopted Natural Communities Conservation Plan (NCCP) or Habitat Conservation Plan (HCP). There is only one NCCP approved near the Port, located approximately four miles to the southwest of the proposed Project in the City of Rancho Palos Verdes, and it was designed to protect coastal scrub habitat (CDFW 2015).

HCPs are administered by the USFWS and are designed to identify how impacts would be mitigated when a project would impact endangered species or designated critical habitat. There are no HCPs in place for the Port. A Memorandum of Understanding (MOU) is in place for the LAHD, California Department of Fish and Wildlife (CDFW), USFWS, and the USACE to protect the California least tern, and requires a 15-acre nesting site to be protected during the annual nesting season (May through October). The nesting site is on Pier 400 and is designated as a Significant Ecological Area (SEA) by the County of Los Angeles (County of Los Angeles, Department of Regional Planning 2015). The Project site is located approximately three miles northwest from the California least tern nesting site and does not contain nesting habitat or foraging habitat.

The proposed Project would have no impact on HCPs, NCCPs, the MOU, or the SEA for California least tern. Therefore, no impact would occur and no mitigation is required.

4.5 CULTURAL RESOURCES

- a) Would the Project cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5?

No Impact. To be eligible for listing in the National Register, a property must be at least 50 years of age (unless the property is of “exceptional significance”) and possesses significance in American history and culture, architecture, or archaeology. A property of potential significance must meet one or more of the following four established criteria:

- A. Association with events that have made a significant contribution to the broad patterns of our history; or
- B. Association with the lives of persons significant in our past; or
- C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic

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values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- D. Yield, or may be likely to yield, information important in prehistory or history. [Title 36 Code of Federal Regulations Part 60.4]

In addition to possessing significance within a historic context, to be eligible for listing in the National Register, a property must have integrity. Integrity is defined as, “the ability of a property to convey its significance.” The National Register recognizes the following seven aspects or qualities that define integrity: feeling, association, workmanship, location, design, setting and materials. The significance of a property must be fully established before integrity is analyzed [National Register Bulletin #15, 44-45].

Eligibility for listing in the California Register of Historic Resources (CRHR) is based on the National Register criteria, but they are identified as 1-4 instead of A-D. In California, a property must generally be at least 50 years of age and must possess significance at the local, state, or national level, under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California or national history; or
3. It embodies the distinctive characteristics of a type, period or method of construction or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important in the prehistory or history of the local area, California, or the nation.

While slightly less stringent on the topic of integrity, California resources should include properties that reflect their appearance during their period of significance [Public Resources Code Section 4852].

GPA Consulting was retained to evaluate the Project site including Berths 148 – 151 and a portion of Los Angeles County Tax Assessor’s Parcel Numbers 7440-018-905, 7440-018-908, 7440-018-909, 7440-018-810 as potential historic resources. Their report, entitled, “*Berths 148 – 151, Los Angeles, California Historical Resource Evaluation Report*” (included here as Appendix B) concluded that the berths were ineligible for listing in the National Register of Historic Places, California Register of Historic Resources, or as a Los Angeles Historic Cultural Monument. Neither Berths 148-149 nor Berths 150-151 met the criteria for significance of listing: the marine oil terminal at Berths 150-151 was found to lack sufficient physical integrity to convey its significance, and the terminal at Berths 148-149 is not significant under any of the four criteria listed above. Furthermore, there were no buildings, structures, or objects evaluated as individually eligible as historical resources as defined by CEQA, and the Project site does not contain any properties currently listed under national, state, or local landmark or historic district programs. Accordingly, the proposed Project would have no impacts on historical resources and no mitigation is required.

- b) Would the Project cause a substantial adverse change in the significance of an

archaeological resource pursuant to Section 15064.5?

No Impact. The Project site is comprised of natural land mass largely covered by artificial fill. The proposed Project would result in minor amounts of ground-disturbing activities (i.e., installation of pipes and topside equipment and minor grading). However, the site is disturbed, and the likelihood that archeological resources are present on the site is extremely remote.

The proposed Project would occur primarily in and over harbor waters. The Project area has been routinely dredged over the history of the Port to create shipping channels and increase or maintain the design depth at the berths. The proposed Project's construction would include driving piles and possibly minor amounts of dredging in those previously dredged sediments and would therefore not encounter undisturbed sediments that could contain archeological resources. Given the absence of known archaeological resources in the Project area and the limited ground-disturbing activities and dredging that would be done, there would be no impact and no mitigation is required.

c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

No Impact. No known cemeteries or burials are known to have occurred at the Project site. As discussed above, the Project area is composed of both disturbed natural areas and man-made engineered material constructed in the 20th century. The proposed Project would occur primarily in and over harbor waters. Topside equipment installation would occur on the terminal site, which is not a known burial ground. Therefore, wharf construction, dredging, and topside equipment installation are not expected to encounter human remains. There would be no impact and no mitigation is required.

4.6 ENERGY

a) Would the project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Less-than-Significant Impact. Energy (primarily as diesel fuel but including minor amounts of gasoline and electricity) would be used during construction of the proposed Project. Table 4.6-1 shows the annual energy consumption in terms of daily fuel usage during the peak construction period (i.e., the second year of construction which is assumed to be 2022 for purposes of these calculations). Fuel consumption during construction would be temporary, lasting for approximately 67 months, and would represent a small fraction (< 0.02%) of the approximately 3.35 billion gallons of distillate fuel oil and 1.6 million gallons of gasoline consumed by California's transportation sector in 2019 (USEIA 2021). This project construction is necessary to achieve the overall project objective of providing a MOTEMS-compliant terminal, and thus does not represent a wasteful or unnecessary use of energy. Construction would be consistent with the policies in the Port of Los Angeles' Sustainable Construction Guidelines (provided in Appendix C), which require minimum engine emission standards for construction equipment in accordance with the San Pedro Bay Ports Clean Air Action Plan.

Table 4.6-1. Energy Use of Proposed Project Construction

Source Category	Fuel	Fuel Use (gal/yr)
Off-road Construction Equipment	Diesel	51,914
Marine	Diesel	11,753
Haul Trucks	Diesel	5,627
Delivery Trucks	Diesel	8,128
Pick-Up Trucks	Diesel	2,517
Worker Vehicles	Gasoline	14,570
Total Diesel Consumption		79,940
Total Gasoline Consumption		14,570

Notes:

Emissions may not add exactly due to rounding.

During operations, energy in the form of fuels would be used, primarily for the operations of OGVs and harbor craft. Under the future projected maximum activity levels, the terminal could handle a peak annual throughput of 13,724,000 barrels, an 79% increase over the baseline throughput as shown in Table 2.2-1. Table 4.6-2 shows baseline and future year total energy consumption from operations and on a per barrel of product basis. The 79% throughput increase related to the Project would translate into a less than 10% increase in gallons of fuel per barrel of product. In addition, the net increase in fuel consumption for marine diesel (approximately 875,000 gal/year) would represent 0.03% of the California statewide sales of transportation diesel in 2019, which was about 3.35 billion gallons of distillate fuel oil (EIA, 2021). Therefore, fuel consumption related to the Project operations would not result in an excessive or wasteful usage of energy resources, and impacts would be less than significant and no mitigation is required.

Table 4.6-2. Annual Energy Use of Proposed Project Operations

Year	Emissions Source	Fuel Type	Fuel Consumption (gal)	Fuel Consumption (gal/1000 bbl of product)
2019	OGV	Marine Distillate	843,203	110.1
	Harbor Craft	Marine Distillate	91,815	12.0
	Trucks	Diesel	9,186	1.2
	Worker Vehicles	Gasoline	2	0.0
Project	OGV	Marine Distillate	1,682,252	122.6
	Harbor Craft	Marine Distillate	127,667	9.3
	Trucks	Diesel	9,039	0.7
	Worker Vehicles	Gasoline	2	0.0
Net consumption (Project minus baseline)	Diesel/Marine Diesel		874,755	9.3
	Gasoline		0	0

Notes:

Emissions may not add exactly due to rounding.

The proposed Project would use electrical energy during construction, but much of it would be supplied by on-site generators, and the total amount, given the scale and duration of construction, would be trivial relative to regional capacity. The Los Angeles Department of Water and Power (LADWP) is charged with maintaining sufficient capability to provide customers with a reliable source of power and will continue to do so with proper planning and development of facilities in accordance with the City Charter, using such mechanisms as the Power Integrated Resources Plan. Based on the LADWP Power Integrated Resources Plan, electricity resources and reserves will adequately provide electricity to all its customers, including the proposed Project (LADWP 2016). There are no expected changes to on-site electrical consumption, used mainly for lighting, during the Project.

Accordingly, because the proposed Project would not use non-renewable resources in a wasteful or inefficient manner, impacts would be less than significant and no mitigation is required.

- b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact. The proposed Project is not growth-inducing as it does not cause the need for construction of additional public services (i.e. sewer or other infrastructure expansion) or draw additional permanent residents to the area etc., which would be considered growth-inducing, and is required to comply with MOTEMS regulations (Chapter 31F, Title 24, Part 2, California Code of Regulations). These requirements would reduce wasteful, inefficient, and unnecessary consumption of energy over the long term. Other plans and policies pertaining to energy use include the following: Executive Directive No. 10, Sustainable City Plan, Sustainable Construction Guidelines, and San Pedro Bay Clean Air Action Plan. The Port's Development Bureau (Construction and Engineering Divisions) is responsible for design, inspection, management and oversight of construction projects to ensure projects comply with energy efficiency requirements. Energy consumed during construction activities would be used efficiently and would represent a negligible portion of state-wide energy consumption. Therefore, these uses do not conflict with energy plans and impacts would be less than significant. No mitigation is required.

4.7 GEOLOGY AND SOILS

- a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

Less-than-Significant Impact. Southern California is one of the most seismically active areas in the United States. Numerous active faults and fault zones are located within the general region, including the active Palos Verdes Fault that traverses the harbor area, as well as the Newport-Inglewood, Elysian Park, Whittier-Elsinore, and Santa Monica-Raymond faults, which are all within 25 miles of the Project site. The harbor

area, as with the southern California region as a whole, cannot avoid earthquake-related hazards, such as liquefaction, ground rupture, ground acceleration, and ground shaking. Although no faults within the Port area are currently zoned under the Alquist-Priolo Act, potential hazards exist due to seismic activities associated with the Palos Verdes Fault Zone and the presence of man-made engineered fill. The exposure of people to seismic ground shaking is a potential risk with or without the proposed Project.

Construction of the proposed Project is required to adhere to seismic performance requirements specified in the MOTEMS regulations (Chapter 31F, Title 24, Part 2, California Code of Regulations), which includes standards intended to limit the severity of consequences from geological hazards such as earthquakes. The goal of the project is to comply with MOTEMS requirements, engineering standards, and building codes to make the facility more earthquake safe. Although the proposed Project could experience strong seismic ground shaking, the Project site is not likely susceptible to surface rupture. Additionally, the proposed Project would not construct any habitable or large permanent structures that would increase the risk of loss, injury, or death in the event of surface rupture. Therefore, impacts associated with the risk of surface rupture due to faulting would be less than significant and no mitigation is required.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. Although no faults within the Port area are currently zoned under the Alquist-Priolo Act, potential hazards exist due to seismic activities associated with the Palos Verdes Fault Zone and the presence of man-made engineered fill. The exposure of people to seismic ground shaking is a potential risk with or without the proposed Project. The risk of seismic hazards such as ground shaking cannot be avoided. As discussed in Threshold 4.7(a)(i), compliance with MOTEMS regulations is designed to minimize structural damage resulting from a seismic event. Building and construction design codes are meant to minimize structural damage resulting from a seismic event. The proposed Project would comply with the applicable engineering standards and building codes, including the MOTEMS regulations, Port engineering criteria, and applicable sections of the Los Angeles Building Code. Emergency planning and coordination would also contribute to reducing injuries to on-site personnel during seismic activity. As facilities handling potentially hazardous materials, Phillips 66 maintains comprehensive emergency response plans to be followed during natural disasters (including earthquakes); these plans are required by numerous agencies, notably the US Coast Guard, the LAFD, and the SLC, and are updated periodically as required by those agencies. With incorporation of emergency planning and compliance with current regulations and standard engineering practices, impacts related to seismic ground shaking would be less than significant and no mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. The harbor area, including the Project site, is identified as an area susceptible to liquefaction in the City of Los Angeles General Plan's Safety Element because of the presence of recent alluvial deposits and groundwater less than 30 feet below ground surface (City of Los Angeles, 1996).

The proposed Project would bring the berthing facilities into compliance with the seismic performance requirements specified in the MOTEMS regulations (Chapter 31F, Title 24, Part 2, California Code of Regulations). This includes standards intended to limit the probability of occurrence and the severity of consequences from geological hazards, such as earthquakes. Accordingly, the proposed Project would decrease risks associated with seismic-related ground failures at the site relative to baseline conditions. Emergency planning and coordination would also contribute to reducing potential injuries on-site resulting from a seismic event. With compliance with appropriate MOTEMS requirements, engineering standards, and building codes, impacts associated with the risk of seismic-related ground failure would be less than significant and no mitigation is required.

iv) Landslides?

No Impact. The proposed Project would be constructed and operated on land that is relatively flat with no significant natural or graded slopes. The proposed Project is also not located near any landslide hazard areas (City of Los Angeles 1996). Therefore, there would be no impacts related to landslides and no mitigation is required.

b) Would the Project result in substantial soil erosion or the loss of topsoil?

No Impact. The entire Project site would be paved prior to operation. Construction of the landside components of the proposed Project would result in only minor and temporary disturbance of the pavement. Pavement would be installed for approximately 2.2 acres and the remaining paved areas would be repaired following construction, which would prevent substantial soil erosion from the site, and operation of the proposed Project would be identical in nature to existing conditions. Therefore, the proposed Project would not result in soil erosion or the loss of topsoil. There would be no impact and no mitigation is required.

c) Is the Project located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. The Project site is constructed on artificial fill, which could be subject to lateral spreading, subsidence, liquefaction, or collapse. The MOTEMS audits of the Phillips 66 facilities included geotechnical evaluations that identified measures needed to meet seismic requirements. The primary element of the proposed Project is the replacement of the existing timber wharf structures at Berths 150 – 151 with a new loading platform and associated petroleum product handling infrastructure in accordance with the findings of the MOTEMS audits. The proposed Project would not cause or accelerate geologic hazards, but instead would reduce the facility's vulnerability to seismic movement. Potential impacts associated with the risk of unstable soil would be less than significant and no mitigation is required.

d) Is the Project located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-than-Significant Impact. Expansive soils generally result from specific clay minerals that expand when saturated and shrink when dry. These expansive clay minerals are common in the geologic deposits in the adjacent Palos Verdes Peninsula and in previously imported fill soils used in the development of the Port. Although the proposed Project could be located on expansive soil, it would not include the construction of any new habitable

structures. Furthermore, the proposed Project would be constructed and operated in accordance with design and engineering criteria, including MOTEMS regulations and applicable building and safety requirements. With the incorporation of modern engineering and safety standards and compliance with current building regulations, no substantial risk to life or property would be present; accordingly, impacts would be less than significant and no mitigation is required.

- e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The Project site is connected by sanitary sewer system to the City of Los Angeles Bureau of Sanitation's Terminal Island Water Reclamation Plant (TIWRP). Therefore, the use of septic tanks would not be necessary. None of the Project improvements would generate wastewater that would be treated by an alternative wastewater disposal system. Therefore, no impacts would occur and no mitigation is required.

- f) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic features?

No Impact. The geologic formation at the Project site consists of artificial fill, engineered fill over natural landforms, and disturbed natural landforms constructed in the 20th century. Before improvements were made to the harbor (beginning in the 19th century), the Project area was covered by harbor waters or mudflats. The Project area has been routinely dredged and filled in the 20th century to create shipping channels and increase or maintain the design depth at the berths, thereby destroying any stratigraphy of the Project area, any unique paleontological resources, and any unique geologic features. The proposed Project would occur primarily in and over harbor waters. Landside equipment installation would occur only within an area with deposited fill material and not in any geologic layer that could yield unique paleontological resources. Therefore, there would be no impact to unique paleontological resources or unique geologic features and no mitigation is required.

4.8 GREENHOUSE GAS EMISSIONS

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

Less-than-Significant Impact. The proposed Project would involve both construction and operational activities that would generate greenhouse gas (GHG) emissions. The methods of analysis for Project GHG emissions are consistent with SCAQMD's guidelines and LAHD's standard protocols.

CEQA Significance Thresholds

State CEQA Guidelines Section 15064.4(b) sets forth the factors that should be considered by a lead agency when assessing the significance of impacts from GHG emissions on the environment. These factors include:

- The extent to which a project may increase or reduce GHG emissions compared with the existing environmental setting.

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- Whether project emissions exceed a threshold of significance that the lead agency determines applicable to a project.
- The extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions.

The guidelines do not specify significance thresholds and allow the lead agencies discretion in how to address and evaluate significance based on these criteria. The SCAQMD has adopted a CEQA significance threshold of 10,000 metric tons per year (MT/yr) of carbon dioxide equivalent (CO₂e) for industrial projects where SCAQMD is the lead agency (SCAQMD 2008). This IS/MND used this threshold to evaluate the proposed Project's GHG emissions under CEQA. GHG emissions below this threshold would be considered to produce less-than-significant impacts to GHG levels. LAHD has determined the SCAQMD-adopted 10,000 MT/yr CO₂e threshold to be suitable for LAHD projects for the following reasons:

- The SCAQMD used Governor Schwarzenegger's June 1, 2005 Executive Order S-3-05 as the basis for its development. EO S-3-05 set targets of reducing GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. The 2020 target is the core of the California Global Warming Solutions Act of 2006, widely known as Assembly Bill (AB) 32.
- The SCAQMD industrial source threshold is appropriate for projects with future operations continuing as far out as 2050. The SCAQMD threshold development methodology used the Governor's Executive Order (EO) #S-3-05 emission reduction targets as the basis in developing the threshold, with the Assembly Bill (AB) 32, 2020 reduction requirements incorporated as a subset of Governor's EO #S-3-05 (SCAQMD 2016). EO S-3-05 sets an emission reduction target of 80% below 1990 levels by 2050. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020 (SCAQMD 2016). AB 32 has the goal of achieving 1990 GHG levels by 2020.
- The SCAQMD industrial source threshold is appropriate for projects with both stationary and mobile sources, such as the proposed Project. California Air Pollution Control Officers Association (CAPCOA) guidance considers industrial projects to include substantial GHG emissions associated with mobile sources (CAPCOA 2008). SCAQMD, on industrial projects for which it is the lead agency, uses the 10,000 MT/yr threshold to determine CEQA significance by combining a project's stationary source and mobile source emissions. Although the threshold was originally developed for stationary sources, SCAQMD staff views the threshold as conservative for projects with both stationary and mobile sources because it is applied to a larger set of emissions and therefore captures a greater percentage of projects than would be captured if the threshold was only used for stationary sources (SCAQMD 2008).

- The SCAQMD industrial source threshold is appropriate for projects with sources that use primarily diesel fuel. Although most of the sources that were considered by the SCAQMD in the development of the 10,000 MT/yr threshold are natural gas-fueled, both natural gas and diesel combustion produce CO₂ as the dominant GHG (TCR, 2016). Furthermore, the conversion of all GHG species into a CO₂e ensures that the GHG emissions from any source, regardless of fuel type, can be evaluated equitably.

Projects would create a significant GHG impact if annual GHG emissions between the future year and the baseline exceeds the significance threshold of 10,000 MT/yr CO₂e.

Project GHG Emissions

Sources contributing to GHG emissions during construction are described in detail in Section 4.3, Air Quality. The construction contractor shall be required to comply with the LAHD's Sustainable Construction Guidelines (Appendix C). The proposed Project's GHG emissions were calculated using the same project construction and operation assumptions used to estimate the proposed Project's air pollutant emissions. These assumptions are listed in the Section 4.3, Air Quality, and in the air quality appendix (Appendix A). GHG emissions from the entire construction period are summed and amortized over the life of the proposed Project (assumed to be 30 years which represents the mid-point between the initial 20 year entitlement and the two additional 10-year options) and evaluated in combination with the annual operational emissions.

Based on criteria set by the SCAQMD, a proposed project would have the potential to generate greenhouse gas emissions that may have a significant impact on the environment if the emissions exceed the threshold of significance in Table 4.8-1 of 10,000 metric tons per year. Impacts are determined by comparing the combined amortized construction and future operational emissions to baseline emissions. The proposed Project would not affect growth at the Port Complex. For purposes of preparing the estimates of GHG emissions, the future scenario assumes a barge-based bonnet emission capture and control system will be used to meet the requirements of the CARB At-Berth Rule. This results in a more conservative estimate of GHG emissions given the additional greenhouse gases produced by the bonnet generator and vessel engines as compared to the use of shore power. Estimates of GHG operational emissions take into account air quality mitigation MM AQ-1 which results in decreased main engine load during vessel transit and therefore, a decrease in related transit emissions. Table 4.8-1 shows the proposed Project's estimated GHG emissions with application of mitigation measure MM AQ-1. The table shows that GHG emissions from amortized construction and annual operations would be 9,873 MT/yr CO₂e, which is below the SCAQMD significance threshold of 10,000 MT/yr CO₂e. GHG emissions without mitigation measure MM AQ-1 (9,953 MT/ yr CO₂e) are also estimated to fall below the significance threshold and are summarized in Appendix A.

Based on the calculations summarized in Table 4.8-1, impacts of emissions of GHGs associated with the proposed Project would be less than significant and no additional mitigation is required.

Table 4.8-1. Annual GHG Emissions of Proposed Project with MM AQ-1

Source Category	CO₂	CH₄	N₂O	CO₂e
2019 Baseline Operations				
Ships - at Berth	5,331	0	0	5,433
Ships – Transit	3,630	0	0	3,684
Ships – Anchorage	101	0	0	102
Tugboats	1,387	0	0	1,408
Trucks	45	0	0	47
Worker Vehicles	6	0	0	6
Onsite Equipment	0	0	0	0
2019 Baseline Total	10,499	0	1	10,680
Project Operations				
Ships - at Berth	11,729	0	1	11,971
Ships – Transit	6,177	0	0	6,271
Ships – Anchorage	215	0	0	219
Tugboats	1,929	0	0	1,957
Trucks	44	0	0	46
Worker Vehicles	5	0	0	5
Onsite Equipment	0	0	0	0
Project Total	20,100	0	1	20,469
Amortized Annual Construction	84	0	0	84
Project Total (Operations and Amortized Construction)	20,184	0	1	20,553
CEQA Impacts				
Project Minus CEQA Baseline	9,685	0	1	9,873
Significance Threshold				10,000
Significant?				No

Notes:

Emissions may not add exactly due to rounding.

Mitigation measure MM AQ-1 reduces GHG emissions during ship transit.

Mitigation measure MM AQ-2 does not affect annual GHG emissions.

- b) Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. The State of California is leading the way in the United States with respect to GHG reductions. Several legislative and municipal targets for reducing GHG emissions below 1990 levels have been established. Key examples include, but are not limited to:

- Senate Bill 32 (SB 32)
 - 1990 GHG emissions levels by 2020
 - 40 percent below 1990 GHG emissions levels by 2030

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- Assembly Bill 32 (AB 32)
 - 80 percent below 1990 GHG emissions levels by 2050
- San Pedro Bay Ports CAAP
 - 40 percent below 1990 GHG emissions levels by 2030
 - 80 percent below 1990 GHG emissions levels by 2050
- City of Los Angeles Green New Deal (4-Year Update to the Sustainable City pLAn)
 - Reduce Port-related GHG emissions by 80 percent by 2050

Several state, regional, and local plans have been developed which set goals for the reduction of GHG emissions over the next few years and decades, but no regulations or requirements have been adopted by relevant public agencies to implement those plans for specific projects, within the meaning of CEQA Guidelines Section 15064.4(b)(3)³. However, there are GHG emissions reduction measures contained in state and local plans, strategies, policies, and regulations that directly or indirectly affect the proposed Project's construction and operation emissions source sectors or specific types. A summary of proposed Project compliance with all potentially applicable GHG emissions reductions measures is provided in Table 4.8-2.

Table 4.8-2. Applicable GHG Emissions Reduction Strategies

Strategy	Project compliance with Strategy
State AB 32 Plan Strategies (CARB, 2017)	
Vehicle Climate Change Standards	These are CARB enforced standards; vehicles that access the Project site and are required to comply with the standards and would comply with these strategies.
Limit Idling Time for Commercial Vehicles (13 CCR § 2485) and Off-Road Equipment (13 CCR § 2449)	The Project applicant, construction contractor, and drayage (liquid bulk) truck operators would be required to comply with applicable idling regulations for on-road vehicles during project construction and operation.
Use of Low Carbon or Alternative Fuels (Low Carbon Fuel Standard)	The proposed Project's primary source of GHG emissions is from transportation fuel use, the majority for marine transport. The facility and facility users would use California fuels that are subject to the Low Carbon Fuel Standard regulations. While these regulations are new and have not yet caused a large penetration of low carbon/renewable fuels, over the project life the proposed Project's GHG emissions from transportation and onsite equipment would be reduced as low carbon fuel availability use increases statewide.
Waste Reduction/Increase Recycling (including construction and demolition waste reduction)	Solid waste generated during construction of the proposed Project would be minimal and would be disposed of in accordance with the City of Los Angeles requirements discussed below under the Construction and Demolition (C and D) Waste Recycling Ordinance.
Electricity Use/Renewables Performance Standard	The proposed Project's electricity would come from Los Angeles Department of Water and Power, a California publicly owned utility that is subject to the Renewables Performance Standard that requires increasing renewable energy procurement targets over time and so reduces GHG emissions from electricity generation. Therefore, the electricity used at the site would comply with state electricity sector GHG reduction strategies.

³ Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife [Newhall Ranch] [2015] 62 Cal.4th 204, 223

Table 4.8-2. Applicable GHG Emissions Reduction Strategies

Strategy	Project compliance with Strategy
Port of Los Angeles and City of Los Angeles Plans and Strategies	
LA's Green New Deal Sustainable City pLAN (City of Los Angeles, 2019a)	<p>The City of Los Angeles' Sustainable City pLAN is intended to guide operational, policy, and financial decisions to create a more sustainable Los Angeles. Although the Plan is mostly focused on city property, buildings, and public transportation, the plan includes the 80 percent from baseline emissions reduction goal and notes three primary GHG emissions reduction initiatives, two of which would apply to Port emissions sources:</p> <ol style="list-style-type: none"> 1) 100% zero emissions cargo handling equipment (CHE) by 2030 2) 100% zero emissions on-road drayage trucks by 2035 <p>The facility does not have control of the liquid bulk drayage trucks that access the site; however, as this initiative is implemented Port-wide the facilities truck trip related emissions would also be reduced. The proposed Project operations do not involve cargo handling equipment. LAHD will address the implementation of this port-wide cargo handling equipment emissions reduction initiative for all affected tenants.</p>
San Pedro Bay Ports CAAP (LAHD, 2017a)	<p>The CAAP has several policy initiatives related to GHG emissions reductions. The 2017 CAAP Update incorporates new emission reduction targets to deduce GHGs from port-related sources to 40% below 1990 levels by 2030 and to 80% below 1990 levels by 2050. Four of the CAAP strategies apply to the facility operations:</p> <ol style="list-style-type: none"> 1) Clean Trucks Program: Starting in 2023, or when the state's near-zero-emission heavy-duty engine standard is required for new truck engine manufacturers, new trucks entering the PDTR must have engines that meet this near-zero emissions standard or better. Existing trucks already registered in the PDTR can continue to operate. Modify the truck rate so that by 2035 only trucks that are certified to meet zero-emissions will be exempt from the rate. <p style="margin-left: 40px;">The facility does not have control of the liquid bulk drayage trucks that access the site; however, as this initiative is implemented Port-wide the facilities truck trip related emissions would also be reduced.</p> 2) Vessel Speed Reduction Program: Maximize participation in VSR for all vessels transiting within 40 nm of Point Fermin through an incentive program. <p style="margin-left: 40px;">The facility operations would not conflict with this program. As this initiative is implemented Port-wide the facilities transit vessel related emissions would also be reduced. Moreover, mitigation measure MM AQ-1 would require certain vessels to transit at 9 nautical miles per hour or lower, which is below the 12 nautical miles per hour typical VSRP limit.</p> 3) Clean Ship Program: Implement a variable rate on ships according to engine tier level to encourage calls by cleaner ships and to discourage older ship. <p style="margin-left: 40px;">The facility does not have control of the tier-level of the vessels that access the site; however, as this initiative is implemented Port-wide the vessel related emissions would also be reduced.</p> 4) Harbor Craft: various strategies, including reduce operational wait times, incentivize turnover through grants.

Table 4.8-2. Applicable GHG Emissions Reduction Strategies

Strategy	Project compliance with Strategy
	<p>The facility does not have control of the harbor craft that access the site; however, as this initiative is implemented Port-wide the harbor craft emissions would also be reduced.</p> <p>The proposed Project operations would not conflict the strategies in the CAAP.</p>
<p>City of Los Angeles Construction and Demolition (C and D) Waste Recycling Ordinance</p>	<p>The City of Los Angeles approved a Citywide construction and demolition waste recycling ordinance in 2010. This ordinance that requires ALL mixed C&D waste generated within city limits be taken to City-certified C&D waste processors. LA Sanitation (LASAN) is responsible for the C&D waste recycling policy. All haulers and contractors responsible for handling C&D waste must obtain a Private Waste Hauler Permit from LASAN prior to collecting, hauling and transporting C&D waste, and C&D waste can only be taken to City certified C&D processing facilities.</p>
<p>City of Los Angeles General Plan – Mobility Element (City of Los Angeles, 2016)</p>	<p>The City of Los Angeles General Plan, Mobility Element was developed to improve the way people, goods, and resources are moved in Los Angeles. The proposed Project would be consistent with this General Plan Element.</p>

In summary, the proposed Project would conform to state and local GHG emissions/climate change regulations, policies, and strategies; therefore, the proposed Project would have less-than-significant GHG impacts and no mitigation is required.

4.9 HAZARDS AND HAZARDOUS MATERIALS

- a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. Construction activities associated with the proposed Project are not likely to involve the use of substantial quantities of hazardous materials and the most likely source of hazardous materials would be from vehicles and construction equipment at the site. However, there could be small amounts of hazardous materials, principally fuels, solvents, and lubricants used in construction equipment, at the site during construction. The storage and use of those hazardous materials would comply with Federal and state regulations, the State General Permit for Storm Water Discharges Associated with Construction Activity, and a Project-specific Storm Water Pollution Prevention Plan. SWPPP requirements could include, but are not limited to, controls for vehicle and equipment fueling and maintenance; material delivery, storage, and use; spill prevention and control; and solid and hazardous waste management. Implementation of these construction standards would minimize the potential for an accidental release of petroleum products, hazardous materials, and/or explosion that could create a significant hazard during construction activities at the Project site. Demolition of the existing timber wharf would generate several tons of creosote-and/or other-treated wood. That material would be handled in accordance with applicable regulations and disposed of at a landfill approved to receive such material.

As construction would comply with applicable laws and regulations governing hazardous materials, construction would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Operation of the proposed Project is expected to remain substantially the same as existing conditions, i.e., the loading and unloading of petroleum products to and from barges and ships. The proposed Project would accommodate approximately 77 additional vessels per year compared to baseline conditions, or less than two additional vessel calls per week. However, as described below, the additional vessel traffic would not substantially increase the risk of hazardous materials releases because of the numerous measures in place to ensure safe operation of marine vessel traffic and reduce the potential for releases should accidents occur. Furthermore, operation of the marine oil terminal would take place in a MOTEMS-compliant facility, which would be a safer context than baseline conditions. Accordingly, the proposed Project would not substantially increase hazards to people or property through the release of hazardous materials.

Accidental releases or explosions of hazardous materials could occur from vessels in transit to and from the terminal as a result of collisions with other vessels or allisions with fixed structures, or while at berth as a result of accidental releases during vessel loading and unloading. Factors that reduce the probability and consequences of accidental releases include, but are not limited to:

- Spill prevention and response measures;
- Double-hulled tank vessels;
- Vessel traffic separation and control systems; and
- Petroleum product handling measures.

Spill prevention and response measures are included in Phillips 66 facilities' Spill Prevention, Control, and Countermeasure (SPCC) Plans, as required under the Oil Pollution Act of 1990 (OPA; 33 CFR 157.10d), and would ensure that any release is handled quickly and results in minimal adverse effects (Phillips 66 2020).

The existing regulatory framework described above and the navigational procedures in place at the Port (see below) would continue to minimize the proposed Project's potential for accidents that could result in a release of product during transport. For example, the vessel traffic lanes that have been established off the coast of California are separated by a zone where vessel transit is to be avoided, thereby minimizing the potential for collisions between vessels traveling in opposite directions. As tank vessels approach the Port Complex, they leave the established traffic lanes and enter the Precautionary Area, where speed limits are in effect, and as the vessels approach within two nautical miles of Point Fermin even lower speed limits apply. In addition, Port Pilots navigate the vessels within the breakwater, and tank vessels must be tug assisted. These navigational safety requirements and practices minimize the potential for collisions, allisions, or groundings that could result in a product spill. Thus, although the proposed Project would increase vessel traffic, with the existing navigational safety requirements and practices, the Project is not expected to substantially increase the likelihood or consequences of a release during navigation.

Spills of petroleum products from barges and tank vessels at berth and from marine oil terminals in the Los Angeles Harbor are infrequent and their consequences have been minor. Furthermore, the continued use of double-hulled tank vessels (mandated by the International Maritime Organization's regulation 19 of MARPOL Annex 1) and the spill response systems that are in place would limit the potential sizes and consequences of any spills that do occur.

The purpose of the proposed Project is to increase the safety of product transfer operations at marine oil terminals. The new loading platform, mooring dolphins, and berthing dolphins would be more capable of withstanding vessel movements and seismic events than the existing wharf and dolphins, as they would incorporate components of the mooring systems advocated by the CSLC for MOT projects under MOTEMS, including tension-monitoring systems and triple quick-release hooks. The proposed Project would replace existing loading hoses, pipelines with modern articulated arms that would reduce the potential for rupture or leakage during product transfer. In addition, when tankers are being unloaded at the terminal, inert gas systems are used to prevent explosive conditions from forming in the vessel tanks. During loading, the vapor control unit (VCU) would capture any vapors that are displaced from the vessel tanks, thereby preventing explosive conditions. Accordingly, although the proposed Project would handle larger quantities of hazardous materials than under baseline conditions (see Table 2.2-1), the additional safety and control measures in place under the proposed Project as described above would prevent an increase in the risk of releases, fires, or explosions.

The proposed Project would not result in an increase in the number of tanker trucks transporting product to and from the Project site. Accordingly, the proposed Project would not substantially increase the likelihood of accidents during truck transport.

In summary, construction and operation of the proposed Project would not substantially increase the frequency or severity, relative to the CEQA baseline, of releases of hazardous materials. Therefore, the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant and no mitigation is required.

- b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact. The goal of the MOTEMS requirements is to improve safety at California's marine oil terminals. The purpose of the proposed Project is to increase the safety of product transfer operations at marine oil terminals. The new loading platform, mooring dolphins, and berthing dolphins would be more capable of withstanding vessel movements and loads, wave action, and seismic events than the existing timber wharf, and would be non-flammable, unlike the timber structure. The proposed Project would replace existing loading/unloading hoses and pipelines with modern articulated arms that would further reduce the potential for rupture or leakage during product transfer.

Soils and groundwater beneath the Project site are known to be contaminated with various hydrocarbon products and volatile organic compounds including chlorinated solvents. Los Angeles Regional Water Quality Control Board is the oversight agency. One of the groundwater monitoring wells closest to the Berth 150 contains light non-aqueous phase liquid (LNAPL) sheen. It is unknown how far this sheen extends towards the Berth 150. If contaminated soils were to be encountered, they would be managed in accordance with standard removal and disposal/treatment protocols. Furthermore, the construction contractor would be required by the construction documents to maintain an oil spill response capability (i.e., containment booms, adsorbent materials, and deployment equipment) at the

construction site and to respond appropriately in the event hydrocarbon contamination reaches harbor waters at Berth 150.

Contaminated groundwater beneath the Project site is not expected to pose a risk to the public from proposed Project construction due to the minimal potential for exposure. Construction of the proposed Project would involve driving steel piles on the waterside of the terminal, but open excavation to groundwater would not occur, groundwater would not be drawn or extracted to the surface, and the piles would be capped. Accordingly, installation of piles would not create a significant hazard to the public or the environment related to the release of groundwater contaminants. Landside work would not involve excavation sufficiently deep to encounter groundwater, although if contaminated groundwater were to be encountered, it would be managed in accordance with standard removal and disposal/treatment protocols. With implementation of these measures, impacts of construction would be less than significant, and no mitigation is required.

Operation of the proposed Project would allow the Project site to continue to accommodate vessels and the Phillips 66 Terminal to continue to accommodate trucks transporting hazardous materials (i.e., liquid bulk cargo). Because the new loading platform would increase the safety of vessel operations and those operations would be essentially the same as under baseline conditions, operation of the proposed Project would not increase the risk of an accidental spill or upset. Truck traffic will not increase under the proposed Project. While the number of vessel calls may increase over the 2019 baseline in the future, this is not anticipated to increase the risk of an accidental spill or risk of upset incident to a significant level.

Accordingly, the proposed Project would not create a significant hazard to the public or the environment through upset and accident conditions involving the release of hazardous materials. The impact would be less than significant and no mitigation is required.

- c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There is no existing or proposed school within 0.25 mile of the Project site. All schools are at least one mile away. Therefore, there would be no impact and no mitigation is required.

- d) Is the Project located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less-than-Significant Impact. The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List" (after the Legislator who authored the legislation that enacted it). Because this statute was enacted over twenty years ago, some of the provisions refer to agency activities that were conducted many years ago and are no longer being implemented; and, in some cases, the information to be included in the Cortese List does not exist. While Government Code Section 65962.5 makes reference to the preparation of a "list," many changes have occurred related to web-based information access since 1992

and this information is now largely available on the Internet sites of the responsible organizations. The California Environmental Protection Agency (CalEPA) has identified the following data resources that provide information regarding facilities or sites identified as meeting the "Cortese List" requirements (CalEPA, 2012).

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from State Water Board GeoTracker database;
- List of solid waste disposal sites identified by the State Water Resources Control Board (SWRCB) with waste constituents above hazardous waste levels outside the waste management unit;
- List of "active" Cease and Desist Orders and Cleanup and Abatement Orders from the State Water Board; and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC.

The Project site is not listed in any of these databases (CalEPA, 2021). Accordingly, construction and operation of the proposed Project would not create a significant hazard to the public or the environment as a result of being included on the Cortese list. Therefore, the impact would be less than significant and no mitigation is required.

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

No Impact. The Project site is not located within an airport land use plan or within two miles of a public airport or a public use airport. The closest airport is Zamperini Field in Torrance, approximately five miles from the Project site. The Long Beach Airport and Los Angeles International Airport are approximately eight miles and 15 miles, respectively, from the Project site. The proposed Project would have no effect related to public airports. Accordingly, there would be no impact and no mitigation is required.

- f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. The Project site is currently used for the handling and transport of oil and fuel products. Proposed Project construction would occur within the Project site boundaries and is not expected to affect emergency response or evacuations. As part of standard procedure for activities occurring on Port property, as well as within the Port area, the contractor would coordinate with the Port Police, Los Angeles Police Department, and fire protection/service providers, as appropriate, on traffic management issues and any Port improvement plans occurring in the vicinity. Traffic control equipment would be in place to direct local traffic around the work area if necessary.

An emergency response action plan (Phillips 66 2019) has been prepared for the existing Phillips 66 MOT that provides detailed procedures, including evacuation as necessary, to be followed in the event of an emergency at either terminal. Procedures include:

- Sounding an alarm.
- Following terminal emergency notification processes.
- Dispatching on-call emergency responders to the marine terminal.
- Notifying regulatory agencies as required based on type of emergency (i.e., spill, fire, etc.).
- Calling 911.
- Shutting down loading, unloading, pipeline, and marine operations.
- Evacuating trucks from the facility.
- Diverting incoming trucks or vessels to a safe distance from the facility.
- Evacuating all personnel to a safe distance.

During operation of the proposed Project, the terminal's emergency response plans and those of U.S. Coast Guard, Port Police, and Los Angeles Fire are employed as necessary in accordance with the Port's Risk Management Plan and MOTEMS requirements. The proposed Project would implement the most recent engineering standards required by MOTEMS for the design and maintenance of marine oil terminals to better protect public health, safety and the environment. Because operational activities would closely resemble existing operations, they would not impede land-based emergency responses to the terminal nor would they necessitate changes to the terminal's emergency response plan. As a consequence, operations under the proposed Project would not result in adverse physical impacts on the environment that could interfere with emergency responses.

The proposed Project would comply with MOTEMS requirements and would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Accordingly, impacts would be less than significant and no mitigation is required.

- g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. There are no wildlands at or near the Project site (City of Los Angeles 1996). The majority of the site and surrounding area is industrial in nature and paved, and no increase wildland fire hazard would occur as a result of the proposed Project. Therefore, there would be no impact and no mitigation is required.

4.10 HYDROLOGY AND WATER QUALITY

- a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less-than-Significant Impact. Construction of the proposed Project could result in sediment resuspension during wharf demolition, pile installation, platform construction, and

possible clean-up dredging. The construction contractor must comply with water quality requirements in permits issued from the LARWQCB (such as Waste Discharge Requirements/Section 401 Water Quality Certification). Demolition of the existing timber wharf is not expected to result in a substantial release of contaminants to the water column: although creosote- or other-treated timber debris would be produced, routine precautions would prevent a significant quantity from falling into or remaining in the water. The existing timber piles would either be pulled or cut at the mud line (for piles that cannot be extracted via pulling), which could re-suspend some bottom sediments and create localized and temporary turbidity plumes and associated water quality issues.

In addition to turbidity, re-suspended sediments could result in slightly reduced dissolved oxygen (DO) and pH levels. Those reductions would be brief and localized and would therefore not be expected to cause substantial detrimental effects to biological resources. Existing sediment contaminants (e.g., metals and pesticides) and plant nutrients could be re-suspended into the water column. As with turbidity, however, any increases in concentrations would be localized and of short duration. The release of nutrients could promote short-term nuisance growths of phytoplankton, which has occurred during previous dredging projects, including the Deep Draft Navigation Improvement Project (USACE and LAHD 1992). The Los Angeles Basin Plan defines biostimulatory substances such as nutrients as "...concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses" (LARWQCB 1994). Given the limited spatial and temporal extent of construction activities with the potential for releasing nutrients from bottom sediments, substantial adverse effects on beneficial uses of Harbor waters would not be expected to occur.

The new steel piles would be lowered through the water column and then driven into the seafloor with vibratory and hammer methods. Pile installation could re-suspend some bottom sediments, thereby creating localized and temporary turbidity plumes and associated water quality issues similar to those discussed above. As discussed above, any such increases in turbidity, sediment contaminants, or nutrients would not result in substantial adverse effects on beneficial uses of harbor waters or result in violations of water quality standards.

There is a potential for sediment along the existing slope to slough off and settle along the harbor bottom. No clean-up dredging would be needed if the authorized -35 feet MLLW elevation is met; however, the construction would include a determination of whether high spots exist, and if that occurs, up to 2,000 cubic yards of sediments could require removal. The following analysis addresses the water quality issues that would arise if dredging were to be conducted.

All of the dredged material would be disposed of at a suitable licensed upland disposal facility. The dredging would re-suspend some bottom sediments, create localized and temporary turbidity plumes, and re-suspend sediments over a relatively small area. Receiving water monitoring studies at other dredge sites in the harbor and other water bodies have documented a relatively small turbidity dredge plume that dissipates rapidly with distance from dredging operations (MBC 2001a, b; Anchor Environmental, 2003; USACE and LAHD, 2009; POLA 2009, 2010). Suspension of sediments during clamshell

dredging occurs during bucket impact, penetration, and removal of the bucket from the sediment, as well as during bucket retrieval through the water column.

Sediments were tested in November 2018 per standard USEPA/USACE protocol to determine their suitability to be placed at the Berths 243–245 Confined Disposal Facility and to evaluate potential water quality impacts during dredging and disposal activities. This standard protocol is a requirement of the USEPA/USACE permitting process and therefore considered a project feature. Sediments were determined by the Dredge Material Management Team to be suitable for placement in the Berths 243-245. Results indicated that elutriate concentrations were well below Total Threshold Limit Concentration regulatory limits. Therefore, it is likely that dredge material may be suitable for upland disposal. However, final determination on suitability and any additional testing requirements will be made by the USACE as well as the landfill selected to receive the material.

Clean-up dredging for the proposed Project would require a Section 404 permit from the USACE and a Clean Water Act Section 401 Water Quality Certification, including Waste Discharge Requirements (WDRs), from the LARWQCB. The Water Quality Certification would be required to include monitoring requirements necessary to assure compliance with applicable effluent limitations, or any other Clean Water Act limitation, or with any State laws or regulations. Monitoring requirements typically include measurements of water quality parameters such as DO, light transmittance (turbidity), pH, and suspended solids at varying distances from the dredging operations. During dredging, as a standard practice, if turbidity levels exceed the threshold established in the WDRs, water chemistry analysis would be conducted and the LAHD would immediately meet with the construction manager to discuss modifications of dredging operations to keep turbidity to acceptable levels. Analyses of contaminant concentrations (such as metals, pesticides, and polycyclic aromatic hydrocarbons [PAHs]) in waters during the dredging operations may also be required in the WDRs if turbidity levels are elevated above certain established thresholds. Monitoring data would be used by the Port to ensure that water quality limits specified in the permit are not exceeded. Actions to be taken would include alteration of dredging methods and/or implementation of additional BMPs to limit the size and extent of the dredge plume. Given the limited area that would be affected by dredging activities and the controls in place to minimize adverse effects on water quality, impacts would be less than significant and no mitigation is required.

In addition to water quality effects related to re-suspended sediments, construction could result in spills of fuel, lubricants, or hydraulic fluid from construction equipment and releases of soils and construction debris. However, experience with this type of work in the harbor indicates that such incidences have a very low probability of occurring. Large volumes of chemicals are not used or stored at construction sites. Furthermore, their storage and use would be controlled by the BMPs specified in the Project-specific SWPPP that would be prepared in accordance with the Construction General Permit (CGP), and by standard Port construction contract requirements and the USACE and LARWQCB permits. The SWPPP would be submitted to the Port by the construction contractor prior to the notice to proceed with construction operations. In addition to specifying BMPs for construction activities, the SWPPP would establish efficient responses to spill events to minimize the magnitude of the spill and extent of impacts. Accordingly, spills and other releases of contaminants during

proposed Project construction would not substantially affect beneficial uses of harbor waters or result in violations of water quality standards.

The onshore storm drain systems of the Project site would not be modified, and the proposed Project would not increase the amount of impervious surface area of the terminal. Stormwater from the wharf and access trestle would continue to be managed as under baseline conditions, including percolation into the ground in the unpaved areas and conveyance to the Port's storm drain system from paved areas. The storm drain system at the terminal would continue to comply with National Pollutant Discharge Elimination System (NPDES) requirements regarding discharges and the City's Low Impact Development (LID) requirements. The facility's SWPPPs, with the associated BMPs, would continue to be implemented to manage runoff and prevent impacts to water quality.

Ocean-going vessels utilize hull coatings to prevent algal growth, which can result in leaching of contaminants to harbor waters. Proposed Project operations also have the potential to result in discharges related to risk of upset, accidental discharges, or ballast water discharges to harbor waters, which could be significant. However, the proposed Project's operations would be similar to current operations and will adhere to the Vessel General Permit to reduce the potential of accidental or incidental discharges to harbor waters. Future maintenance at the Project site such as fender and pile replacement or repair could involve minor in-water work that would generate turbidity, but the effects would be localized and of very short duration.

Given the small scale and short duration of construction and with the controls that would be implemented during construction and operation, impacts would be less than significant and no mitigation is required.

- b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-Significant Impact. Groundwater at the Project site is affected by saltwater intrusion (high salinity) and is therefore unsuitable for use as drinking water. Construction would occur primarily in and over harbor waters; the limited landside activities would not adversely affect groundwater recharge because the terminal is not used as a recharge site. They would not adversely affect drinking water supplies because there are none on or near the site. An approximately 2.2-acre parcel would be paved with an impervious surface, which is not anticipated to substantially interfere with groundwater recharge. The proposed Project would not install any new groundwater wells, and groundwater extraction would not occur as part of the proposed Project. Accordingly, the proposed Project would not affect the existing groundwater supplies, drinking water supplies, groundwater recharge facilities, or aquifers. The impact of the proposed Project with respect to groundwater would be less than significant and no mitigation is required.

- c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
- i) *result in substantial erosion or siltation on- or off-site?*

No Impact. There are no streams or rivers located nearby that would be affected by the proposed Project. The proposed Project would not alter the existing drainage pattern of the site in a manner that would cause substantial erosion. The additional paving of the approximately 2.2-acre site would follow existing drainage patterns and utilize existing drains. Because more than 500 square feet of paving would occur, the proposed Project would also comply with applicable LID requirements that would minimize off-site erosion and siltation. The majority of the Project site is currently developed and paved and, as such, is impervious. The management of storm water at the two terminals would not change. Construction would comply with the storm water-related requirements in the NPDES Permit, including the use of BMPs, which would minimize the amount of runoff and the potential for substantial erosion or siltation to occur. Therefore, no impacts related to alteration of drainage patterns resulting in erosion or siltation would occur and no mitigation is required.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Less-than-Significant Impact. By decreasing the amount of wharf surface at Berths 150-151, the proposed Project would decrease the amount of rainwater runoff from constructed surfaces to harbor waters. Of the Project site's total area of approximately 15.7 acres, approximately 2.2 acres are proposed to be graded and paved. Although the unimproved dirt surface would be paved over with an impervious surface, the proposed amount of paving would be consistent with the rest of the area that is already paved. On- or off-site flooding would not increase substantially with this additional impervious surface, as paving would tie in with the existing storm drain system. Impacts would be less than significant and no mitigation is required.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

Less-than-Significant Impact. The existing storm drain system for the land portion of the terminal would not be affected by the proposed Project and would continue to comply with all discharge requirements imposed by LARWQCB permits. Implementation of the proposed Project includes paving of approximately 2.2 acres. As such, the proposed Project would increase the area of impervious surfaces by approximately 14 percent. The added pavement would connect to existing drainage. The proposed Project would not alter the existing drainage pattern or result in a substantial increase in surface runoff resulting in flooding. Therefore, impacts would be less than significant and no mitigation is required.

iv) impede or redirect flood flows?

No Impact. According to the Federal Emergency Management Agency's (FEMA's) Flood Hazard Map FM06037C1944G,⁴ the Project site is located in Zone AE, which is identified as a Special Flood Hazard Area subject to inundation by the one percent annual chance flood (also known as the base flood), which has a one percent chance of being equaled or exceeded in any given year. The new loading/unloading platform at

⁴ <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>

Berth 150-151 would be located at the same location and height as the existing wharf and would not impede or redirect flood flows. No structures would be built on land that would alter the site's performance in floods with respect to flood flows. The grading of the unimproved surface would not substantially affect flood flows. As discussed in Section 4.10(c)(ii), new pavement would connect to the existing storm drainage system, maintaining existing drainage patterns of the site. Therefore, the proposed Project would neither impede nor redirect flood flows and no mitigation is required.

- d) Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less-than-Significant Impact. Tsunamis are high, long-period sea waves caused by earthquakes, submarine landslides, or other large disturbances that, when they reach land, cause water level rise and can cause devastating flooding. Seiches are water waves that surge back and forth in an enclosed basin; seiches can result from earthquakes or other disturbances such as high winds. A computer model of Los Angeles-Long Beach harbor that assessed tsunami and seiche scenarios determined that in each case modeled, impacts from a tsunami were equal to or more severe than those from a seiche (Moffatt and Nichol, 2007). As a result, the discussion below refers to tsunamis as the worst case of potential impacts; potential impacts related to seiches would be the same as or less than those identified below. In addition, this discussion considers the impacts of 100-year storm tides combined with projected sea level rise.

According to the City of Los Angeles Safety Element of the General Plan (City of Los Angeles, 1996), the Project site is within an area susceptible to impacts from a tsunami and subject to possible inundation. However, the Tsunami Hazard Assessment for the Ports of Los Angeles and Long Beach (Moffatt and Nichol, 2007) concluded on the basis of modeling that, based on seismicity, geodetics, and geology, a large, locally generated tsunami affecting the Port Complex would likely not occur more than once every 10,000 years. Under the maximum future tsunami scenarios, the Port Complex model predicts a maximum tsunami wave height of 9.1 feet along the East Basin Channel near the Project site (Moffatt and Nichol, 2007, Table 4-1).

With respect to potential flood hazard due to potential sea level rise, Assembly Bill (AB) 691 required POLA, as a local trustee of the lands granted by the State Lands Commission, to address the impacts of Sea Level Rise (SLR) for all of its granted public trust lands. Per that requirement, POLA's Engineering Division developed a Sea Level Rise Adaptation Study (LAHD 2018d). The study identifies all areas of port property and estimates potential increased water intrusion/flooding due to SLR in 2030, 2050 and in 80 years from now (i.e., in 2100).

According to the National Oceanic and Atmospheric Administration (NOAA), sea level rise of approximately 4 inches has occurred in Los Angeles County over the past 100 years.⁵ The Port's report estimates that sea level could rise above the level observed in 2000 by up to an additional 12 inches between 2000 and 2030 and between 37 inches (the mid-point estimate) to as much as 66 inches by 2100. The area specifically referenced for Berths 148-

⁵ National Oceanic and Atmospheric Administration (NOAA) Mean Sea Level Trend: 9410660 Los Angeles, California. Accessed October 19, 2016. http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9410660

151 indicates that SLR alone would not cause permanent inundation or shoreline overtopping until it reaches 66 inches (the high-range prediction for 2100). Accordingly, SLR alone would not threaten the landside facilities at the Project site during the projected service life of 50 years. However, under 100-year storm tide conditions, shoreline overtopping and temporary flooding could occur with 24 inches of SLR (the prediction for the year 2050; see LAHD 2018d, Section 4 figures, page 28). The Port's study (LAHD, 2018b) predicts a maximum storm tide would raise water levels approximately 2.6 feet above Mean Higher High Water (MHHW). Accordingly, extreme storm events coupled with projected SLR could cause temporary flooding of backland facilities, with concomitant interruption of terminal activities. Access roads on Pier A would not be very sensitive to damage as a result of temporary flooding unless high flood water velocities occurred. Furthermore, although traffic would be blocked by water depths of more than a few inches, vehicle movement should be able to resume quickly after waters have receded.

The construction of facilities at adequate elevations and the incorporation of emergency planning in accordance with current state and City regulations minimizes damage to structures and injury to personnel from flooding or inundation. A Port-wide emergency notification system provides phone/text/email notification of tsunami warnings or other emergency situations. Furthermore, the existing terminals have emergency response plans that mention natural disasters, including tsunamis, to identify necessary procedures in the event a tsunami warning is issued. The plan directs terminal staff to drain and disconnect cargo lines, secure the terminal, and if time permits, allow berthed vessels to depart prior to the arrival of a tsunami. The procedures identify priorities including the safety of life for terminal and vessel staff, limitation/mitigation of environmental impact from oil spills, and limitation/mitigation of damage to the marine oil terminal. The tsunami plan would remain in effect under the proposed Project.

Construction and operation of the proposed Project would not increase the potential for release of pollutants due to tsunami or storm tide flooding damage. Under the proposed Project, the vessel berthing and loading/unloading facilities would be improved to meet MOTEMS safety standards, thereby further reducing the risk of product release in the very unlikely event of inundation. The terminals' product-handling facilities would remain largely as under existing conditions, so that the risk of product release would not be increased. Therefore, the proposed Project would not increase risks associated with the release of pollutants due to tsunami or seiche.

As described above, the proposed Project would not increase the potential for a tsunami, seiche, or storm tide to cause inundation at the Phillips 66 marine oil terminal that could increase the risk of a release of pollutants. Accordingly, impacts would be less than significant and no mitigation is required.

- e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. Responsibility for the protection of surface water and groundwater quality in California rests with the SWRCB and nine Regional Water Quality Control Boards (RWQCB). Region-specific water quality regulations are contained in Water Quality Control Plans that recognize regional beneficial uses, water quality characteristics, and water quality problems. The Project area is not located in an area designated for a water quality control

plan or sustainable groundwater management plan. Therefore, the proposed Project would not interfere with any water quality or groundwater management plan. No impacts would occur, and no mitigation is required.

4.11 LAND USE AND PLANNING

a) Would the Project physically divide an established community?

No Impact. The proposed Project is located in a heavy industrial area of the Port that does not contain any established communities. The nearest residential receptor community is an apartment complex on N. Harbor Blvd. in San Pedro, approximately 3,500 feet south-west of the Project site. The proposed Project would be confined to the existing marine oil terminals at the Project site and would not physically divide an established community. Therefore, no impacts involving physically dividing an established community would occur with the implementation of the proposed Project and no mitigation is required.

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

No Impact. The location of the Project site is described in Section 2.1. Land uses in the vicinity of the Project site consist of marine cargo terminals and access roads.

As noted in Section 2.1.3, the Project site is governed by two land use plans: the Port of Los Angeles Master Plan, developed in conformance with the California Coastal Act, and the Port of Los Angeles Plan portion of the City of Los Angeles General Plan.

The Port of Los Angeles Plan is part of the City of Los Angeles General Plan Land Use Element, which serves as the guide for the continued development and operation of the Port (City of Los Angeles, 1982). The Project site has a Non-Hazard Industrial and Commercial land use designation and is zoned [Q] M3-1 (Qualified-Heavy Industrial) by the City of Los Angeles Zoning Ordinance. The [Q] designation restricts uses to General Cargo, limited Port-related commercial, industrial, and support uses. The proposed Project would provide for the continuation of the existing use, which is consistent with the [Q] M3-1 zoning of the site. The continuation of the site as marine oil terminals would be consistent with the surrounding uses, which are also port-related.

Because the continuation of the marine oil terminal use would not represent a change in use and would be consistent with applicable land use plans and land use designations, including the Port Master Plan, Port of Los Angeles Plan, and zoning code, the proposed Project would not conflict with any applicable land use plan, policy, or regulation. Therefore, there would be no impact and no mitigation is required.

4.12 MINERAL RESOURCES

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

No Impact. The proposed Project is located within the Port of Los Angeles. According to the California Department of Conservation Division of Mines and Geology mineral resource

maps, the nearest mineral resources area is located over 25 miles away in the San Gabriel Valley (California Department of Conservation, 2011a).

According to the City of Los Angeles General Plan Safety Element and the California Department of Conservation, Geologic Energy Management Division (CalGEM), the Project site is located just beyond the southwestern border of the Wilmington Oil Field but over a mile from the edge of the major drilling area (California Department of Conservation, 2021). There are no active oil wells on the Project site. Because the proposed Project would not be located within an active oil drilling area and because construction would be at the surface or shallow depths relative to the oil field, no impacts to mineral resources are anticipated. Therefore, no impacts related to the loss of availability of a known valued mineral resource would occur with the implementation of the proposed Project and no mitigation is required.

- b) Would the Project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. According to the City of Los Angeles General Plan Safety Element and the California Department of Conservation, Geological Energy Management Division, the Project site is located just beyond the southwestern border of the Wilmington Oil Field but over a mile from the edge of the major drilling area (California Department of Conservation, 2021). The proposed Project would be entirely confined to the Project site and would therefore not result in the loss of availability of a mineral resource recovery site. Therefore, no impact to the availability of a mineral resource would result from construction and operation of the proposed Project and no mitigation is required.

4.13 NOISE

- a) Would the Project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less-than-Significant Impact. The City regulates construction noise via the Los Angeles Municipal Code (LAMC, Chapter IV, Article 1, Section 41.40; Chapter XI, Article 2, Section 112.05). Under the noise provisions, construction equipment noise levels are limited to a maximum noise level of 75 dBA (A-weighted decibel) if located within 500 feet of any residential zone of the City, if technically feasible, and construction is limited to Monday through Saturday exclusive of holidays. However, major public works projects conducted by the City are exempt from this Sunday and holiday restriction, and construction in districts zoned for industrial uses, as is the Project site, is exempt from all noise provisions. The nearest residential area (apartment complex on N. Harbor Blvd. in San Pedro) to the wharf construction site is approximately 3,500 feet away. Therefore, the proposed Project would not be subject to the maximum noise limits or time restrictions in the LAMC.

The L.A. CEQA Thresholds Guide (2006) does not require a full noise evaluation if construction is not located within 500 feet of a residential zone. Since no residential area is located within 500 feet of the Project site, no quantitative analysis was completed.

Although the proposed Project could accommodate an increase in the annual number of vessel calls to the Phillips 66 terminal, only a single vessel could berth at the terminal at any given time as is the case under current operating conditions. Accordingly, noise from vessel operations would not increase above baseline levels. The proposed Project would not increase the number of trucks visiting the Project site during operations, and the closest residential receptors are located two-thirds of a mile away. Therefore, there would be no increase in operational truck noise and in any case, truck noise across that distance would be attenuated to below local noise ordinance thresholds. Accordingly, impacts would be less than significant and no mitigation is required.

- b) Would the Project generate excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Construction equipment and activities associated with the proposed Project, such as drill rigs, pile installation and driving equipment, compaction equipment, and haul trucks, would generate vibrations that could result in groundborne noise or vibration. Transient vibration levels greater than 0.5 inches per second (in/sec) and continuous/frequent intermittent vibration levels greater than 0.3 in/sec have the potential to damage older residential structures. Transient vibration levels greater than 2.0 in/sec, or continuous sources greater than 0.4 in/sec, would cause severe annoyance to a human (Caltrans, 2013b). In addition, continuous vibration levels of 0.08 in/sec would be “readily perceptible” to humans, whereas transient vibration levels of 0.035 in/sec would be “barely perceptible” to humans.

A quantitative analysis of vibration levels was not conducted for the proposed Project because relevant data are available from an analysis performed for a nearly identical project located at Berths 168-169, approximately 0.2 miles west of the proposed Project (LAHD 2018c). That analysis showed that construction of that project would produce vibration levels up to approximately 0.02 in/sec at the closest residences. That level is well below the thresholds established by Caltrans (2013b). Given its similarity and proximity to the project at Berths 168-169, the proposed Project’s construction would produce virtually identical vibration levels. Accordingly, impacts would be less than significant, and no mitigation is required.

Operation of the proposed Project would not result in a substantial increase in groundborne vibrations or noise levels. The number of trucks would not increase from baseline and, because of the site’s distance from sensitive and residential receptors, operations would not result in vibration that would exceed local ordinance thresholds. Therefore, impacts of operations would be less than significant and no mitigation is required.

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

No Impact. The proposed Project is not located within two miles of a public airport or public use airport. Accordingly, the proposed Project would not expose people residing or working in the area of the Project site to excessive noise related to a public or private airport or

airstrip. There would be no impact from implementation of the proposed Project and no mitigation is required.

4.14 POPULATION AND HOUSING

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

No Impact. The proposed Project would not establish new residential uses within the Port, require extension of roads or other growth-accommodating infrastructure, or result in the relocation of substantial numbers of people from outside of the region. Therefore, the proposed Project would not directly or indirectly induce substantial population growth through extension of roads or other infrastructure. There would be no impacts associated with population growth inducement and no mitigation is required.

- b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. There is no housing within the proposed Project boundaries that would be displaced as a result of the proposed Project. No replacement housing would be needed associated with the implementation of the proposed Project. No impact would occur and no mitigation is required.

4.15 PUBLIC SERVICES

Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

- a) Fire protection?

Less-than-Significant Impact. The City of Los Angeles Fire Department (LAFD) provides fire protection and emergency services to the Project site and surrounding area. LAFD facilities in the Port include land-based fire stations and fireboat companies. The nearest station with direct fireboat access is Fire Station No. 112, located about one mile south-southwest of the Project site. This station is equipped with a single engine company and one boat (Fire Boat No. 2). The next closest station is Fire Station No. 49, a travel distance of approximately 1.4 miles to the terminal. This station is equipped with a single engine company and two boats (Fire Boats Nos. 3 and 4) at Berth 194. Fire Station No. 38, located at 124 East I Street, approximately 2.2 miles north of the site, would provide fire service by land.

Construction of the proposed Project would not increase the need for expanded services. Further, construction would occur within the Project site and harbor and would not affect service ratios, response times, or other performance objectives of the LAFD.

The proposed Project would implement the most recent engineering standards related to fire suppression equipment in compliance with MOTEMS High Fire Hazard Classification requirements. Further, the proposed Project improvements would, as a standard practice, be reviewed by the LAFD, and any recommendations would be incorporated into proposed Project design. Operation of the proposed Project would not result in a substantial increase in demand for LAFD personnel, equipment, facilities, or firefighting capabilities, nor would it affect response times that could lead to a substantial adverse physical impact.

Construction activities would include implementation of standard safety requirements, including preparation of an emergency response plan and coordination with emergency service providers, including the LAFD. Accordingly, construction of the proposed Project is not expected to result in an increase in demand for LAFD personnel, equipment, facilities, or firefighting capabilities, nor would it affect response times which could lead to a substantial adverse physical impact.

Operation of the proposed Project would comply with MOTEMS fire safety requirements and the state and city fire codes, standards and regulations, and would not increase the demand for fire protection services. Therefore, impacts associated with fire protection services would be less than significant and no mitigation is required.

b) Police protection?

Less-than-Significant Impact. The Los Angeles Harbor Department Port Police (Port Police) and the Los Angeles Police Department (LAPD) both provide police services to the Port. The Port Police is the primary law enforcement agency within the Port of Los Angeles and is responsible for patrol and surveillance within the Port property boundaries, including Port-owned properties within the communities of Wilmington, San Pedro, and Harbor City. The Port Police maintains 24-hour land and water patrols and enforces federal, state, and local public safety statutes, Port tariff regulations, as well as environmental and maritime safety regulations. The LAPD Harbor Division is located at 2175 John S. Gibson Boulevard in San Pedro, which is approximately 1.1 miles east of the proposed Project.

The proposed Project would not substantially alter terminal activities and would not increase long-term employment or result in indirect growth that would result in need for additional police protection. Accordingly, the proposed Project would not increase the demand for additional law enforcement officers and/or facilities such that the Port Police or LAPD would not be able to maintain an adequate level of service without additional facilities. Therefore, impacts on police protection services from implementation of the proposed Project would be less than significant and no mitigation is required.

c) Schools?

No Impact. The demand for new schools is generally associated with increases in the school-aged population or decreases in the accessibility and availability of existing schools. The proposed Project would not involve schools or include residential development that could increase school age population. Therefore, no impacts to existing schools, or need for new school facilities, would occur and no mitigation is required.

d) Parks?

No Impact. The proposed Project would not include the creation of new parks or reduction in existing park facilities. In addition, proposed Project improvements would be confined to the Project site within the Port and would not induce population growth that could result in increased demand for parks beyond that which currently exists. Therefore, no impacts to existing parks, or need for new parks would occur from implementation of the proposed Project, and no mitigation is required.

e) Other public facilities?

Less-than-Significant Impact. The USCG is a federal agency responsible for a broad range of regulatory, law-enforcement, humanitarian, and emergency-response duties. The USCG mission includes maritime safety, maritime law enforcement, protection of natural resources, maritime mobility, national defense, and homeland security. The USCG's primary responsibility is to ensure the safety of vessel traffic in the channels of the Port and in coastal waters. The 11th USCG District maintains a post on Terminal Island, south of the Project site. The proposed Project would implement the most recent engineering standards required by MOTEMS for the design and maintenance of marine oil terminals to better protect public health, safety and the environment at an existing marine oil terminal and would not result in impacts to USCG facilities or operations.

The proposed Project would potentially result in an increase in annual vessel calls from a baseline of 229 calls to 306 calls. This increase of 77 vessel calls is minor compared to year-to-year fluctuations in the total number of vessel calls to the Port in recent years. Between 2015 and 2020, annual vessel calls to the Port ranged from a low of 1,533 to a high of 1,880 (LAHD 2021, LAHD 2020a, LAHD 2019a, LAHD 2018b, LAHD 2017, LAHD 2016). The difference of 347 is 4.5 times greater than the potential 77 vessel call increase associated with the Project, meaning that the proposed Project's increase in vessel traffic would not actually result in a substantial increase in total traffic to the Port. No expansion of the Vessel Traffic Information System or other vessel safety systems and programs in the USCG's purview would be needed. Therefore, the proposed Project would not result in an increase in demand for other public facilities that could lead to a substantial adverse physical impact. Impacts would be less than significant and no mitigation is required.

4.16 RECREATION

- a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The proposed Project would not directly or indirectly result in physical deterioration of parks or other recreational facilities because it is not near any such facilities and would not induce population increases that would increase use of recreational facilities. Therefore, no impact would occur and no mitigation is required.

- b) Would the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed Project would not include recreational facilities or new residential development that would require construction or expansion of existing recreational facilities. Therefore, no impact would occur and no mitigation is required.

4.17 TRANSPORTATION

- a) Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact. The 2020 Los Angeles Department of Transportation (LADOT) Transportation Assessment Guidelines state that a project that “generally conforms with and does not obstruct the City’s development policies and standards will generally be considered to be consistent” and not in conflict. The 2020 LADOT Transportation Assessment Guidelines include three screening criteria questions that are answered in order to help guide whether the project conflicts with City circulation system policies. If the answer is “no” to all of the following questions, a “no impact” determination can be made (LADOT 2020).

- (1) Does the project the project require a discretionary action that requires the decision maker to find that the project would substantially conform to the purpose, intent, and provisions of the general plan?

The proposed Project requires approval by the Board of Harbor Commissioners which is by definition a discretionary action. However, this discretionary action does not require the decision maker to amend any project component to conform to the purpose, intent, or provision of any existing general plan. Therefore, the proposed project would comply with all required City circulation system policies and does not deviate from any known general plan.

- (2) Is the project known to directly conflict with a transportation plan, policy, or program adopted to support multimodal transportation options or public safety?

The proposed Project would not alter existing transportation routes or transportation options, nor would it alter access to public safety. Direct landside access to the Project site is provided via Pier “A” Street. The proposed Project would not require any modifications or closures to the public right-of-way. There would be no in-street construction activities. Therefore, the proposed Project would not directly conflict with a transportation plan, policy or program adopted to support multimodal transportation options or public safety.

- (3) Is the project required to or proposing to make any voluntary modifications to the public right-of-way (e.g., dedications and/or improvements in the right-of-way, reconfigurations of curb line)?

The proposed Project does not include any modifications to existing roadways that support current or future bike lanes or bus stops and is not required to make any voluntary or required modifications to the public right-of-way. The proposed Project does not propose to include dedications or physical modifications to the public right-of-way, nor is it required.

- b) Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact. CEQA Guidelines Section 15064.3 subdivision (b), provides criteria for analyzing transportation impacts. The guidelines state that a significant impact may occur if vehicle miles traveled (VMT) exceed an applicable threshold of significance.

The intent of State CEQA Guidelines Section 15064.3, subdivision (b)(1) and Threshold T-2.1 in the 2020 LADOT Transportation Assessment Guidelines is to assess whether a land use or office project would have a potential impact. The guidelines include two screening criteria questions that must be answered in order to determine consistency with State CEQA Guidelines Section 15063.3, subdivision (b)(1); the 2020 LADOT Transportation Assessment Guidelines state that if the answer is “no” to either question, then further analysis will not be required for this threshold, and a “no impact” determination can be made.

- (1) Would the land use project generate a net increase of 250 or more daily vehicle trips?
- (2) Would the project generate a net increase in daily VMT?

The LADOT threshold of 250 daily vehicle trips was proposed for automobiles (as OPR does not require VMT analysis of commercial trucks in CEQA documents). Therefore, based on OPR verbal guidance, heavy-duty truck trips are not included in this transportation analysis, but are analyzed in other resource areas, such as Air Quality, Greenhouse Gas Emissions, Noise, and Energy. (OPR, 2020).

Construction of the proposed Project would generate approximately 54 vehicle trips during a peak day, and operation would not generate more trips than under baseline conditions because there would be no additional employees. Therefore, the proposed Project would not generate a net increase of 250 or more daily vehicle trips during construction or operation. Therefore, there are no impacts and no mitigation is required.

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

No Impact. The 2020 LADOT Transportation Assessment Guidelines provide two screening criteria questions that must be answered in order to determine assess whether the Project would result in impacts due to geometric design hazards or incompatible uses.

- (1) Is the project proposing new driveways, or introducing new vehicle access to the property from the public right-of-way?
- (2) Is the project proposing to, or required to make any voluntary or required, modifications to the public right-of-way (e.g., street dedications, reconfigurations of curb line)?

The Project is not proposing new driveways or introducing new vehicle access to the property from the public right-of-way. Also, as previously discussed above, the Project is not proposing or required to make any voluntary or required modifications to the public right-of-way. Therefore, there are no impacts and no mitigation is required.

d) Would the project result in inadequate emergency access?

No Impact. The proposed Project would not alter or close existing roadways or emergency access ways. Because the number of daily truck trips to and from the terminal would not change above baseline levels, traffic patterns would not be altered, and emergency access would remain adequate. Accordingly, no impact would occur and no mitigation is required.

4.18 TRIBAL AND CULTURAL RESOURCES

This section evaluates impacts to tribal cultural resources associated with the implementation of the proposed Project. Pursuant to Assembly Bill (AB) 52, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the Project if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area. As part of Native American consultation associated with the proposed Project, the Native American Heritage Commission (NAHC) was contacted, and a consultation list received, of tribes that are traditionally and culturally affiliated with the geographic area of the proposed Project.

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

No Impact. As discussed in Section 4.5 (Cultural Resources), the potential to discover an unknown tribal cultural resource within the Project site is highly unlikely as the site is underlain by manmade fill. Consultation under AB 52 was conducted during November of 2017. There was no request for a formal consultation during that time. Responses from consultation indicate that there are no known tribal cultural resources in the Project site or vicinity. Therefore, the proposed Project would have a less than significant impact on tribal cultural resources.

The proposed Project would also occur in and over harbor waters and could include minor clean-up dredging. The Project area has been routinely dredged over the history of the Port to create shipping channels and increase or maintain the design depth at the berths. Given the absence of known tribal resources in the Project area and the limited ground-disturbing activities that would be done, the proposed Project would have no impact and no mitigation is required.

ii) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact. As described in Section 4.18(a), the Project site has undergone approximately 100 years of development, including dredging and filling, and tribal

cultural resources are not likely present. Given the absence of known tribal resources in the Project area and the limited ground-disturbing activities that would be performed, the proposed Project would have no impact on a California Native American tribe resource, and no mitigation is required.

4.19 UTILITIES AND SERVICE SYSTEMS

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

No Impact. The Project site is located in a developed area that is served by existing utilities. The proposed Project would not relocate or construct new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities. Furthermore, because the proposed Project would not result in an increased number of employees on-site during operations there would be no need for new or expanded utilities. Therefore, construction and operation of the proposed Project would not require any new or expanded wastewater treatment, stormwater drainage, electrical power, natural gas, or telecommunications facilities. Accordingly, there would be no impacts and no mitigation is required.

- b) Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The proposed Project would have sufficient water supplies for the foreseeable future. The proposed Project would not construct any major facilities that would require or result in additional water consumption. There would likely be a slight increase in water demand during construction as a result of worker consumption and other uses such as dust control, but that would be temporary. Once operations begin, water demand would remain similar to current levels as the number of employees would not increase. Accordingly, there would be no impacts related to water supplies and no mitigation is required.

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

No Impact. The City of Los Angeles Department of Public Works, Bureau of Sanitation, provides sewer service to all areas within its jurisdiction, including the Project site. Wastewater from the Phillips 66 terminal flows through existing sewer and wastewater infrastructure to the Bureau of Sanitation's Terminal Island Water Reclamation Plant (TIWRP). The TIWRP currently operates at approximately 50 percent of its capacity of 30 million gallons per day (LASAN, 2020). A small increase in on-site personnel associated with construction (estimated at up to 30 per day) would generate temporary, minor increases in wastewater flows. Accordingly, the existing system has excess capacity and any increases in wastewater and stormwater inputs to the City's sewer and treatment systems as a result of construction and operation of the proposed Project would be insubstantial. Therefore, no impacts would occur with the implementation of the proposed Project and no mitigation is required.

- d) Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-than-Significant Impact. The demolition and removal of the existing wharf structures and their shoreline connecting structures would generate debris, primarily treated timber but also including concrete and steel, that would be recycled and disposed of, as described below. A small amount of additional debris would be generated by construction of the new loading/unloading platform and associated facilities. If clean-up dredging is necessary, up to 2,000 cubic yards of dredged material could be generated.

The generation of landfill waste would be reduced by recycling of demolition debris to the extent feasible. The LAHD maintains an asphalt/concrete recycling facility at Navy Way, south of Reeves Avenue, on Terminal Island. The asphalt/concrete debris would be crushed at the facility or elsewhere in the Port for construction reuse within the Port. Metal debris would be salvaged for scrap by the construction contractor. Dredged material, if any, would be disposed of at a suitable upland disposal facility.

Solid waste requiring disposal at a landfill is not expected to be substantial relative to the permitted landfill capacity at Chiquita Canyon Landfill, Sunshine Canyon Landfill, or other local or regional disposal facilities that could accept construction waste from the proposed Project. There is currently sufficient solid waste disposal capacity available in Los Angeles County (City of Los Angeles 2013). Further, there are a number of operations within Los Angeles County that recycle construction and demolition material, and the Port, as standard conditions of permit approval, requires recycling of construction materials and use of materials with recycled content where feasible to minimize impacts to solid waste. Demolition debris would not exceed landfill capacity. Disposal of up to 2,000 cubic yards of dredged material in a suitable upland facility would have a negligible effect on overall landfill capacity and would therefore not affect solid waste disposal facilities.

In summary, construction is anticipated to generate relatively small amounts of waste requiring disposal in a landfill, and construction would comply with applicable waste reduction requirements. Operation of the proposed Project would not result in a substantial increase in solid waste generation relative to baseline conditions because the number of personnel would remain small and activity levels would be similar to baseline conditions. Therefore, this impact would be less than significant, and no mitigation is required.

- e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The proposed Project would be required to conform to the policies and programs of the City of Los Angeles' Solid Waste Integrated Resources Plan (SWIRP). Compliance with the SWIRP would ensure sufficient capacity to service the proposed Project (City of Los Angeles, 2013). Construction activities are anticipated to generate a nominal amount of solid waste. The proposed Project would comply with all applicable codes and requirements pertaining to solid waste disposal. These include but are not limited to: Chapter VI Article 6 Garbage, Refuse Collection of the City of Los Angeles Municipal Code, Part 13 Title 42 – Public Health and Welfare of the California Health and Safety Code, and Chapter 39 Solid Waste Disposal – of the United States Code. The proposed Project

would also be compliant with AB 939, the California Solid Waste Management Act, and AB 341, which establish waste stream diversion and recycling goals. Because the proposed Project would implement and be consistent with the procedures and policies detailed in the codes and requirements identified above, Port-wide standard conditions of approval requiring recycling of construction materials, the City's recycling and solid waste diversion efforts, and related laws pertaining to solid waste disposal, there would be no impacts related to compliance with solid waste statutes and regulations and no mitigation is required.

4.20 WILDFIRE

If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- a) Substantially impair an adopted emergency response plan or emergency evacuation plan?
- b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?
- c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. Public Resources Code sections 4201-4204 direct the California Department of Forestry and Fire Protection to map fire hazard based on relevant factors such as fuels, terrain, and weather. The Port is not located in or near a state responsibility area or lands classified as a Very High Fire Severity Zone within its Local Responsibility Area (California Department of Forestry and Fire Protection, 2021; LAFD, 2021). Therefore, the Project site is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. As such, no impacts would occur and no mitigation is required.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 4.4, Biological Resources, implementation of MM BIO-1 would reduce potentially significant impacts of underwater noise on biological resources (i.e., marine mammals and managed

fish species) to less than significant. As discussed in sections 4.4 and 4.5, all other potential impacts related to biological and cultural resources would be less than significant, and no mitigation is required.

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

Less-than-Significant Impact. The proposed Project would not result in any cumulatively considerable impacts. Several other development projects are currently under construction, are planned, or have recently been completed within the Port. These projects include container terminal developments, industrial developments, and other waterfront plans. Future projects would be evaluated in a separate future environmental document. These types of projects and other present and/or probable future projects are required to comply with CEQA requirements, including implementation of mitigation measures to reduce or avoid environmental impacts, as well as with applicable laws and regulations at the federal, state and local level, including but not limited to the Los Angeles City Municipal Code and local ordinances governing land use and development.

As discussed in Sections 4.1 through 4.20 of this IS/MND, the proposed Project would not result in significant impacts to aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and services systems, or wildfires that could not be mitigated to below significance.

The proposed Project would require three mitigation measures (MM AQ-1 and MM AQ-2 related to air quality and MM BIO-1 related to biological resources). The Project site is currently developed with industrial uses similar to the proposed Project. Because of the small scale and localized effects of the proposed Project, the potential incremental contribution from the proposed Project would not be cumulatively considerable. Operational activity (vessels and trucks) would be consistent with baseline conditions and retrofits would be incorporated to bring the facility into compliance with seismic codes and safety regulations. The proposed Project allows for a slight increase in vessel calls but would still only accommodate berthing of one vessel at a time. Accordingly, operational impacts of the proposed Project would not contribute to a cumulative impact. This analysis has further determined that the proposed Project would not have any individually limited but cumulatively considerable impacts.

- c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact. Based on the analysis in Section 4, substantial adverse impacts on human beings would not occur as a result of the proposed Project. The proposed Project’s impacts related to aesthetics, air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, public services, and utilities and service systems would be less than significant (after mitigation in the case of air

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quality), and the proposed Project would have no impacts related to land use and planning, population and housing, recreation, transportation, tribal cultural resources, or wildfires. Furthermore, the proposed Project would continue an existing use with similar activity levels but improved safety compared to baseline conditions. Accordingly, impacts on human beings related to the proposed Project would be less than significant.

5. PROPOSED FINDING

LAHD has prepared this IS/MND to address the environmental effects of the proposed Project. Based on the analysis provided in this IS/MND, LAHD finds that the proposed Project would not have a significant effect on the environment with the incorporation of the mitigation measures described in this document.

6. PREPARERS AND CONTRIBUTORS

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7. ACRONYMS AND ABBREVIATIONS

AAQS	ambient air quality standards
AB	Assembly Bill
APN	Assessor's parcel number

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Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
ATB	Articulated Tug Barge
BMP	best management practice
CAA	Clean Air Act
CAAP	Clean Air Action Plan
CAPCOA	California Air Pollution Control Officers Association
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CalGEM	California Dept. of Conservation, Geologic Energy Management Division
CalGreen	California Green Build Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDF	Confined disposal facility
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CHE	Cargo Handling Equipment
City	City of Los Angeles
CNEL	community noise equivalent level
CO	carbon monoxide
CO _{2e}	carbon dioxide equivalent
CRHR	California Register of Historical Resources
CSLC	California State Lands Commission
dBA	A-weighted decibel
DO	dissolved oxygen
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWT	deadweight tons
EFH	Essential Fish Habitat
EI	emissions inventory
EIA	Energy Information Agency
EMD	Environmental Management Division

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EO	Executive Order
EPA	U.S. Environmental Protection Agency
EEZ	Exclusive Economic Zone
FEMA	Federal Emergency Management Agency
FMP	Fish Management Plan
FMMP	Farmland Mapping and Monitoring Plan
GAL	Gallons
GHG	greenhouse gas
GWP	global warming potential
HCP	Habitat Conservation Plan
I	Interstate
IS	Initial Study
LACSD	Los Angeles County Sanitation District
LADBS	Los Angeles Department of Building and Safety
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAGBC	Los Angeles Green Building Code
LAHD	Los Angeles Harbor Department
LAMC	Los Angeles Municipal Code
LAPD	Los Angeles Police Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LASAN	Los Angeles Bureau of Sanitation
LBS	Pounds
LID	Low Impact Development
LNAPL	Light non-aqueous phase liquid
LOP	Letter of Permission
LST	Localized Significance Threshold
M	Magnitude
MBTA	Migratory Bird Treaty Act
MD	mooring dolphin
MHHW	Mean Higher High Water
MM	mitigation measure
MMPA	Marine Mammal Protection Act
MND	Mitigated Negative Declaration
MOTEMS	Marine Oil Terminal Engineering and Maintenance Standards

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MOT	Marine Oil Terminal
MOU	Memorandum of understanding
MSL	mean sea level
MT/yr	metric tons per year
MWD	Metropolitan Water District of Southern California
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NOAA	National Oceanic and Atmospheric Administration
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OEHHA	Office of Environmental Health Hazard Assessment
OGV	ocean-going vessel
OPA	Oil Pollution Act
OPR	Office of Planning and Research
PM ₁₀	particulate matter less than or equal to 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PMP	Port Master Plan
Port or POLA	Port of Los Angeles
POTW	Publicly owned treatment works
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SEA	Significant Ecological Area
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLR	Sea Level Rise
SO _x	sulfur oxide
SPCC	Spill Prevention Control and Countermeasure Plan
SR	State Route
SRA	source receptor area
SWIRP	Solid Waste Integrated Resources Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant

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TCR	The Climate Registry
TIE	Terminal Incident Event
TIWRP	Terminal Island Wastewater Reclamation Plant
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEIA	U.S. Energy Information Agency
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
VCU	vapor control unit
VIE	Vessel Incident Event
VMT	Vehicle Miles Traveled
VOC	volatile organic compound
WDR	Waste Discharge Requirements
ZIMAS	Zone Information and Map Access System

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Appendix A
Berths 148-151 [Phillips 66] Marine Oil Terminal
Wharf Improvements Project

Air Emissions

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1.0 Introduction

This appendix describes in detail the regulatory background, estimation methodology and resulting calculated criteria pollutant and greenhouse gas (GHG) emissions from construction and operation of the Berth 148-151 [Phillips 66] Marine Oil Terminal Wharf Improvements Project (the proposed Project). Emissions were estimated for the CEQA baseline (2019) and full Project operations, as well as emissions for every year during the construction period.

2.0 Methodology for Determining Operational Emissions

Operational emissions are associated with the following sources: (1) ocean-going vessels (OGV), which consist of tanker vessels, articulated tug-barges (ATB), and ocean-going barges; (2) bunkering barges; (3) assist tugboats; (4) hauling trucks; (5) onsite sources in the terminals and tank farms; and (6) worker vehicles. These sources generate emissions in the form of CO, VOC, NO_x, SO_x, PM₁₀, PM_{2.5}, and diesel PM (DPM) as well as GHGs (CO₂, CH₄, and N₂O). DPM represents particulate exhaust emissions from diesel-fueled internal combustion engines.

Information regarding the activity and characteristics of proposed operational emission sources was obtained primarily from POLA staff, Phillips 66 (“the Tenant”) representatives, the 2019 Port Emissions Inventory (LAHD 2020) and the San Pedro Bay Ports Emissions Inventory Methodology Report (LAHD 2019). Peak activity and utilization assumptions used to estimate peak daily operational emissions for comparison to SCAQMD emission thresholds represent upper-bound estimates of activity levels; these levels would occur infrequently, and, therefore, represent a conservative set of assumptions. Annual total activity for 2019 and future annual activity forecasts by project design were used to estimate annual total emissions which are used for GHGs and energy consumption estimates.

Table A-1 summarizes the regulations assumed in the future operational emissions calculations for all scenarios. Current in-place regulations are treated as default project elements rather than mitigation because they represent enforceable rules, with or without proposed project approval.

Table A-1: Regulations and Agreements Assumed as Part of the Operational Emissions^a

Ocean Going Vessels	Tugboats	Trucks	Miscellaneous Sources ^b
MARPOL Annex VI: 0.1% sulfur limit for fuels, beginning in 2015 (200 nm of CA coast). NO _x engine emission limits for new engines. ^a	EPA Engine Standards for Marine Diesel Engines: NO _x , HC, and CO engine emission standards for new engines. CARB Regulation to Reduce Emissions	EPA Emission Standards for On-Road Trucks: Increasingly stringent engine standards phased in due to truck turnover. CARB Heavy Duty	SCAQMD Rules and Regulations: Rule 463 – Organic Liquid Storage. Rule 466.1 – Valves and Flanges.

Ocean Going Vessels	Tugboats	Trucks	Miscellaneous Sources ^b
<p>EPA Engine Standards for Marine Diesel Engines: NO_x, HC, and CO engine emission standards for new engines.^b</p> <p>CARB Airborne Toxic Control Measure for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels Within California Waters and 24 Nautical Miles of the California Coast: Limits sulfur content for marine gas oil or marine diesel oil to 0.1% sulfur by January 2014.</p> <p>CAAP Vessel Speed Reduction Program: 95% compliance to 20 nm.</p> <p>CARB OGV At-Berth Rule: Requires controlling emissions from tanker auxiliary engines while hoteling at berth by 2025 for POLA and POLB.</p>	<p>from Diesel Engines on Commercial Harbor Craft: Requires that harbor craft engines meet EPA's most stringent emission standards per an accelerated, rule-specified compliance schedule.</p> <p>California Diesel Fuel Regulation: 15 ppm sulfur.</p>	<p>Diesel Vehicle Idling Emission Reduction: Diesel trucks are subject to idling limits when not being used.</p> <p>CARB Statewide Truck and Bus Regulation: Trucks less than 26,000 GVWR are required to replace engines with 2010+ engines by January 2023. Trucks with GVWR greater than 26,000 must meet PM BACT and upgrade to a 2010+ model year emissions equivalent engine pursuant to the rule compliance schedule.</p> <p>California Diesel Fuel Regulation: 15-ppm sulfur.</p>	<p>Rule 466.1 – Pressure Relief Devices.</p> <p>Rule 1173 – Control of VOC Leaks and Releases from Components at Petroleum Facilities and Chemical Plants.</p> <p>Rule 1178 – Further Reduction of VOC Emissions from Storage Tanks at Petroleum Facilities.</p>

^aThis table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the emission calculations for the proposed Project.

^bEmissions from miscellaneous stationary sources at the terminal were obtained from SCAQMD annual emission reports. It is assumed that these sources comply with all applicable SCAQMD stationary source regulations although not all of the listed regulations are necessarily applicable to sources located at the terminals.

2.1 Ocean Going Vessels

OGVs operating at the Berths 148-151 terminal consist of tanker vessels of different sizes (Handymax, Panamax, Aframax, etc.), ATBs, ocean-going barges and bunkering barges. ATBs are barges that consist of a tank vessel (barge) and a tug that is positioned in a notch in the stern of the barge, which enables the tug to propel and maneuver the barge. Ocean-going barges are not self-propelled (no main engine) but are instead pushed or pulled by separate tugboats. Bunkering barges are small fuel barges, used at the Berths 148-151 terminal. These barges are loaded with fuel at the terminal, using terminal pumps, and are then pushed/pulled by a tugboat to a vessel in the Port that requires fueling.

OGV emissions were calculated for each engine type in the vessels (boiler, main propulsion engine, auxiliary engine and pumps) and by activity and location where emissions take place. Tankers generate emissions associated with main engine, auxiliary engines and boilers; ATBs generate emissions from main engine (in the articulated tug), auxiliary engines and pumps. OGV barges generate emissions from auxiliary engines and pump. Project emissions associated with bunkering barge activity result from on-board auxiliary engines and the tugboats used to pull/push the barges, bunker pumps are not used during loading at the terminal; instead, the terminal's shore-side pumps are used. Emissions for all vessels were calculated during transit, hoteling at berth, and anchorage. Vessel emissions were analyzed for the 2019 baseline and one future year, assumed 2025 for purposes of the calculation. Exact opening year will depend on actual construction schedule and 2025 would be the earliest possible opening year.

Activity assumptions for the CEQA baseline were based on actual 2019 vessel call records for Berths 148-151. These records provide vessel characteristics, including type of vessel, main engine horsepower, model years, engine tier levels, anchorage information, vessel cruising speeds, etc. Any missing parameters in the call data were backfilled with data from the 2019 Port Emissions Inventory (LAHD 2020).

Information on 2019 vessel calls is based on Wharfingers annual call data and additional input from the Tenant (Phillips 66), while Project forecasted activity was provided by Tenant and is based on the Project Description. OGV activity in 2019 consisted of 229 vessel calls to berth; the annual vessel fleet mix in 2019 included 25 tankers, 57 OGV Barges and ATBs, and 147 bunkering barge visits. During the Project, annual vessel calls are projected to potentially increase, and the mix of vessel will remain similar but will include occasional visits by Aframax class tanker vessels. The forecasted annual activity for the Project includes 40 tankers, 77 OGV Barges and ATBs, and 189 bunkering barge visits. OGV tables section of this appendix includes more detail on annual vessel call characteristics during the baseline and Project.

The baseline (2019) peak day activity consisted of a Handysize tanker discharging at berth for 18 hours and then leaving, a Panamax tanker arriving from anchorage to take its place at berth, and two vessels (an OGV barge and another Handysize tanker) at anchorage during the 24-hr period. Under the proposed Project, a reasonable future peak day would consist of an Aframax tanker discharging at berth for 18 hours and then leaving, a Handysize tanker that was waiting at the anchorage taking its place for the last 5 hours, and an OGV barge at anchorage for 20 hours, followed by 4 hours of transit. This peak day OGV activity during the Project is conservative because it assumes the largest possible tanker at berth and in transit, a tanker and OGV barge at anchorage, and assumes peak-day hoteling emissions are uncontrolled, i.e., the peak day is assumed to be associated with a vessel or terminal Incident Event (VIE/TIE) during which at-berth controls are not used as accommodated under the CARB rule during (CARB, 2020). Activity inputs for OGV calculations are summarized in detail in OGV tables section.

2.1.1 Emission Factor Assumptions

- Emission factors for propulsion engines, auxiliary engines, and auxiliary boilers were obtained from the San Pedro Bay Ports Emission Inventory Methodology Report Version 1-2019 (LAHD 2019), which includes criteria pollutant and greenhouse gas emission factors by tier level, fuel sulfur content, and engine type

(medium vs slow speed) for auxiliary engines and propulsion engines, along with boiler emission factors.

- Based on Port's inventory guidance, it was assumed that propulsion engines on tankers are slow speed diesels and medium speed on ATBs; auxiliary engines on tankers and ocean-going barges are medium speed diesels and high speed on ATBs. Ocean-going barges do not have propulsion engines and are pulled by tugboats.
- Emission factors for propulsion and auxiliary engines are dependent upon engine tier, which in turn is dependent upon engine model year. Call records for 2019 include engine tier information for tankers and ATBs and were used to represent the age of vessels calling during the 2019 baseline. In cases where engine tier information was not provided, the age of vessels was determined from keel dates or model year information in the vessel call data records in 2019. It was assumed that the main engine tier is the same as the auxiliary engine tier.
- Per the Project Description, Aframax tankers, not present during 2019 baseline, will visit during the Project. The vessel characteristics for Aframax (propulsion engine size, rated speed, auxiliary engine loads) were obtained from the 2019 Port Emissions Inventory (LAHD 2020). Due to the limited number of Aframax vessel visiting the Port of Los Angeles in the past two years (4 visits between 2018 and 2029), the tier mix for Aframax vessels was obtained from a worldwide vessel database (IHS Fairplay, 2020) to better represent the potential tier mix of future Aframax vessels visits. This approach is conservative as the vessels that have visited the Port in the last two years have all been Tier 2, while the worldwide market mix combines a mixture of older and newer vessels.
- Due to the short time window between the 2019 baseline and start of Project operations (assumed to be 2025), the analysis conservatively assumed that there would be no turnover of older to newer OGVs as of 2025.
- For both baseline and future years, 0.1% fuel sulfur content was assumed for peak day and annual ship calls as per CARB regulation (CARB 2011a).
- Slide valve information (% of vessels with slide valves) was obtained from Wharfingers data for 2019 and assumed constant during the Project. Percent of slide valves in Aframax vessels was assumed to be the same as in Panamax vessels.
- Adjustment factors by percentile load were applied to the Main Engine emission factors to account for different transit speeds; and therefore, propulsion engine loads. Per CARB guidance, load adjustments used represent engines of manufacturer MAN (CARB 2016b). MAN engine load adjustments take into consideration the effects of slide valves. The adjustment factors are summarized in Tables A-15 through A-18 and were obtained from the San Pedro Bay Ports Emission Inventory Methodology Report Version 1-2019 (LAHD 2019).

2.1.2 Engine and Boiler Load Assumptions

- 2019 and 2025 maximum main engine power ratings for tankers and ATBs were obtained from 2019 call records and gap-filled with 2019 Port inventory data when necessary.

- 2019 and 2025 average maximum rated speed for all tankers and ATBs was obtained from 2019 Port Inventory data.
- Auxiliary engine and boiler loads for tankers and ATBs during transit, hoteling, and anchorage were obtained from the 2019 Port Inventory.
- ATB pump loads from Berth 167-169 Shell Marine Oil Terminal Wharf Improvement Project DEIR, Appendix B, Table B1.27 (LAHD 2018).
- OGV barge auxiliary engine and pump rated power (kw) were obtained from Berth163-164 [NuStar-Valero] Marine Oil Terminal Wharf Improvements Project Draft IS/MND (LAHD, 2021). Bunkering barge auxiliary engine power (kw) are assumed to be the same as assist tugboats (2019 Port Emissions Inventory, Table 4.2).
- Load factors from CARB’s Barge and Dredge Off-road Model (CARB 2011c) were applied to auxiliary engine and pumps in OGV barges, and auxiliary engines in bunkering barges.
- During transit, main engine load factors were determined using the propeller law, which states that the engine load factor is proportional to the speed of the ship cubed, as shown in Equation 1.

$$\begin{aligned}
 & \text{Load [kw]} \\
 & = \left(\frac{\text{Vessel speed in zone}}{\text{Max Rated Speed}} \right)^3 \times \text{Max. Power Rating [kW]} \quad (\text{eq. 1})
 \end{aligned}$$

- For the 2019 and 2025 analyses without mitigation, speeds by for zones “40-20 nautical miles” and “20 nm to precautionary zone” were obtained from the POLA VSRP Compliance Reports for 2019. Speeds for other zones, such as precautionary zone and during maneuvering were obtained from similar Port Projects (LAHD 2021).
- Vessel transit speeds were used to calculate the duration of the transit and the energy consumed in kw-hrs. Energy consumed was combined with the appropriate emission factor to calculate emissions.
- A mitigated scenario was calculated to account for mitigation measure MM AQ-1 which affects transit speeds from PZ and 40nm and therefore, transit emissions from main engine and transit durations. Emissions were adjusted accordingly based on revised speed-based loads.

MM AQ-1 Vessel Speed Reduction. Emissions from visiting vessels will be reduced by requiring all Aframax-class vessels calling on the Phillips 66 marine oil terminal to maintain in-bound and out-bound speeds of no greater than 9 nautical miles per hour (knots) between the terminal and the outer boundary of the South Coast Air Basin, i.e., 40 nautical miles seaward of Point Fermin

2.1.3 Hoteling Assumptions

- In 2019 operations, during hoteling at berth, ships were assumed to turn off main engines but leave the auxiliary engines and boilers running for all visits.
- Hoteling durations used in the calculation of annual emissions were estimated from vessel departure and arrival time stamps in the 2019 call records provided by the Tenant. It was assumed the arrival time stamp indicates the start of hoteling. The departure or shift time stamps indicate when the vessel stops hoteling and starts to move towards the new location, whether that is an anchorage site or leaving the Port. The average hoteling durations at berth or anchorage per specific ship category were calculated by using the provided call data from calls that have complete calls. The averages were weighted by the number of calls. For ship categories for which no valid data are available from call records, the average hoteling durations from the 2019 Port Inventory were used (LAHD 2020).
- The future year 2025 hoteling and anchorage durations at berth or anchorage per specific ship category were assumed equivalent to those in the baseline. Aframax average hoteling duration obtained from Berth163-164 [NuStar-Valero] Marine Oil Terminal Wharf Improvements Project Draft IS/MND (LAHD 2021).
- Peak day hoteling during the Project is conservatively assumed uncontrolled per the CARB At-Berth Rule's Vessel or Terminal Incident Event (VIE/TIE) exemptions, during which at-berth controls are not used.
- For annual GHG emissions estimates, bonnet controls are assumed to be used during hoteling, per the CARB At-Berth Rule. This is a conservative assumption for GHGs because bonnet controls do not reduce vessel GHG emissions and GHG emissions associated with the bonnet generator are added to the annual totals.
- Additional activity inputs for OGV calculations are summarized in detail in the OGV tables section.

2.1.4 Additional Assumptions

- Unlike tanker vessels, it was assumed that ATBs have no boilers, per 2019 Port Inventory, but instead have two pumps which are used for loading or unloading product while hoteling at berth.
- Ship transit criteria pollutant emissions were calculated from berth to the edge of the South Coast Air Basin (SCAB) over-water boundary (roughly a 52 nautical-mile one-way trip). Greenhouse gas transit emissions were calculated from berth out to the state over-water boundary, about 180 nautical miles from shore.
- Some arriving vessels are unable to proceed directly to the berth but instead must wait at a designated anchorage point either inside or outside the breakwater until given clearance to proceed to the berth. Average anchorage frequency and duration was based on 2019 call records. When data were missing from call records, anchorage durations were backfilled from average anchorage duration from available calls. Similar to hoteling, the main engine is assumed to be turned off during anchorage while the auxiliary engines and boilers are assumed to remain running.

- The distances of each of the 4 transit zones were taken from the Port methodology guidance (LAHD 2019). ATBs and ocean-going barges are assumed to take the same routes as tankers. These distances are unlikely to change with time and were assumed to remain the same during the Project.
- Bunkering barges, used for fueling vessels, are assumed to remain within the Port boundaries and not to go beyond the precautionary zone
- 2019 peak day emissions were derived by analyzing emissions for the consecutive 24-hour period with a reasonable high activity level within the harbor based on 2019 call records. 2025 peak day emissions were based on Project design basis and anticipated activity.

2.2 Tugboats (Harbor Craft)

During operations, tugboats are used to assist tankers, ATBs, and ocean-going barges while maneuvering and transiting in certain zones. The assumptions below were applied to estimate peak day and annual emissions. Activity and emission factors for assist tugboats are summarized in OGV tables section.

- Tugboats are used to assist OGVs and ATBs during transit in the precautionary zone and harbor and during maneuvering
- In general, two tugboats are needed in maneuvering/harbor transit for tankers; ATBs only need one tugboat because another tug is already attached to the ATB; bunkering barges are pushed short distances in the Port and only require one tugboat. One tugboat is needed in the Precautionary zone for all vessels; one tugboat is needed beyond the Precautionary zone out to 40nm for OGV Barge transit.
- Tugboat transit time was assumed to equal the average of vessel call transit times in the harbor which are a function of distance over speed, multiplied by 1.3 factor to account for tug movement to and from base (LAHD 2019).
- Assist tugboat main and auxiliary average engine sizes and load factors were obtained from the 2019 Port Emissions Inventory (LAHD 2020). The average model year of auxiliary engine and main engine in the Port's assist tug fleet is from the 2019 Port Emissions Inventory.
- Tugboat emission factors are based CARB harbor craft emissions inventory database (CARB 2011b). The applicable engine zero hour and deterioration rate were determined based on average model year, age, and size of engine (kw) operating in the Port, as well as the CARB harbor craft compliance schedule (CARB 2009). It should be noted that the analysis conservatively assumes that tugboat model years would not change from 2019 to 2025, unless required by the existing CARB harbor craft compliance schedule. Based on this, a 2007 main propulsion engine is assumed to turn over in 2020 based on the CARB rule schedule.
- CO₂ and N₂O emission factors are from IVL: Methodology for Calculating Emissions from Ships: Update on Emission Factors, 2004, also summarized in POLA 2019 Emissions Inventory, Appendix B. CH₄ is 2% of HC, per IVL study.

- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB 2010).
- Peak day activity for tugs is based on vessel maneuvering transit durations during the selected peak day as described above.

2.3 Trucks and Worker Vehicles

Tanker trucks are used to transport product from the terminal to local destinations (i.e., within 15 miles of the terminal). Truck activity and emission factors are summarized in Truck tables section of this appendix. Other assumptions regarding on-road trucks include:

- The average on-way trip travel distance for tanker trucks was assumed to be 15 miles off-site. Number of annual truck trips in 2019 was provided by Tenant and represents 3-year average operations (2017-2019). Trucks operate year around. Peak day number of truck trips is assumed the same as an average day. Number of truck trips is not expected to change during the Project.
- Worker vehicle emissions consist of light duty on-road vehicles used by workers commuting to and from the terminal. Worker trips consist of one employee that visits the site daily. It is assumed a commute distance of 50 miles each way. 2025 activity is not anticipated to change from the 2019 baseline. Emission factors were obtained from EMFAC2021. The South Coast basin default light duty vehicle fleet mix was used to represent worker vehicle.
- Criteria pollutant and GHG emissions from tanker trucks were calculated using composite emission factors from EMFAC2021 model represent diesel heavy diesel trucks. The EMFAC fleet mix distributions for Port of Los Angeles trucks (T7 POLA vehicle category) for years 2019 (baseline) and 2025 (Project) were used. Project emissions reflect CARB's Truck and Bus Rule, describe in Table A-1.
- PM₁₀ and PM_{2.5} emissions from brake wear and tire wear were calculated and added to the exhaust emissions. Brake and tire wear emissions were calculated using EMFAC2021. Road dust emissions were not estimated as number of truck trips are not expected to change during the Project and paved road dust emission factors would not change as a result of the Project or upcoming regulations.

2.4 On-Site Sources

Miscellaneous landside sources used at the terminal consist of evaporative sources, particularly in the tank farm, that generate VOC emissions. These sources include:

- Tank degassing;
- Fugitive emissions from components in tank farm piping;
- Evaporative emissions from storage tanks; and
- Other minor process sources.

The criteria pollutant annual mass emissions in 2019 for these sources were taken directly from the B148-151 SCAQMD Annual Emission Report (AER) 2019 (Phillips 66 2020a). The AER does not identify GHG emissions, any fraction of methane in evaporative emissions is expected to be negligible. 2025 future year emissions were scaled from 2019 emissions based on the change in barrels of product throughput between the baseline and the Project.

3.0 Methodology for Determining Construction Emissions

Demolition and reconstruction of Berths 148-151 Phillips 66 wharf structures in compliance with the State of California’s Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) as described in the Project Description of this MND, would result in emissions from: 1) Engine exhaust from off-road construction equipment; 2) Engine exhaust from harbor craft (assist tugs and crew boats) used to position in-water construction equipment; 3) Engine exhaust from construction and worker vehicles; 4) Road dust from construction vehicles; and 5) Fugitive dust associated with on-site handling of demolition debris and soil.

Table A-2 summarizes regulations affecting construction equipment emission factors. Current in-place regulations are treated as default project elements rather than mitigation because they represent enforceable rules, with or without proposed project approval.

Table A-2: Regulations and Agreements Assumed in the Construction Emissions Calculations

Off-road Construction Equipment	On-Road Trucks	Tugboats/Harbor Craft	Fugitive Dust
<p>EPA Emission Standards for Nonroad Diesel Engines: Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal construction equipment fleet turnover.</p> <p>CARB In-Use Off-road Diesel Vehicle Regulation: Off-road mobile equipment powered by diesel engines 25 hp or larger are required to meet the fleet average or BACT requirements for NO_x and PM emissions.</p> <p>California Diesel Fuel Regulation: 15-ppm sulfur.</p> <p>CARB Portable Diesel-Fueled Engines Air Toxic Control Measure (ATCM): Portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel must meet weighted fleet average PM emission standards.</p>	<p>EPA Emission Standards for On-Road Trucks: Increasingly stringent engine standards phased in due to truck turnover.</p> <p>CARB Heavy Duty Diesel Vehicle Idling Emission Reduction: Diesel trucks are subject to idling limits when not being used to power concrete mixing, water pumps, etc.</p> <p>CARB Statewide Truck and Bus Regulation: Trucks less than 26,000 GVWR are required to replace engines with 2010+ engines by January 2023. Trucks with GVWR greater than 26,000 must meet PM BACT and upgrade to a 2010+ model year emissions equivalent engine pursuant to the rule compliance schedule.</p> <p>California Diesel Fuel Regulation: 15-ppm sulfur.</p>	<p>California Diesel Fuel Regulation: 15-ppm sulfur.</p> <p>CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft: Harbor craft are subject to engine replacement/retrofit schedule set forth by CARB.</p>	<p>SCAQMD Rule 403 Compliance: 61% reduction in fugitive dust via watering two to three times per day.</p>

Note: This table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the emission calculations for the proposed Project.

The construction of the Phillips 66 Marine Oil Terminal Wharf Improvements Project is projected to consist of the phases and tasks shown in the construction data section at the end of this Appendix, based on construction design information provided by the Tenant and POLA. For each phase, a list of equipment and vehicles was estimated to be required to complete tasks comprising the phase. The list of equipment and vehicles for every task make up the sources of emissions analyzed here as described in sections 3.1 through 3.4. Parameters needed to calculate emissions for each source type are explained below.

3.1 Off-road equipment

Off-road equipment used during construction of the Project includes diesel-fueled cranes, forklifts, generators, and excavators, among many other equipment types. These equipment pieces are assumed to be diesel-fueled as is most common. The list of equipment, hours of operation, and equipment size (horsepower) assumed for each construction task was primarily derived from the project design information provided by Tenant per the Project Description and POLA Engineering planning documents. Other activity parameters such as load factors were obtained for equivalent equipment from Appendix D, of CAPCOA's California Emissions Estimator Model (CalEEMod) (CAPCOA 2017). Tabular data and assumptions used are summarized at the end of this Appendix.

Emissions of VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} from diesel-powered construction equipment were calculated using emission factors for specific USEPA off-road equipment engine tiers (CAPCOA 2017). The analysis assumes all Tier 4 land-based off-road engines and Tier 3 marine-based engines (LAHD 2019). These emission factors in grams (of a specific pollutant or fuel) per horsepower hours were used to calculate peak daily equipment emissions by multiplying the emission factors by the estimated daily hours of activity and the horsepower and load factor of each piece of equipment.

3.2 Harbor Craft

Tugboats would be used during construction to assist in pile driving and construction of structures in or near the water. Tugboat main and auxiliary engine sizes were provided by the Tenant (Phillips 66, 2020b). Engine model year and load factors were obtained from the 2019 Port Emissions Inventory (LAHD 2020). Tugboat emission factors for all criteria pollutants except SO_x were based on USEPA Marine Compression-Ignition Engine Standards (USEPA 2020); the use of these emission factors is conservative because the factors reflect the highest allowable emission factors.

SO_x emissions are dependent on the sulfur content of fuel. Fuel sulfur content limits for California harbor craft are specified in the California Diesel Fuel Regulation (CARB 2010). The required fuel sulfur content for Port tugboats has been 15 ppm since September 1, 2006. Brake-specific fuel consumption rates were used to estimate fuel consumption and SO_x emissions for tugboats (CARB 2012).

3.3 Construction Trucks and Worker Vehicles

Construction trucks are used for hauling materials and equipment to/from the construction site. Exhaust emissions from on-road, heavy-duty diesel trucks during Project construction were calculated using emission factors generated by CARB's

EMFAC2017 on-road mobile source emission factor model, housed within CalEEMod model, for “T7 CAIRP construction” heavy duty diesel trucks representative of the SCAB fleet (CAPCOA 2017, CARB 2018), activity provided by the Tenant, and transit distances provided by the Tenant.

Exhaust emissions from vendor and delivery trucks during Project construction were calculated using EMFAC2017 emission factors for “MDV” vehicles representative of the SCAB fleet (CARB 2018), activity provided by the Tenant, and transit distances provided by the Tenant.

Worker vehicle emissions consist of light duty on-road vehicles used by workers commuting to and from the terminal. Emissions associated with off-site transit of worker vehicles were also quantified using EMFAC2017 emission factors, activity provided by the Tenant, and an average transit distance identified in CalEEMod (CAPCOA 2017). On-site transit and on-site idling from worker vehicles were assumed to be negligible.

The EMFAC2017 model output shows that, on a per-mile basis, emission factors will steadily decline in future years as older vehicles are replaced with newer, cleaner vehicles that meet the required state and federal on-road engine emission standards, more substantially so in 2023 due to the California’s Truck and Bus Rule.

In addition to engine exhaust emissions, PM₁₀ and PM_{2.5} emissions from paved road dust were calculated and added to the exhaust emissions. Road dust emission factors for on-terminal driving, off-terminal local streets, and freeways followed CARB’s methodology to estimate entrained road dust emission factors using EPA’s Compilation of Air Pollutant Emission Factors AP-42 (USEPA 2011) and CARB silt loading values for Los Angeles county roadways in its November 2016 methodology document for estimating entrained road dust emissions from paved roads (CARB 2016).

Activity parameters and emission factors for construction vehicle emission calculations are summarized at the end of this Appendix.

3.4 On-Site Fugitive Emissions

Emissions associated with demolition debris, soil handling, and grading activities were quantified using debris and soil volumes anticipated by the tenant during construction activities. Fugitive dust emission factors associated with demolition debris handling were obtained from CalEEMod, Appendix A (CAPCOA 2021). AP-42, Chapter 13.2.4 was used to calculate emission factors for soil handling (USEPA 2006). Grading emission factors were obtained from Ap-42, Chapter 11.9 (USEPA 1998) and CalEEMod (CAPCOA 2021). The analysis accounts for watering three times per day, per SCAQMD Rule 403 requirements, which would result in control of fugitive dust on site by 61%, per WRAP Fugitive Dust Handbook (WRAP 2006).

VOC emissions associated with asphalt paving were obtained from CalEEMod, Appendix A (CAPCOA 2021).

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Table 1. Peak Daily Construction Emissions Without Mitigation - Proposed Project

Source Category	PM10 total (lb/day)	PM2.5 total (lb/day)	NOX (lb/day)	SOX (lb/day)	CO (lb/day)	VOC (lb/day)
2021						
Offroad Construction Equipment	0.0	0.0	1.0	0.0	20.7	0.5
Onroad Construction Vehicles	3.4	1.2	40.2	0.2	2.3	0.1
Marine Equipment	0.6	0.6	12.5	0.0	7.6	0.7
Fugitive Emissions	7.7	1.2	0.0	0.0	0.0	0.0
Total Construction Year 2021	11.7	2.9	53.7	0.2	30.5	1.3
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2022						
Offroad Construction Equipment	0.2	0.2	21.3	0.2	99.8	2.4
Onroad Construction Vehicles	2.1	0.7	18.2	0.1	4.6	0.2
Marine Equipment	1.2	1.1	23.4	0.0	7.6	0.7
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2022	3.6	2.0	62.9	0.3	112.0	3.2
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2023						
Offroad Construction Equipment	0.4	0.4	49.1	0.3	162.6	4.1
Onroad Construction Vehicles	1.7	0.5	6.7	0.1	7.7	0.2
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.3	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2023	2.4	1.0	55.8	0.3	170.3	4.3
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2024						
Offroad Construction Equipment	0.2	0.2	52.8	0.2	132.1	3.4
Onroad Construction Vehicles	1.0	0.3	0.2	0.0	3.6	0.1
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2024	1.2	0.5	53.0	0.2	135.7	3.5
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2025						
Offroad Construction Equipment	0.2	0.2	50.2	0.2	118.3	3.2
Onroad Construction Vehicles	0.9	0.3	0.1	0.0	2.5	0.0
Marine Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2025	1.1	0.5	50.3	0.2	120.8	3.2
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
2026						
Offroad Construction Equipment	0.0	0.2	22.6	0.1	69.6	1.7
Onroad Construction Vehicles	0.0	0.1	0.1	0.0	2.4	0.0
Fugitive Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Marine Equipment	0.6	0.0	0.0	0.0	0.0	0.0
Total Construction Year 2026	0.7	0.3	22.8	0.1	72.0	1.8
CEQA Impacts						
<i>Significance Threshold</i>	150	55	100	150	550	75
Significant?	No	No	No	No	No	No

Notes:

- [1] Onroad Construction Vehicle emissions include exhaust, road dust, tire wear and brake wear emissions.
- [2] Fugitive emissions include construction dust.
- [3] Emissions might not add precisely due to rounding.
- [4] Emissions might not add precisely due to rounding.

Table 2. Onsite Peak Daily Construction Emissions Without Mitigation - Proposed Project

Year	Peak Day Emissions (lb/day) - Residential				Peak Day Emissions (lb/day) - Occupational	
	PM10	PM2.5	NO2	CO	NO2	CO
2021	8.3	1.7	13.5	28.4	13.5	28.4
2022	1.5	1.3	44.8	107.6	44.8	107.6
2023	0.8	0.5	49.1	162.8	49.1	162.8
2024	0.2	0.2	52.8	132.1	52.8	132.1
2025	0.2	0.2	50.2	118.3	50.2	118.3
2026	0.6	0.2	22.6	69.6	22.6	69.6
<i>LST Threshold</i>	<i>158</i>	<i>75</i>	<i>142</i>	<i>7,558</i>	<i>57</i>	<i>585</i>
Significance Determination	No	No	No	No	No	No

Notes:

[1] PM10 and PM2.5 LST thresholds are relevant to sensitive receptors reasonably likely to be present for 24 hours or more. Since off-site worker receptors are not expected to be present for this duration, significance for particulates has been omitted for off-site worker receptors.

[2] SCAQMD LST thresholds are based on:

Daily area disturbed of 1 acre for construction activities.

500-meter separation distance to the closest residential/sensitive receptor. This results in a conservative threshold because the actual separation distance is over 1,000 meters at the California Yacht Marina to the northeast.

25-meter separation distance to the closest off-site worker receptor.

Source Receptor Area: 4.

Table 3. Annual GHG Emissions Without Mitigation - Proposed Project

Source Category	CO2e (mty)
2021	
Offroad Construction Equipment	49
Onroad Construction Vehicles	94
Marine Equipment	79
Fugitive Emissions	0
Total Construction Year 2021	222
2022	
Offroad Construction Equipment	534
Onroad Construction Vehicles	301
Marine Equipment	121
Fugitive Emissions	0
Total Construction Year 2022	956
2023	
Offroad Construction Equipment	537
Onroad Construction Vehicles	171
Marine Equipment	6
Fugitive Emissions	0
Total Construction Year 2023	714
2024	
Offroad Construction Equipment	237
Onroad Construction Vehicles	51
Marine Equipment	0
Fugitive Emissions	0
Total Construction Year 2024	288
2025	
Offroad Construction Equipment	207
Onroad Construction Vehicles	40
Marine Equipment	0
Fugitive Emissions	0
Total Construction Year 2025	247
2026	
Offroad Construction Equipment	90
Onroad Construction Vehicles	16
Marine Equipment	0
Fugitive Emissions	0
Total Construction Year 2026	105
<i>Amortized Construction</i>	<i>84</i>
<i>Significance Threshold</i>	<i>10,000</i>
Significant?	No

Notes:

[1] Ammortized over 30 years (life of project).

Table 4. Construction Schedule

Task ID	Proposed Project	Start Date	End Date	Duration (days)	Days/Week
1	Phase 1 - Berths 148-149 Berthing System Upgrade & Structural Repairs				
1a		1/1/2021	3/1/2021	42	5
1b		1/15/2021	1/29/2021	11	5
1c		1/1/2021	3/1/2021	42	5
2	Phase 2 - Berth 150-151 Onshore Piping Demolition				
2a		2/1/2021	3/8/2021	26	5
3	Phase 3 - Berth 150-151 Demolition				
3a		7/1/2021	12/31/2021	132	5
4	Phase 4 - Berth 150-151 Marine Construction				
4a		1/1/2022	12/31/2022	260	5
5	Phase 5 - Shoreside Construction				
5a	Site Prep - Remove/Relocate Subsurface Structures	1/3/2022	1/24/2022	16	5
5b	Site Prep - Tie-ins and Temporary Piping	1/3/2022	1/24/2022	16	5
5c	Backland Excavation (Pipe Trench)	2/15/2022	4/26/2022	51	5
5d	Concrete Trench Install	3/15/2022	5/17/2022	46	5
5e	Landside Piles	5/1/2022	5/16/2022	11	5
5f	Misc. Foundations	6/1/2022	6/22/2022	16	5
5g	Pipe Bridge Assembly	11/1/2022	11/29/2022	21	5
5h	Shoreside Piping Install	6/1/2022	9/21/2022	81	5
5i	Hose Tower Assembly	2/1/2023	3/1/2023	21	5
5j	Hose Tower Piping	4/1/2023	5/20/2023	35	5
5k	Firewater System	12/1/2022	12/31/2023	282	5
5l	Electrical and Controls	2/1/2023	7/15/2023	118	5
5m	Shoreside Piping Demo (Decommission B148/149)	8/15/2023	1/23/2024	116	5
6	Phase 6 - Berth 150-151 Clean-up Dredging (2,000 CV)				
6a		12/1/2022	12/8/2022	7	7
7	Phase 7 - Marine Terminal Electrical Infrastructure Project				
7a	Site Prep & Civil (Foundations)	4/1/2022	5/30/2022	42	5
7b	Electrical Install w/ Supports	6/1/2022	12/30/2022	153	5
8	Phase 8 - Berth 148-149 Bulkhead Wall Repair				
8a		1/1/2023	4/1/2023	65	5
9	Phase 9 - Tank Farm Capacity Restoration (Tanks 218, 267, 268, 216)				
9a	Demolition / Hauling	7/1/2023	7/7/2023	4	4
9b	Site Preparation / Ring Wall	7/8/2023	7/22/2023	8	4
9c	Demolition / Hauling	7/22/2023	8/5/2023	8	4
9d	Tank Refurbishment	7/22/2023	9/2/2023	24	4
9e	Site Preparation / Ring Wall	8/5/2023	9/2/2023	16	4
9f	Tank Refurbishment	9/3/2023	3/20/2024	115	4
9g	Demolition / Hauling	9/17/2023	10/1/2023	8	4
9h	Site Preparation / Ring Wall	9/30/2023	10/28/2023	16	4
9i	Demolition / Hauling	11/26/2023	12/10/2023	8	4
9j	Site Preparation / Ring Wall	12/23/2023	1/27/2024	20	4
9k	Tank Refurbishment	3/21/2024	6/13/2024	49	4
10	Phase 10 - Tank Farm Capacity Restoration (Tanks 375, 379, 413, 259)				
10a	Demolition / Hauling	7/1/2024	7/7/2024	4	4
10b	Site Preparation / Ring Wall	7/8/2024	7/22/2024	9	4
10c	Tank Refurbishment	7/22/2024	10/7/2024	45	4
10d	Demolition / Hauling	9/16/2024	9/22/2024	4	4
10e	Site Preparation / Ring Wall	9/16/2024	9/30/2024	9	4
10f	Tank Refurbishment	10/7/2024	10/28/2024	13	4
10g	Tank Refurbishment	11/1/2024	12/25/2024	31	4
10h	Demolition / Hauling	12/2/2024	12/8/2024	4	4
10i	Site Preparation / Ring Wall	12/9/2024	12/23/2024	9	4
10j	Tank Refurbishment	12/23/2024	1/13/2025	13	4
10k	Tank Refurbishment	1/13/2025	3/10/2025	33	4
10l	Demolition / Hauling	2/17/2025	2/23/2025	4	4
10m	Site Preparation / Ring Wall	2/24/2025	3/10/2025	9	4
10n	Tank Refurbishment	3/10/2025	3/31/2025	13	4
10o	Tank Refurbishment	4/1/2025	6/17/2025	45	4
11	Phase 11 - Tank Farm Capacity Restoration (Tanks 260, 346, 347)				
11a	Demolition / Hauling	7/1/2025	7/7/2025	4	4
11b	Site Preparation / Ring Wall	7/8/2025	7/22/2025	9	4
11c	Tank Refurbishment	7/22/2025	10/28/2025	57	4
11d	Demolition / Hauling	10/28/2025	11/4/2025	5	4
11e	Site Preparation / Ring Wall	11/4/2025	11/18/2025	9	4
11f	Tank Refurbishment	11/18/2025	2/24/2026	57	4
11g	Demolition / Hauling	2/24/2026	3/3/2026	5	4
11h	Site Preparation / Ring Wall	3/2/2026	3/16/2026	9	4
11i	Tank Refurbishment	3/16/2026	6/22/2026	57	4
12	Phase 12 - Sliver Lots Grading and Paving				
12a	Grading	6/23/2026	6/28/2026	4	
12b	Paving	7/1/2026	7/14/2026	10	

Table 5. Construction Equipment, Tasks ID 1-11

Task ID	Equipment	General Equip Type	Type (offroad/ onroad /marine)	Construction Equipment				Vehicles							
				Number of Pieces (haul truck total loads, delivery truck total loads, workers/day)	Utilization (hr/day)	Total days	Horsepower (hp)	Demolition Debris (ton)	Soil Import/Export (ton)	Vehicle Trips (1-way trips/day)	Vehicle Trips Total (1-way trips)	Transit Distance (1-way miles) - Offsite	VMT (mi/day) - Offsite	VMT (total) - Offsite	
1 Phase 1 - Berths 148-149 Berthing System Upgrade & Structural Repairs															
1a	200T Crane- Manitowoc 777	Cranes	offroad	1	8	42	253								
1b	Vibratory Hammer- HPSI500	Other Construction Equipment	offroad	1	1	11	400								
1b	Impact Hammer- D46	Other Construction Equipment	offroad	1	1	11	90								
1c	Tugboat Generator	Tugboat Auxiliary	marine	1	8	42	60								
1c	Tugboat Deck Winch	Tugboat Auxiliary	marine	1	1	42	160								
1c	Tugboat Propulsion	Tugboat Propulsion	marine	1	1	42	1200								
1c	Crew Boat / Skiff Auxiliary	Crew Boat Auxiliary	marine	1	4	42	50								
1c	Crew Boat / Skiff Propulsion	Crew Boat Propulsion	marine	1	1	42	564								
1c	185 CFM Air Compressor	Air Compressors	offroad	1	2	42	50								
1c	Barge Deck Winch (Spuds)	Other Construction Equipment	offroad	1	1	42	250								
1c	400A Welding Machine	Welders	offroad	1	4	42	20								
1c	Haul Trucks	Haul Trucks	onroad	6	2			112		6	12	200	1,200	2,400	
1c	Delivery Trucks	Delivery Trucks	onroad	20	5					8	40	50	600	2,000	
1c	Workers	Workers	onroad	15		42				30	1,260	14.7	441	18,522	
2 Phase 2 - Berth 150-151 Onshore Piping Demolition															
2a	air compressor	Air Compressors	offroad	1	6	26	75								
2a	45-ton crane	Cranes	offroad	1	5	26	200								
2a	diesel generator	Generator Sets	offroad	1	6	26	200								
2a	dump truck	Off-Highway Trucks	offroad	1	4	26	380								
2a	vacuum truck	Off-Highway Trucks	offroad	1	2	26	380								
2a	forklift/backhoe	Tractors/Loaders/Backhoes	offroad	2	6	26	100								
2a	welding truck/rig	Welders	offroad	1	7	26	50								
2a	pick-up truck	pick-up truck	onroad	5	2	26	280						250	6,500	
2a	Haul Trucks	Haul Trucks	onroad	4	10			36		1	8	30	30	240	
2a	Delivery Trucks	Delivery Trucks	onroad							0	0		0	0	
2a	Workers	Workers	onroad	10		26				20	520	14.7	794	7,644	
3 Phase 3 - Berth 150-151 Demolition															
3a	Tugboat Generator	Tugboat Auxiliary	marine	1	8	132	60								
3a	Tugboat Deck Winch	Tugboat Auxiliary	marine	1	1	132	160								
3a	Tugboat Propulsion	Tugboat Propulsion	marine	1	1	132	1200								
3a	Crew Boat / Skiff Auxiliary	Crew Boat Auxiliary	marine	1	4	132	50								
3a	Crew Boat / Skiff Propulsion	Crew Boat Propulsion	marine	1	1	132	564								
3a	185 CFM Air Compressor	Air Compressors	offroad	1	2	132	50								
3a	Diver Air Compressor	Air Compressors	offroad	1	1	132	10								
3a	200T Crane- Manitowoc 777	Cranes	offroad	1	8	132	253								
3a	Vibratory Hammer- HPSI500	Other Construction Equipment	offroad	1	1	132	400								
3a	Barge Deck Winch (Spuds)	Other Construction Equipment	offroad	1	1	132	250								
3a	400A Welding Machine	Welders	offroad	1	4	132	20								
3a	Haul Trucks	Haul Trucks	onroad	95	5			1895		38	190	200	7,600	38,000	
3a	Delivery Trucks	Delivery Trucks	onroad							0	0		0	0	
3a	Workers	Workers	onroad	20		132				40	5,280	14.7	588	77,616	
4 Phase 4 - Berth 150-151 Marine Construction															
4a	Tugboat Generator	Tugboat Auxiliary	marine	1	8	260	60								
4a	Tugboat Deck Winch	Tugboat Auxiliary	marine	1	1	260	160								
4a	Tugboat Propulsion	Tugboat Propulsion	marine	1	1	260	1200								
4a	Crew Boat / Skiff Auxiliary	Crew Boat Auxiliary	marine	1	4	260	50								
4a	Crew Boat / Skiff Propulsion	Crew Boat Propulsion	marine	1	1	260	564								
4a	185 CFM Air Compressor	Air Compressors	offroad	1	2	260	50								
4a	300T Crane- Manitowoc 2250	Cranes	offroad	1	8	260	320								
4a	Vibratory Hammer- HPSI500	Other Construction Equipment	offroad	1	1	260	400								
4a	Impact Hammer- D80	Other Construction Equipment	offroad	1	1	260	245								
4a	Barge Deck Winch (Spuds)	Other Construction Equipment	offroad	1	1	260	250								
4a	Carpenter Barge	Other Construction Equipment	offroad	2	8	260	150								
4a	400A Welding Machine	Welders	offroad	1	4	260	20								
4a	Haul Trucks	Haul Trucks	onroad							0	0		0	0	
4a	Delivery Trucks	Delivery Trucks	onroad	260						2	520	50	100	26,000	
4a	Workers	Workers	onroad	25		260				50	13,000	14.7	735	191,100	
5 Phase 5 - Shoreside Construction															
5a	air compressor	Air Compressors	offroad	1	6	16	75								
5a	45-ton crane	Cranes	offroad	1	3	16	200								
5a	diesel generator	Generator Sets	offroad	1	6	16	200								
5a	dump truck	Off-Highway Trucks	offroad	2	2	16	380								
5a	vacuum truck	Off-Highway Trucks	offroad	1	2	16	380								
5a	forklift/backhoe	Tractors/Loaders/Backhoes	offroad	1	4	16	100								
5a	welding truck/rig	Welders	offroad	1	6	16	50								
5a	pick-up truck	pick-up truck	onroad	2	6	16	280						300	4,800	
5a	Haul Trucks	Haul Trucks	onroad	30		15				5	609	4	60	1,800	
5a	Delivery Trucks	Delivery Trucks	onroad							0	0	30	120	1,800	
5a	Workers	Workers	onroad	10		16				20	320	14.7	794	4,704	
5b	air compressor	Air Compressors	offroad	1	6	16	75								
5b	45-ton crane	Cranes	offroad	1	6	16	200								
5b	diesel generator	Generator Sets	offroad	1	6	16	200								
5b	forklift/backhoe	Tractors/Loaders/Backhoes	offroad	1	4	16	100								
5b	welding truck/rig	Welders	offroad	1	6	16	50								
5b	pick-up truck	pick-up truck	onroad	2	1	16	280						50	800	
5b	Haul Trucks	Haul Trucks	onroad	1		1				2	2	30	60	60	
5b	Delivery Trucks	Delivery Trucks	onroad	1	2					1	2	30	30	60	
5b	Workers	Workers	onroad	10		16				20	320	14.7	794	4,704	
5c	air compressor	Air Compressors	offroad	1	6	51	75								
5c	excavator	Excavators	offroad	2	6	51	220								
5c	diesel generator	Generator Sets	offroad	1	6	51	100								
5c	dump truck	Off-Highway Trucks	offroad	10	2	51	380								
5c	backhoe	Tractors/Loaders/Backhoes	offroad	3	6	51	100								
5c	pick-up truck	pick-up truck	onroad	4	1	51	280						100	5,100	
5c	Haul Trucks	Haul Trucks	onroad	400		40				8120	20	800	30	600	24,000
5c	Delivery Trucks	Delivery Trucks	onroad							0	0	30	0	0	
5c	Workers	Workers	onroad	10		51				20	1,020	14.7	794	14,994	
5d	air compressor	Air Compressors	offroad	2	6	46	75								
5d	45-ton crane	Cranes	offroad	2	6	46	200								
5d	diesel generator	Generator Sets	offroad	2	6	46	200								
5d	concrete pumper	Pumps	offroad	2	6	46	500								
5d	forklift/backhoe	Tractors/Loaders/Backhoes	offroad	2	4	46	100								
5d	welding truck/rig	Welders	offroad	2	6	46	50								
5d	pick-up truck	pick-up truck	onroad	10	1	46	280						250	11,500	
5d	concrete truck	Delivery Trucks	onroad	10	2	46	380								
5d	Haul Trucks	Haul Trucks	onroad							0	0		0	0	
5d	Delivery Trucks	Delivery Trucks	onroad	400						20	800	30	600	24,000	
5d	Workers	Workers	onroad	24		46				48	2,208	14.7	706	32,458	
5e	air compressor	Air Compressors	offroad	1	6	11	75								
5e	140-ton crane	Cranes	offroad	1	6	11	320								
5e	diesel generator	Generator Sets	offroad	1	6	11	100								
5e	diesel pile hammer	Other Construction Equipment	offroad	1	6	11	400								
5e	backhoe	Tractors/Loaders/Backhoes	offroad	2	4	11	100								
5e	pick-up truck	pick-up truck	onroad	3	1	11	280						75	825	
5e	Haul Trucks	Haul Trucks	onroad							0	0		0	0	
5e	Delivery Trucks	Delivery Trucks	onroad	1	2					1	2	30	30	60	
5e	Workers	Workers	onroad	6		11				12	132	14.7	176	1,940	
5f	air compressor	Air Compressors	offroad	1	6	16	75								
5f	45-ton crane	Cranes	offroad	1	6	16	200								
5f	diesel generator	Generator Sets	offroad	1	6	16	200								
5f	dump truck	Off-Highway Trucks	offroad	10	2	16	380								
5f</															

Table 5. Construction Equipment, Tasks ID 1-11

Task ID	Equipment	General Equip Type	Type (offroad/onroad/marine)	Construction Equipment				Vehicles									
				Number of Pieces (haul truck total loads, delivery truck total loads, workers/day)	Utilization (hr/day)	Total days	Horsepower (hp)	Demolition Debris (ton)	Soil Import/Export (ton)	Vehicle Trips (1-way trips/day)	Vehicle Trips Total (1-way trips)	Transit Distance (1-way miles) - Offsite	VMT (mi/day) - Offsite	VMT (total) - Offsite			
5f	forklift/backhoe	Tractors/Loaders/Backhoes	offroad	2	4	16	100										
5f	pick-up truck	pick-up truck	onroad	6	1	16	280								150	2,400	
5f	concrete truck	Delivery Trucks	onroad	3	2	16	380										
5f	Haul Trucks	Haul Trucks	onroad	9		2				173	9	18	30	270	540		
5f	Delivery Trucks	Delivery Trucks	onroad	1		3					1	2	30	30	60		
5f	Workers	Workers	onroad	10		16					20	320	14.7	794	4,704		
5g	air compressor	Air Compressors	offroad	1	6	21	75										
5g	140 ton crane	Cranes	offroad	1	6	21	320										
5g	manlift	Cranes	offroad	3	4	21	100										
5g	Forklift	Forklifts	offroad	1	6	21	150										
5g	diesel generator	Generator Sets	offroad	1	6	21	200										
5g	welding rig	Welders	offroad	1	6	21	50										
5g	pick-up truck	pick-up truck	onroad	4	1	21	280				0	0		100	2,100		
5g	Haul Trucks	Haul Trucks	onroad	10		2					10	20	30	300	600		
5g	Delivery Trucks	Delivery Trucks	onroad	12		21					24	504	14.7	353	7,409		
5g	Workers	Workers	onroad	10		21											
5h	air compressor	Air Compressors	offroad	4	6	81	75										
5h	140 ton crane	Cranes	offroad	1	4	81	320										
5h	45 ton crane	Cranes	offroad	1	6	81	200										
5h	diesel generator	Generator Sets	offroad	4	6	81	200										
5h	welding rig	Welders	offroad	4	6	81	50										
5h	pick-up truck	pick-up truck	onroad	6	1	81	280				0	0		150	12,150		
5h	Haul Trucks	Haul Trucks	onroad	150		10					30	300	30	900	9,000		
5h	Delivery Trucks	Delivery Trucks	onroad	26		81					52	4,212	14.7	764	61,916		
5h	Workers	Workers	onroad	26		81											
5i	air compressor	Air Compressors	offroad	2	6	21	75										
5i	140 ton crane	Cranes	offroad	1	4	21	320										
5i	45 ton crane	Cranes	offroad	1	4	21	200										
5i	manlift	Cranes	offroad	2	4	21	100										
5i	diesel generator	Generator Sets	offroad	2	6	21	200										
5i	welding rig	Welders	offroad	3	6	21	50										
5i	pick-up truck	pick-up truck	onroad	4	1	21	280							100	2,100		
5i	Haul Trucks	Haul Trucks	onroad	30		5					12	60	30	360	1,800		
5i	Delivery Trucks	Delivery Trucks	onroad	10		21					20	420	14.7	294	6,174		
5i	Workers	Workers	onroad	10		21											
5j	air compressor	Air Compressors	offroad	2	6	35	75										
5j	140 ton crane	Cranes	offroad	1	4	35	320										
5j	45 ton crane	Cranes	offroad	1	4	35	200										
5j	diesel generator	Generator Sets	offroad	2	6	35	200										
5j	welding rig	Welders	offroad	3	6	35	50										
5j	pick-up truck	pick-up truck	onroad	4	1	35	280							100	3,500		
5j	Haul Trucks	Haul Trucks	onroad	24		4					12	48	30	360	1,440		
5j	Delivery Trucks	Delivery Trucks	onroad	12		35					24	840	14.7	353	12,348		
5j	Workers	Workers	onroad	12		35											
5k	air compressor	Air Compressors	offroad	2	6	282	75										
5k	140 ton crane	Cranes	offroad	1	4	282	320										
5k	45 ton crane	Cranes	offroad	2	4	282	200										
5k	diesel generator	Generator Sets	offroad	2	6	282	200										
5k	welding rig	Welders	offroad	3	6	282	50										
5k	pick-up truck	pick-up truck	onroad	4	1	282	280							100	28,200		
5k	Haul Trucks	Haul Trucks	onroad	150		15					0	0	30	600	9,000		
5k	Delivery Trucks	Delivery Trucks	onroad	24		282					20	300	30	600	9,000		
5k	Workers	Workers	onroad	24		282					48	13,536	14.7	706	198,979		
5l	air compressor	Air Compressors	offroad	3	6	118	75										
5l	45 ton crane	Cranes	offroad	1	4	118	200										
5l	diesel generator	Generator Sets	offroad	3	6	118	200										
5l	pick-up truck	pick-up truck	onroad	6	1	118	280							150	17,700		
5l	Haul Trucks	Haul Trucks	onroad	40		1					0	0	30	240	0		
5l	Delivery Trucks	Delivery Trucks	onroad	15		118					8	80	30	240	2,400		
5l	Workers	Workers	onroad	15		118					30	3,540	14.7	441	52,038		
5m	air compressor	Air Compressors	offroad	3	6	116	75										
5m	140 ton crane	Cranes	offroad	1	2	116	320										
5m	45 ton crane	Cranes	offroad	2	4	116	200										
5m	diesel generator	Generator Sets	offroad	2	6	116	200										
5m	welding rig	Welders	offroad	3	6	116	50										
5m	pick-up truck	pick-up truck	onroad	6	1	116	280							150	17,400		
5m	Haul Trucks	Haul Trucks	onroad	25		20					3	50	30	90	1,500		
5m	Delivery Trucks	Delivery Trucks	onroad	20		116					0	0	30	0	0		
5m	Workers	Workers	onroad	20		116					40	4,640	14.7	588	68,208		
6	Phase 6 - Berth 150-151 Clean-up Dredging (2,000 CY)																
6a	Tugboat Generator	Tugboat Auxiliary	marine	1	8	7	60										
6a	Tugboat Deck Winch	Tugboat Auxiliary	marine	1	7	7	160										
6a	Tugboat Propulsion	Tugboat Propulsion	marine	1	7	7	1200										
6a	Survey Boat Auxiliary	Crew Boat Auxiliary	marine	1	8	7	50										
6a	Survey Boat Propulsion	Crew Boat Propulsion	marine	1	7	7	150										
6a	Clamshell Dredge (150T derrick barge)	Other Construction Equipment	offroad	1	8	7	800										
6a	Haul Trucks	Haul Trucks	onroad	135		5				4060	54	270	50	2,700	13,500		
6a	Delivery Trucks	Delivery Trucks	onroad	1		1					0	0	30	0	0		
6a	Workers	Workers	onroad	12		7					24	168	14.7	353	2,470		
7	Phase 7 - Marine Terminal Electrical Infrastructure Project																
7a	air compressor	Air Compressors	offroad	2	6	42	75										
7a	45-ton crane	Cranes	offroad	1	3	42	200										
7a	diesel generator	Generator Sets	offroad	1	6	42	200										
7a	concrete pumper	Pumps	offroad	2	2	42	500										
7a	forklift/backhoe	Tractors/Loaders/Backhoes	offroad	2	3	42	100										
7a	pick-up truck	pick-up truck	onroad	4	1	42	280							100	4,200		
7a	concrete truck	Delivery Trucks	onroad	1	2	42	380										
7a	Haul Trucks	Haul Trucks	onroad	50		15				10	7	100	30	210	3,000		
7a	Delivery Trucks	Delivery Trucks	onroad	20		20					2	40	30	60	1,200		
7a	Workers	Workers	onroad	12		42					24	1,008	14.7	353	14,818		
7b	air compressor	Air Compressors	offroad	3	3	153	75										
7b	45 ton crane	Cranes	offroad	2	2	153	200										
7b	manlift	Cranes	offroad	3	5	153	100										
7b	diesel generator	Generator Sets	offroad	2	6	153	200										
7b	welding rig	Welders	offroad	1	4	153	50										
7b	pick-up truck	pick-up truck	onroad	6	1	153	280							150	22,950		
7b	Haul Trucks	Haul Trucks	onroad	1		1					0	0	30	0	0		
7b	Delivery Trucks	Delivery Trucks	onroad	5		20					1	10	30	30	300		
7b	Workers	Workers	onroad	20		153					40	6,120	14.7	588	89,964		
8	Phase 8 - Berth 148-149 Bulkhead Wall Repair																
8a	Survey Boat Auxiliary	Crew Boat Auxiliary	marine	1	8	65	50										
8a	Survey Boat Propulsion	Crew Boat Propulsion	marine														

Table 5. Construction Equipment, Tasks ID 1-11

Task ID	Equipment	General Equip Type	Type (offroad/onroad/marine)	Construction Equipment				Vehicles							
				Number of Pieces (haul truck total loads, delivery truck total loads, workers/day)	Utilization (hr/day)	Total days	Horsepower (hp)	Demolition Debris (ton)	Soil Import/Export (ton)	Vehicle Trips (1-way trips/day)	Vehicle Trips Total (1-way trips)	Transit Distance (1-way miles) - Offsite	VMT (mi/day) - Offsite	VMT (total) - Offsite	
10a	Delivery Trucks	Delivery Trucks	onroad	15		3					10	30	30	300	900
10a	Workers		onroad	20		4					40	160	14.7	588	2,352
10b	Air Compressor	Air Compressors	offroad	1	8	9	75								
10b	Fork Lift	Forklifts	offroad	1	4	9	100								
10b	Diesel Generator	Generator Sets	offroad	1	8	9	50								
10b	Grader	Graders	offroad	1	4	9	500								
10b	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370								
10b	Roller	Rollers	offroad	1	8	9	120								
10b	Scraper	Scrapers	offroad	1	4	9	250								
10b	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
10b	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
10b	Ditch Witch	Trenchers	offroad	1	8	9	50								
10b	Haul Trucks	Haul Trucks	onroad	4		6			166		2	8	30	60	240
10b	Delivery Trucks	Delivery Trucks	onroad	20		4					10	40	30	300	1,200
10b	Workers	Workers	onroad	20		9					40	360	14.7	588	5,292
10c	Air Compressor	Air Compressors	offroad	2	8	45	75								
10c	Man Lift	Cranes	offroad	1	4	45	100								
10c	100-Ton Crane	Cranes	offroad	1	4	45	500								
10c	Fork Lift	Forklifts	offroad	1	4	45	100								
10c	Diesel Generator	Generator Sets	offroad	4	8	45	50								
10c	Light Plant	Other General Industrial Equipment	offroad	3	8	45	50								
10c	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	45	120								
10c	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	45	500								
10c	Welding Truck/Rig	Welders	offroad	4	8	45	50								
10c	Haul Trucks	Haul Trucks	onroad	30		8			6090		8	60	30	240	1,800
10c	Delivery Trucks	Delivery Trucks	onroad	20		5					10	50	30	300	1,500
10c	Workers	Workers	onroad	20		45					40	1,800	14.7	588	26,460
10d	Air Compressor	Air Compressors	offroad	1	8	4	75								
10d	Man Lift	Cranes	offroad	1	4	4	100								
10d	Fork Lift	Forklifts	offroad	1	4	4	100								
10d	Diesel Generator	Generator Sets	offroad	1	8	4	50								
10d	Backhoe	Tractors/Loaders/Backhoes	offroad	1	8	4	120								
10d	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	8	4	120								
10d	Haul Trucks	Haul Trucks	onroad			3					0	0		0	0
10d	Delivery Trucks	Delivery Trucks	onroad			3					0	0		0	0
10d	Workers	Workers	onroad	20		4					40	160	14.7	588	2,352
10e	Air Compressor	Air Compressors	offroad	1	8	9	75								
10e	Fork Lift	Forklifts	offroad	1	4	9	100								
10e	Diesel Generator	Generator Sets	offroad	1	8	9	50								
10e	Grader	Graders	offroad	1	4	9	500								
10e	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370								
10e	Roller	Rollers	offroad	1	8	9	120								
10e	Scraper	Scrapers	offroad	1	4	9	250								
10e	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
10e	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
10e	Ditch Witch	Trenchers	offroad	1	8	9	50								
10e	Haul Trucks	Haul Trucks	onroad			6					0	0		0	0
10e	Delivery Trucks	Delivery Trucks	onroad			4					0	0		0	0
10e	Workers	Workers	onroad	20		9					40	360	14.7	588	5,292
10f	Air Compressor	Air Compressors	offroad	4	8	13	75								
10f	Man Lift	Cranes	offroad	2	4	13	100								
10f	100-Ton Crane	Cranes	offroad	2	4	13	500								
10f	Fork Lift	Forklifts	offroad	2	4	13	100								
10f	Diesel Generator	Generator Sets	offroad	6	8	13	50								
10f	Light Plant	Other General Industrial Equipment	offroad	8	8	13	50								
10f	Front End Loader	Tractors/Loaders/Backhoes	offroad	2	4	13	120								
10f	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	2	2	13	500								
10f	Welding Truck/Rig	Welders	offroad	8	8	13	50								
10f	Haul Trucks	Haul Trucks	onroad			8					0	0		0	0
10f	Delivery Trucks	Delivery Trucks	onroad			5					0	0		0	0
10f	Workers	Workers	onroad	20		13					40	520	14.7	588	7,644
10g	Air Compressor	Air Compressors	offroad	2	8	31	75								
10g	Man Lift	Cranes	offroad	1	4	31	100								
10g	100-Ton Crane	Cranes	offroad	1	4	31	500								
10g	Fork Lift	Forklifts	offroad	1	4	31	100								
10g	Diesel Generator	Generator Sets	offroad	4	8	31	50								
10g	Light Plant	Other General Industrial Equipment	offroad	3	8	31	50								
10g	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	31	120								
10g	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	31	500								
10g	Welding Truck/Rig	Welders	offroad	4	8	31	50								
10g	Haul Trucks	Haul Trucks	onroad			8					0	0		0	0
10g	Delivery Trucks	Delivery Trucks	onroad			5					0	0		0	0
10g	Workers	Workers	onroad	20		31					40	1,240	14.7	588	18,228
10h	Air Compressor	Air Compressors	offroad	1	8	4	75								
10h	Man Lift	Cranes	offroad	1	4	4	100								
10h	Fork Lift	Forklifts	offroad	1	4	4	100								
10h	Diesel Generator	Generator Sets	offroad	1	8	4	50								
10h	Backhoe	Tractors/Loaders/Backhoes	offroad	1	8	4	120								
10h	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	8	4	120								
10h	Haul Trucks	Haul Trucks	onroad			3					0	0		0	0
10h	Delivery Trucks	Delivery Trucks	onroad			3					0	0		0	0
10h	Workers	Workers	onroad	20		4					40	160	14.7	588	2,352
10i	Air Compressor	Air Compressors	offroad	1	8	9	75								
10i	Fork Lift	Forklifts	offroad	1	4	9	100								
10i	Diesel Generator	Generator Sets	offroad	1	8	9	50								
10i	Grader	Graders	offroad	1	4	9	500								
10i	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370								
10i	Roller	Rollers	offroad	1	8	9	120								
10i	Scraper	Scrapers	offroad	1	4	9	250								
10i	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
10i	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
10i	Ditch Witch	Trenchers	offroad	1	8	9	50								
10i	Haul Trucks	Haul Trucks	onroad			6					0	0		0	0
10i	Delivery Trucks	Delivery Trucks	onroad			4					0	0		0	0
10i	Workers	Workers	onroad	20		9					40	360	14.7	588	5,292
10j	Air Compressor	Air Compressors	offroad	4	8	13	75								
10j	Man Lift	Cranes	offroad	2	4	13	100								

Table 5. Construction Equipment, Tasks ID 1-11

Task ID	Equipment	General Equip Type	Type (offroad/onroad/marine)	Construction Equipment				Vehicles								
				Number of Pieces (haul truck total loads, delivery truck total loads, workers/day)	Utilization (hr/day)	Total days	Horsepower (hp)	Demolition Debris (ton)	Soil Import/Export (ton)	Vehicle Trips (1-way trips/day)	Vehicle Trips Total (1-way trips)	Transit Distance (1-way miles) - Offsite	VMT (mi/day) - Offsite	VMT (total) - Offsite		
10j	100-Ton Crane	Cranes	offroad	2	4	13	500									
10j	Fork Lift	Forklifts	offroad	2	4	13	100									
10j	Diesel Generator	Generator Sets	offroad	8	8	13	50									
10j	Light Plant	Other General Industrial Equipment	offroad	6	8	13	50									
10j	Front End Loader	Tractors/Loaders/Backhoes	offroad	2	4	13	120									
10j	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	2	2	13	500									
10j	Welding Truck/Rig	Welders	offroad	8	8	13	50									
10j	Haul Trucks	Haul Trucks	onroad	8	8	8				0	0		0	0		
10j	Delivery Trucks	Delivery Trucks	onroad	8	8	5				0	0		0	0		
10j	Workers	Workers	onroad	20	4	13				40	520	14.7	588	7,644		
10k	Air Compressor	Air Compressors	offroad	2	8	33	75									
10k	Man Lift	Cranes	offroad	1	4	33	100									
10k	100-Ton Crane	Cranes	offroad	1	4	33	500									
10k	Fork Lift	Forklifts	offroad	1	4	33	100									
10k	Diesel Generator	Generator Sets	offroad	4	8	33	50									
10k	Light Plant	Other General Industrial Equipment	offroad	3	8	33	50									
10k	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	33	120									
10k	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	33	500									
10k	Welding Truck/Rig	Welders	offroad	4	8	33	50									
10k	Haul Trucks	Haul Trucks	onroad	8	8	8				0	0	30	0	0		
10k	Delivery Trucks	Delivery Trucks	onroad	8	8	5				0	0	30	0	0		
10k	Workers	Workers	onroad	20	4	33				40	1,320	14.7	588	19,404		
10l	Air Compressor	Air Compressors	offroad	1	8	4	75									
10l	Man Lift	Cranes	offroad	1	8	4	100									
10l	Fork Lift	Forklifts	offroad	1	8	4	100									
10l	Diesel Generator	Generator Sets	offroad	1	8	4	50									
10l	Backhoe	Tractors/Loaders/Backhoes	offroad	1	8	4	120									
10l	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	8	4	120									
10l	Haul Trucks	Haul Trucks	onroad	3	3	3				0	0		0	0		
10l	Delivery Trucks	Delivery Trucks	onroad	3	3	3				0	0		0	0		
10l	Workers	Workers	onroad	20	4	4				40	160	14.7	588	2,352		
10m	Air Compressor	Air Compressors	offroad	1	8	9	75									
10m	Fork Lift	Forklifts	offroad	1	4	9	100									
10m	Diesel Generator	Generator Sets	offroad	1	8	9	50									
10m	Grader	Graders	offroad	1	8	9	500									
10m	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370									
10m	Roller	Rollers	offroad	1	8	9	120									
10m	Scraper	Scrapers	offroad	1	4	9	250									
10m	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120									
10m	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	9	120									
10m	Ditch Witch	Trenchers	offroad	1	8	9	50									
10m	Haul Trucks	Haul Trucks	onroad	6	6	6				0	0		0	0		
10m	Delivery Trucks	Delivery Trucks	onroad	4	4	4				0	0		0	0		
10m	Workers	Workers	onroad	20	8	9				40	360	14.7	588	5,292		
10n	Air Compressor	Air Compressors	offroad	4	8	13	75									
10n	Man Lift	Cranes	offroad	2	4	13	100									
10n	100-Ton Crane	Cranes	offroad	2	4	13	500									
10n	Fork Lift	Forklifts	offroad	2	4	13	100									
10n	Diesel Generator	Generator Sets	offroad	8	8	13	50									
10n	Light Plant	Other General Industrial Equipment	offroad	6	8	13	50									
10n	Front End Loader	Tractors/Loaders/Backhoes	offroad	2	4	13	120									
10n	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	2	2	13	500									
10n	Welding Truck/Rig	Welders	offroad	8	8	13	50									
10n	Haul Trucks	Haul Trucks	onroad	8	8	8				0	0		0	0		
10n	Delivery Trucks	Delivery Trucks	onroad	8	8	5				0	0		0	0		
10n	Workers	Workers	onroad	20	4	13				40	520	14.7	588	7,644		
10o	Air Compressor	Air Compressors	offroad	2	8	45	75									
10o	Man Lift	Cranes	offroad	1	4	45	100									
10o	100-Ton Crane	Cranes	offroad	1	4	45	500									
10o	Fork Lift	Forklifts	offroad	1	4	45	100									
10o	Diesel Generator	Generator Sets	offroad	4	8	45	50									
10o	Light Plant	Other General Industrial Equipment	offroad	3	8	45	50									
10o	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	45	120									
10o	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	45	500									
10o	Welding Truck/Rig	Welders	offroad	4	8	45	50									
10o	Haul Trucks	Haul Trucks	onroad	8	8	8				0	0		0	0		
10o	Delivery Trucks	Delivery Trucks	onroad	8	8	5				0	0		0	0		
10o	Workers	Workers	onroad	20	8	45				40	1,800	14.7	588	26,460		
11	Phase 11 - Tank Farm Capacity Restoration (Tanks 260, 346, 347)															
11a	Air Compressor	Air Compressors	offroad	1	8	4	75									
11a	Man Lift	Cranes	offroad	1	4	4	100									
11a	Fork Lift	Forklifts	offroad	1	4	4	100									
11a	Diesel Generator	Generator Sets	offroad	1	8	4	50									
11a	Backhoe	Tractors/Loaders/Backhoes	offroad	1	8	4	120									
11a	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	8	4	120									
11a	Haul Trucks	Haul Trucks	onroad	4	4	3				81	3	8	30	90	240	
11a	Delivery Trucks	Delivery Trucks	onroad	12	4	3				8	12	24	30	240	720	
11a	Workers	Workers	onroad	20	8	4				40	160	14.7	588	2,352		
11b	Air Compressor	Air Compressors	offroad	1	8	9	75									
11b	Fork Lift	Forklifts	offroad	1	4	9	100									
11b	Diesel Generator	Generator Sets	offroad	1	8	9	50									
11b	Grader	Graders	offroad	1	4	9	500									
11b	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370									
11b	Roller	Rollers	offroad	1	8	9	120									
11b	Scraper	Scrapers	offroad	1	4	9	250									
11b	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120									
11b	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	9	120									
11b	Ditch Witch	Trenchers	offroad	1	8	9	50									
11b	Haul Trucks	Haul Trucks	onroad	4	4	5				122	2	8	30	60	240	
11b	Delivery Trucks	Delivery Trucks	onroad	16	4	4				8	32	30	240	960		
11b	Workers	Workers	onroad	20	8	9				40	360	14.7	588	5,292		
11c	Air Compressor	Air Compressors	offroad	2	8	57	75									
11c	Man Lift	Cranes	offroad	1	4	57	100									
11c	100-Ton Crane	Cranes	offroad	1	4	57	500									
11c	Fork Lift	Forklifts	offroad	1	4	57	100									
11c	Diesel Generator	Generator Sets	offroad	4	8	57	50									
11c	Light Plant	Other General Industrial Equipment	offroad	3	8	57	50									
11c	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	57	120									
11c	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	57	500									
11c	Welding Truck/Rig	Welders	offroad	4	8	57	50									
11c	Haul Trucks	Haul Trucks	onroad	23	4	6				4568	8	46	30	240	1,380	
11c	Delivery Trucks	Delivery Trucks	onroad	16	4	4				8	32	30	240	960		
11c	Workers	Workers	onroad	20	8	57				40	2,280	14.7	588	33,516		
11d	Air Compressor	Air Compressors	offroad	1	8	5	75									
11d	Man Lift	Cranes	offroad	1	8	5	100									
11d	Fork Lift	Forklifts	offroad	1	8	5	100									
11d	Diesel Generator	Generator Sets	offroad	1	8	5	50									
11d	Backhoe	Tractors/Loaders/Backhoes	offroad	1	8	5	120									
11d	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	8	5	120									
11d	Haul Trucks	Haul Trucks	onroad	3	3	3				0	0		0	0		
11d	Delivery Trucks	Delivery Trucks	onroad	3	3	3				0	0		0	0		
11d	Workers	Workers	onroad	20	5	5				40	200	14.7	588	2,940		
11e	Air Compressor	Air Compressors	offroad	1	8	9	75									
11e	Fork Lift	Forklifts	offroad	1	4	9	100									
11e	Diesel Generator	Generator Sets	offroad	1	8	9	50									
11e	Grader	Graders	offroad	1	4	9	500									
11e	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370									
11e	Roller	Rollers	offroad	1	8	9	120									
11e	Scraper	Scrapers	offroad	1	4	9	250									
11e	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120									

Table 5. Construction Equipment, Tasks ID 1-11

Task ID	Equipment	General Equip Type	Type (offroad/onroad/marine)	Construction Equipment				Vehicles							
				Number of Pieces (haul truck total loads, delivery truck total loads, workers/day)	Utilization (hr/day)	Total days	Horsepower (hp)	Demolition Debris (ton)	Soil Import/Export (ton)	Vehicle Trips (1-way trips/day)	Vehicle Trips Total (1-way trips)	Transit Distance (1-way miles) - Offsite	VMT (mi/day) - Offsite	VMT (total) - Offsite	
11e	Delivery Trucks	Delivery Trucks	onroad			4					0	0		0	0
11e	Workers	Workers	onroad	20	8	9					40	360	14.7	588	5,292
11f	Air Compressor	Air Compressors	offroad	2	8	57	75								
11f	Man Lift	Cranes	offroad	1	4	57	100								
11f	100-Ton Crane	Cranes	offroad	1	4	57	500								
11f	Fork Lift	Forklifts	offroad	1	4	57	100								
11f	Diesel Generator	Generator Sets	offroad	4	8	57	50								
11f	Light Plant	Other General Industrial Equipment	offroad	3	8	57	50								
11f	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	57	120								
11f	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	57	500								
11f	Welding Truck/Rig	Welders	offroad	4	8	57	50								
11f	Haul Trucks	Haul Trucks	onroad			6					0	0		0	0
11f	Delivery Trucks	Delivery Trucks	onroad			4					0	0		0	0
11f	Workers	Workers	onroad	20	8	57					40	2,280	14.7	588	33,516
11g	Air Compressor	Air Compressors	offroad	1	8	5	75								
11g	Man Lift	Cranes	offroad	1	8	5	100								
11g	Fork Lift	Forklifts	offroad	1	8	5	100								
11g	Diesel Generator	Generator Sets	offroad	1	8	5	50								
11g	Backhoe	Tractors/Loaders/Backhoes	offroad	1	8	5	120								
11g	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	8	5	120								
11g	Haul Trucks	Haul Trucks	onroad			3					0	0		0	0
11g	Delivery Trucks	Delivery Trucks	onroad			3					0	0		0	0
11g	Workers	Workers	onroad	20		5					40	200	14.7	588	2,940
11h	Air Compressor	Air Compressors	offroad	1	8	9	75								
11h	Fork Lift	Forklifts	offroad	1	4	9	100								
11h	Diesel Generator	Generator Sets	offroad	1	8	9	50								
11h	Grader	Graders	offroad	1	4	9	500								
11h	Concrete Pump Truck	Off-Highway Trucks	offroad	1	8	9	370								
11h	Roller	Rollers	offroad	1	8	9	120								
11h	Scrapers	Scrapers	offroad	1	4	9	250								
11h	Backhoe	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
11h	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	9	120								
11h	Ditch Witch	Trenchers	offroad	1	8	9	50								
11h	Haul Trucks	Haul Trucks	onroad			5					0	0		0	0
11h	Delivery Trucks	Delivery Trucks	onroad			4					0	0		0	0
11h	Workers	Workers	onroad	20	8	9					40	360	14.7	588	5,292
11i	Air Compressor	Air Compressors	offroad	2	8	57	75								
11i	Man Lift	Cranes	offroad	1	4	57	100								
11i	100-Ton Crane	Cranes	offroad	1	4	57	500								
11i	Fork Lift	Forklifts	offroad	1	4	57	100								
11i	Diesel Generator	Generator Sets	offroad	4	8	57	50								
11i	Light Plant	Other General Industrial Equipment	offroad	3	8	57	50								
11i	Front End Loader	Tractors/Loaders/Backhoes	offroad	1	4	57	120								
11i	Semi-Tractor	Tractors/Loaders/Backhoes	offroad	1	2	57	500								
11i	Welding Truck/Rig	Welders	offroad	4	8	57	50								
11i	Haul Trucks	Haul Trucks	onroad			6					0	0		0	0
11i	Delivery Trucks	Delivery Trucks	onroad			4					0	0		0	0
11i	Workers	Workers	onroad	20	8	57					40	2,280	14.7	588	33,516

Notes:
 [1] Haul and delivery vehicle counts reflect truck loads. These are multiplied by 2 to reflect 1-way trips in the calculations.
 [2] Pickup truck trips were not provided. Assumed 25 mph and used utilization (hr/day) to calculate VMT.
 [3] Workers transit 1-way (miles) 14.7 CalEEMod, Appendix D, 2017.
 [4] Haul truck and delivery truck information was provided as a total for each of the following broad categories: Demolition/Hauling, Site Preparation/Ring Wall, and Tank Refurbishment. Since each of these categories has several subtasks taking place during different time periods, the haul truck and delivery truck activity was assigned to the first category in the list.

Table 6. Construction Equipment, Task ID 12

Task ID	Task	Phase Length (days)	Equipment Count	Equipment Type	Utilization (hr/day)	HP	Load	VMT (1-way trips)
12								
12a	Grading	4	1	Rubber Tired Dozers	8	247	0.4	
12a		4	2	Tractor/Loader/Backhoes	7	97	0.37	
12a		4	1	Graders	8	187	0.41	
12a		4	5	Workers				29.4
12b	Asphalt Paving	10	1	Pavers	8	130	0.42	
12b		10	1	Cement and Mortar Mixers	6	9	0.56	
12b		10	2	Rollers	6	80	0.38	
12b		10	1	Tractor/Loader/Backhoes	8	97	0.37	
12b		10	1	Paving Equipment	6	132	0.36	
12b		10	8	Workers				29.4

Source:

- [1] CalEEMod Appendix D, Table 3.1 for Phase Length.
- [2] CalEEMod, Appendix D, Table 3.2 for equipment count, type, and utilization.
- [3] CalEEMod, Appendix D, Table 3.3 for horsepower and load.
- [4] CalEEMod, Appendix A, Section 4.5 for number of workers per equipment:
- [5] Workers transit 1-way (miles)

Notes:

- [1] No import/export of soil.
- [2] Assumptions confirmed by Port via e-mail from Leah Kohler on 10/4/2021.

Table 7. Construction Equipment, Load Factors

Equipment	CalEEMod HP	CalEEMod LF
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Equipment	88	0.34
Equipment	168	0.4
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.5
Welders	46	0.45
Additional Non-Default Equipment		
		0.42

Source:

[1] CalEEMod 2017, Appendix D.

Table 8. Offroad Engine Emission Factors

Tier	High HP	Emission Factor (g/hp-hr)										
		PM10	PM2.5	DPM	NOX	SOX	CO	HC	VOC	CO2	CH4	N2O
Tier 1	2000	0.108	0.108	0.108	5.93	0.005	6.9		0.38			
	750	0.108	0.108	0.108	5.93	0.005	6.9		0.38			
	599	0.108	0.108	0.108	5.93	0.005	6.9		0.38			
	299	0.108	0.108	0.108	5.93	0.005	6.9		0.38			
	174	0.274	0.274	0.274	6.54	0.005	6.9		0.82			
	119	0.552	0.552	0.552	6.54	0.005	6.9		1.19			
	74	0.552	0.552	0.552	6.54	0.006	6.9		1.19			
	49	0.48	0.48	0.48	5.26	0.006	4.1		1.74			
Tier 2	2000	0.088	0.088	0.088	3.79	0.005	2.6		0.12			
	750	0.088	0.088	0.088	3.79	0.005	2.6		0.12			
	599	0.088	0.088	0.088	3.79	0.005	2.6		0.12			
	299	0.088	0.088	0.088	4.15	0.005	2.6		0.12			
	174	0.128	0.128	0.128	4.17	0.005	3.7		0.19			
	119	0.192	0.192	0.192	4.75	0.005	3.7		0.23			
	74	0.192	0.192	0.192	4.75	0.006	3.7		0.23			
	49	0.28	0.28	0.28	4.63	0.006	4.1		0.29			
Tier 3	2000	0.088	0.088	0.088	2.32	0.005	2.6		0.12	208.44	0.01	0.01
	750	0.088	0.088	0.088	2.32	0.005	2.6		0.12	208.44	0.01	0.01
	599	0.088	0.088	0.088	2.32	0.005	2.6		0.12	208.44	0.01	0.01
	299	0.088	0.088	0.088	2.32	0.005	2.6		0.12	208.44	0.01	0.01
	174	0.112	0.112	0.112	2.32	0.005	3.7		0.12	208.44	0.01	0.01
	119	0.192	0.192	0.192	2.74	0.005	3.7		0.12	208.44	0.01	0.01
	74	0.192	0.192	0.192	2.74	0.006	3.7		0.12	208.44	0.01	0.01
	49	0.28	0.28	0.28	4.63	0.006	4.1		0.29	208.44	0.01	0.01
Tier 4 Interim	2000	0.048	0.048	0.048	2.24	0.005	2.6		0.12			
	750	0.008	0.008	0.008	1.29	0.005	2.6		0.08			
	599	0.008	0.008	0.008	1.29	0.005	2.6		0.08			
	299	0.008	0.008	0.008	1.29	0.005	2.6		0.08			
	174	0.008	0.008	0.008	2.15	0.005	3.7		0.06			
	119	0.008	0.008	0.008	2.14	0.005	3.7		0.11			
	74	0.112	0.112	0.112	2.74	0.006	3.7		0.12			
	49	0.128	0.128	0.128	4.55	0.006	4.1		0.12			
Tier 4 Final	2000	0.016	0.016	0.016	2.24	0.005	2.6		0.06	208.44	0.01	0.01
	750	0.008	0.008	0.008	0.26	0.005	2.2		0.06	208.44	0.01	0.01
	599	0.008	0.008	0.008	0.26	0.005	2.2		0.06	208.44	0.01	0.01
	299	0.008	0.008	0.008	0.26	0.005	2.2		0.06	208.44	0.01	0.01
	174	0.008	0.008	0.008	0.26	0.005	3.7		0.06	208.44	0.01	0.01
	119	0.008	0.008	0.008	0.26	0.005	3.7		0.06	208.44	0.01	0.01
	74	0.008	0.008	0.008	2.74	0.006	3.7		0.12	208.44	0.01	0.01
	49	0.008	0.008	0.008	2.75	0.006	4.1		0.12	208.44	0.01	0.01

Notes:

[1] Per Port direction (e-mail 1/31/2019 from Erin Sheehy), the unmitigated analysis assumes that all land-based off-road engines are Tier 4 and all marine-based off-road engines are Tier 3.

Source:

[1] Criteria Air Pollutants:

PM, Nox, CO and VOC are from CalEEMod, Appendix D, Table 3.5 OFFROAD Emission Factor Based on Engine Tier.

SOx is a function of fuel sulfur content and does not change with Tier.

[2] Greenhouse Gases:

CARB Offroad2017 model was used to obtain fuel utilization. Fuel utilization was used in conjunction with The Climate Registry GHG emission factors.

Table 9. SOx Emission Factor, Construction Equipment

Offroad Construction Equipment less than 100 hp	0.0056 g/hp-hr
Offroad Construction Equipment greater than 100 hp	0.0050 g/hp-hr
SOx (gms/hp-hr) = (S content in X/1,000,000) x (MW SO2/ MW S) x BSF =	
Where:	
X = S content in parts per million (ppm)	15 ppm
S MW = Molecular Weight	32
SO2 MW = Molecular Weight	64
BSFC for offroad construction equipment less than 100 hp (per CARB OFFROAD 2017 Diesel Emission Factors excel spreadsheet)	0.408 (lb/hp-hr)
BSFC for offroad construction equipment greater than 100 hp (per CARB OFFROAD 2017 Diesel Emission Factors excel spreadsheet)	0.367 (lb/hp-hr)
BSFC for offroad construction equipment less than 100 hp	185.1 (g/hp-hr)
BSFC for offroad construction equipment greater than 100 hp	166.5 (g/hp-hr)

Table 10. Onroad Vehicles Emission Factors, Offsite Transit

Year	Vehicle Type	Units	PM10 brake wear	PM10 tire wear	PM2.5 brake wear	PM2.5 tire wear	PM10	PM2.5	DPM	NOX	SOX	CO	VOC	CO2	CH4	N2O
2021	Trucks	g/mi	0.062	0.036	0.026	0.009	0.023	0.022	0.023	2.396	0.013	0.199	0.026	1359.013	0.001	0.214
2021	Pick-Up Trucks	g/mi	0.037	0.008	0.016	0.002	0.006	0.005	0.006	0.056	0.004	0.259	0.016	382.670	0.001	0.060
2021	Workers	g/mi	0.037	0.008	0.016	0.002	0.002	0.002		0.061	0.003	0.875	0.016	294.984	0.004	0.006
2022	Trucks	g/mi	0.062	0.036	0.026	0.009	0.023	0.022	0.023	2.365	0.013	0.197	0.024	1337.217	0.001	0.210
2022	Pick-Up Trucks	g/mi	0.037	0.008	0.016	0.002	0.005	0.005	0.005	0.048	0.004	0.251	0.014	371.983	0.001	0.058
2022	Workers	g/mi	0.037	0.008	0.016	0.002	0.002	0.002		0.054	0.003	0.802	0.014	285.783	0.003	0.005
2023	Trucks	g/mi	0.062	0.036	0.026	0.009	0.022	0.021	0.022	2.234	0.012	0.186	0.018	1305.753	0.001	0.205
2023	Pick-Up Trucks	g/mi	0.037	0.008	0.016	0.002	0.005	0.004	0.005	0.042	0.003	0.246	0.013	361.646	0.001	0.057
2023	Workers	g/mi	0.037	0.008	0.016	0.002	0.002	0.002		0.047	0.003	0.740	0.012	276.528	0.003	0.005
2024	Trucks	g/mi	0.062	0.036	0.026	0.009	0.021	0.020	0.021	2.234	0.012	0.188	0.018	1284.748	0.001	0.202
2024	Pick-Up Trucks	g/mi	0.037	0.008	0.016	0.002	0.004	0.004	0.004	0.038	0.003	0.249	0.013	353.121	0.001	0.056
2024	Workers	g/mi	0.037	0.008	0.016	0.002	0.002	0.001		0.042	0.003	0.692	0.011	268.353	0.003	0.005
2025	Trucks	g/mi	0.062	0.036	0.026	0.009	0.021	0.020	0.021	2.196	0.012	0.187	0.018	1256.159	0.001	0.197
2025	Pick-Up Trucks	g/mi	0.037	0.008	0.016	0.002	0.004	0.004	0.004	0.033	0.003	0.245	0.012	343.014	0.001	0.054
2025	Workers	g/mi	0.037	0.008	0.016	0.002	0.002	0.001		0.038	0.003	0.647	0.009	259.078	0.002	0.004
2026	Trucks	g/mi	0.062	0.036	0.026	0.009	0.021	0.020	0.021	2.163	0.012	0.185	0.018	1225.868	0.001	0.193
2026	Pick-Up Trucks	g/mi	0.037	0.008	0.016	0.002	0.003	0.003	0.003	0.030	0.003	0.243	0.011	334.270	0.001	0.053
2026	Workers	g/mi	0.037	0.008	0.016	0.002	0.001	0.001		0.034	0.002	0.611	0.008	251.048	0.002	0.004

Source:

[1] Calculated from EMFAC2017.

Table 11. Marine Engine Characteristics and Emission Factors

Year	HC Classification	Equipment	HC Characteristics					Unmitigated Emission Factors (g/kW-hr)										
			Engine Count per HC	Average Model Year	HC Average Power (hp)	HC Average Power (kW)	Load Factor	Engine Tier	PM10	PM2.5	DPM	NOX	SOX	CO	VOC	CO2	CH4	N2O
2021+	Crew Boat Auxiliary	Crew Boat / Skiff Auxiliary	1	2010	50	37	0.32	Tier 2	0.40	0.36	0.40	7.13	0.01	5.00	0.38	652.00	0.01	0.03
	Crew Boat Auxiliary	Survey Boat Auxiliary	1	2010	50	37	0.32	Tier 2	0.40	0.36	0.40	7.13	0.01	5.00	0.38	652.00	0.01	0.03
	Crew Boat Propulsion	Crew Boat / Skiff Propulsion	1	2010	564	421	0.38	Tier 2	0.44	0.39	0.44	8.86	0.01	5.00	0.47	652.00	0.01	0.03
	Crew Boat Propulsion	Survey Boat Propulsion	1	2010	150	112	0.38	Tier 2	0.44	0.39	0.44	8.86	0.01	5.00	0.47	652.00	0.01	0.03
	Tugboat Auxiliary	Tugboat Generator	1	2010	60	45	0.43	Tier 2	0.40	0.36	0.40	7.13	0.01	5.00	0.38	652.00	0.01	0.03
	Tugboat Auxiliary	Tugboat Deck Winch	1	2010	160	119	0.43	Tier 2	0.30	0.27	0.30	6.84	0.01	5.00	0.36	652.00	0.01	0.03
	Tugboat Propulsion	Tugboat Propulsion	2	2010	1200	895	0.31	Tier 2	0.44	0.39	0.44	8.86	0.01	5.00	0.47	652.00	0.01	0.03

Source:

[1] HC average model year, load factors, and emission factors: 2019 POLA Emissions Inventory, Tables 4.1 and 4.2.

[2] HC engine hp was provided by the P66: Copy of 2020-09-11 AQ ConstructionNeedsTemplate_P66 MNIQA (version 1).xlsx

Table 12. Harbor Craft Tier Designation

Model Year	HP Range	Tier
<1999	all	Tier 0
2000-2003	<500	Tier 1
2000-2006	>500	Tier 1
>2004	<500	Tier 2
>2007	>500	Tier 2
>2009	25-120	Tier 3
>2013	120-175	Tier 3
>2014	175-500	Tier 3
>2013	500-750	Tier 3
2012-2017	750-1900	Tier 3
2013-2016	1900-3000	Tier 3
2014-2016	>3000	Tier 3

Source:

[1] POLA 2016 Emissions Inventory, Table 4.3.

Table 13. Harbor Craft Emission Factors - EPA Standards, g/kw-hr

Engine Displacement	(kW)	EPA Tier	MY	NMHC+NOx	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Category 1															
HC auxiliary engines															
>2.5	>37	Tier 1	2004		0.54	0.48	0.54	17.00	0.007	11.40	1.30	1.37	652	0.026	0.031
<0.9	≥37	Tier 2	2005	7.50	0.40	0.36	0.40	7.1	0.007	5.00	0.38	0.39	652	0.008	0.031
0.9 < displ < 1.2	all	Tier 2	2004	7.20	0.30	0.27	0.30	6.8	0.007	5.00	0.36	0.38	652	0.007	0.031
1.2 < displ < 2.5	all	Tier 2	2004	7.20	0.20	0.18	0.20	6.8	0.007	5.00	0.36	0.38	652	0.007	0.031
2.5 < displ < 5	≥560	Tier 2	2007	7.20	0.20	0.18	0.20	6.8	0.007	5.00	0.36	0.38	652	0.007	0.031
<0.9	<19	Tier 3	2012+	5.4	0.14	0.12	0.14	5.1	0.007	6.60	0.27	0.28	652	0.005	0.031
<0.9	19-37	Tier 3	2012+	5.4	0.14	0.12	0.14	5.1	0.007	5.50	0.27	0.28	652	0.005	0.031
<0.9	>37	Tier 3	2014+	5.4	0.14	0.12	0.14	5.1	0.007	5.00	0.27	0.28	652	0.005	0.031
0.9 < displ < 1.2	<19	Tier 3	2013+	5.4	0.12	0.11	0.12	5.1	0.007	6.60	0.27	0.28	652	0.005	0.031
0.9 < displ < 1.2	19-37	Tier 3	2013+	5.4	0.12	0.11	0.12	5.1	0.007	5.50	0.27	0.28	652	0.005	0.031
0.9 < displ < 1.2	>37	Tier 3	2013+	5.4	0.12	0.11	0.12	5.1	0.007	5.00	0.27	0.28	652	0.005	0.031
1.2 < displ < 2.5	<600	Tier 3	2014-2017	5.6	0.11	0.10	0.11	5.3	0.007	5.00	0.28	0.29	652	0.006	0.031
1.2 < displ < 2.5	<600	Tier 3	2018+	5.6	0.10	0.09	0.10	5.3	0.007	5.00	0.28	0.29	652	0.006	0.031
1.2 < displ < 2.5	≥600	Tier 3	2014+	5.6	0.11	0.10	0.11	5.3	0.007	5.00	0.28	0.29	652	0.006	0.031
2.5 < displ < 3.5	<600	Tier 3	2013-2017	5.6	0.11	0.10	0.11	5.3	0.007	5.00	0.28	0.29	652	0.006	0.031
2.5 < displ < 3.5	<600	Tier 3	2018+	5.6	0.10	0.09	0.10	5.3	0.007	5.00	0.28	0.29	652	0.006	0.031
2.5 < displ < 3.5	≥600	Tier 3	2013+	5.6	0.11	0.10	0.11	5.3	0.007	5.00	0.28	0.29	652	0.006	0.031
3.5 ≤ D < 7	<600	Tier 3	2012-2017	5.8	0.11	0.10	0.11	5.5	0.007	5.00	0.29	0.31	652	0.006	0.031
3.5 ≤ D < 7	<600	Tier 3	2018+	5.8	0.10	0.09	0.10	5.5	0.007	5.00	0.29	0.31	652	0.006	0.031
3.5 ≤ D < 7	≥600	Tier 3	2012+	5.8	0.11	0.10	0.11	5.5	0.007	5.00	0.29	0.31	652	0.006	0.031
<7	600-1400	Tier 4	2017+	0.19	0.04	0.04	0.04	1.8	0.007	5.00	0.01	0.01	652	0.000	0.031
<7	1400-2000	Tier 4	2016+	0.19	0.04	0.04	0.04	1.8	0.007	5.00	0.01	0.01	652	0.000	0.031
<7	2000-3700	Tier 4	2014+	0.19	0.04	0.04	0.04	1.8	0.007	5.00	0.01	0.01	652	0.000	0.031
<7	>3700	Tier 4	2014-2015	0.19	0.12	0.11	0.12	1.8	0.007	5.00	0.01	0.01	652	0.000	0.031
<7	>3700	Tier 4	2016+	0.19	0.06	0.05	0.06	1.8	0.007	5.00	0.01	0.01	652	0.000	0.031
Category 2															
HC propulsion engines															
>2.5	>37	Tier 1	2004		0.54	0.48	0.54	17.00	0.007	11.40	1.30	1.37	652	0.026	0.031
5.0 ≤ D < 15	all	Tier 2	2007	7.8	0.27	0.24	0.27	7.4	0.007	5.00	0.39	0.41	652	0.008	0.031
15 ≤ D < 20	≤ 3300 kW	Tier 2	2007	8.7	0.50	0.45	0.50	8.3	0.007	5.00	0.44	0.46	652	0.009	0.031
15 ≤ D < 20	≥ 3300 kW	Tier 2	2007	9.8	0.50	0.45	0.50	9.3	0.007	5.00	0.49	0.52	652	0.010	0.031
20 ≤ D < 25	all	Tier 2	2007	9.8	0.50	0.45	0.50	9.3	0.007	5.00	0.49	0.52	652	0.010	0.031
25 ≤ D < 30	all	Tier 2	2007	11.0	0.50	0.45	0.50	10.5	0.007	5.00	0.55	0.58	652	0.011	0.031
7 ≤ D < 15	<2000	Tier 3	2013+	6.2	0.14	0.12	0.14	5.9	0.007	5.00	0.31	0.33	652	0.006	0.031
7 ≤ D < 15	2000-3700	Tier 3	2013+	7.8	0.14	0.12	0.14	7.4	0.007	5.00	0.39	0.41	652	0.008	0.031
15 ≤ D < 20	<2000	Tier 3	2014+	7.0	0.34	0.30	0.34	6.7	0.007	5.00	0.35	0.37	652	0.007	0.031
20 ≤ D < 25	<2000	Tier 3	2014+	9.8	0.27	0.24	0.27	9.3	0.007	5.00	0.49	0.52	652	0.010	0.031
25 ≤ D < 30	<2000	Tier 3	2014+	11.0	0.27	0.24	0.27	10.5	0.007	5.00	0.55	0.58	652	0.011	0.031
all	2000-3700	Tier 4	2014		0.04	0.04	0.04	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
<15	>3700	Tier 4	2014		0.12	0.11	0.12	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
15 ≤ D < 30	>3700	Tier 4	2014		0.25	0.22	0.25	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
all	>3700	Tier 4	2016		0.06	0.05	0.06	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
all	1400-2000	Tier 4	2016		0.04	0.04	0.04	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
all	600-1400	Tier 4	2017		0.04	0.04	0.04	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
	600-1400	Tier 4	2017+		0.04	0.04	0.04	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
	1400-2000	Tier 4	2016+		0.04	0.04	0.04	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
	2000-3700	Tier 4	2014+		0.04	0.04	0.04	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
<15.0	>3700	Tier 4	2014-2015		0.12	0.11	0.12	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
15 < displ < 30	>3700	Tier 4	2014-2015		0.25	0.22	0.25	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031
all	>3700	Tier 4	2016+		0.06	0.05	0.06	1.8	0.007	5.00	0.19	0.20	652	0.004	0.031

Source:

- [1] Federal Marine Compression-Ignition Engines - Exhaust Emission Standards. EPA-420-B-20-021. July 2020. Last accessed 10/2021 at <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ZP4H.pdf>.
- [2] EPA Tier 1 emissions standards for marine engines do not specify restrictions to PM, SOx, CO, or VOC. NOx reflects Marpol Annex VI (17 g/kw-hr). PM10, SOx, CO, and VOC emissions factors were obtained from EPA offroad emission engine standards for Tier 1 engines.
- [3] EPA Tier 2 and Tier 3 emission standards are reported as NOx+THC. 5% is HC per Carl Moyer Program guidelines. 95% is NOx.
- [4] SOx emission factor is based on 15 ppm fuel sulfur content.
- [5] PM2.5 is 89% of PM10, per SCAQMD 2006 Final Methodology to Calculate PM2.5 and PM 2.5 Significance Thresholds, Table 5.
- [6] CO2 and N2O emission factors are from IVL: Methodology for Calculating Emissions from Ships: Update on Emission Factors, 2004, also summarized in POLA 2009 Emissions Inventory, Appendix B. CH4 is 2% of HC, per IVL study.

Notes:

- [1] Bold numbers represent actual emission standards.

Table 14. SOx Emission Factor

Harbor Craft	0.0074 g/kw-hr
Dredging Equipment	use OFFROAD BSCF and convert to g SOx /hp-hr
SOx (gms/hp-hr) = (S content in X/1,000,000) x (MW SO ₂ / MW S) x BSF =	
Where:	
X = S content in parts per million (ppm)	15 ppm
S MW = Molecular Weight	32
SO ₂ MW = Molecular Weight	64
BSFC for harbor craft = Brake Specific Fuel Consumption (per CARB 2007 Harbor Craft Methodology)	184 (g/hp-hr)

Source:

[1] CARB, 2012. Appendix B. Emissions Estimation Methodology for Commercial Harbor Craft Operating in California. Available at <https://ww3.arb.ca.gov/msei/chc-appendix-b-emission-estimates-ver02-27-2012.pdf>

Table 15. Harbor Craft Load Factor

Type	Main Engine	Auxiliary Engine
Assist tugboat	0.31	0.43
Commercial fishing	0.27	0.43
Crew boat	0.38	0.32
Excursion	0.42	0.43
Ferry	0.42	0.43
Government	0.51	0.43
Ocean tug	0.68	0.43
Tugboat	0.31	0.43
Workboat/Diveboat	0.38	0.32

Source:

[1] 2013 POLA Emissions Inventory, Table 4.7.

Table 16. Paved Road Dust Emission Factors

CARB Roadway Category	(sL) Silt Loading (g/m ²)	PM10 Particle Size Multiplier (g/mi)	PM2.5 Particle Size Multiplier (g/mi)	Average Vehicle Weight (tons)	(E) Uncontrolled PM10 Emission Factor (g/VMT)	(E) Uncontrolled PM2.5 Emission Factor (g/VMT)
Onsite Trucks	0.135	1.00	0.15	25.0	4.31	0.65
Onsite Autos	0.135	1.00	0.15	2.4	0.39	0.06
Local	0.135	1.00	0.15	2.4	0.39	0.06
Collector	0.013	1.00	0.15	2.4	0.05	0.01
Major	0.013	1.00	0.15	2.4	0.05	0.01
Freeway	0.015	1.00	0.15	2.4	0.05	0.01

Notes:

- [1] Emission factors exclude engine exhaust, tire wear, and brake wear.
- [2] The equation is: Emission Factor = (Particle Size Multiplier) x (sL)^{0.91} x (Vehicle Weight)^{1.02}
- [3] The silt loading value of 0.135 g/m² for local roadways was assumed to be representative of onsite conditions because of the relatively low number of onsite truck and automobile trips.
- [4] The average vehicle weight for onsite trucks is based on a modern tanker truck that holds 9,000 gal diesel fuel (approx. 31.7 tons fuel) and has a GVWR of 80,000 lbs (40 tons) (GVWR includes the weight of cargo). Therefore, a loaded fuel truck would weigh 40 tons and an empty fuel truck would weigh 8.3 tons. The average weight is therefore assumed to be approximately 25 tons. Trucks and autos would generally take different routes onsite.

Source:

[1] CARB Emission Inventory Chapter 7.9: Miscellaneous Process Methodology. Entrained Road Travel, Paved Road Dust.

Summary of Daily VMT by Roadway Type

Los Angeles - Long Beach - Santa Ana Metro Area

Metropolitan Area	Interstate/ Other Fwy/ Exprwy	Other Principal Arterial	Minor Arterial	Collector	Local
Daily Vehicle-Miles Travelled (Thousands)	132,796	67,118	49,528	15,304	14,481
Travel Fraction	0.48	0.24	0.18	0.05	0.05

Source:

[1] Federal Highway Administration. Highway Statistics 2016 - Urbanized Areas - 2016 Miles and Daily Vehicle Miles Traveled. Table HM-71. Last accessed February 2019. <https://www.fhwa.dot.gov/policyinformation/statistics/2016/>

Composite Paved Road Dust Emission Factors for Project Trips

Road Type	Fraction of Travel by Roadway Type					Composite EF	
	Interstate/ Other Fwy/ Exprwy	Other Principal Arterial	Minor Arterial	Collector	Local	PM10 (g/VMT)	PM2.5 (g/VMT)
Vehicle Trips in Los Angeles - Long Beach - Santa Ana Metro Area	0.48	0.24	0.18	0.05	0.05	0.071	0.011

Table 17. Grading Dust Emission Factors

PM10 (lb/VMT)	1.543 PM10 (lb/acre)	1.06
PM2.5 (lb/VMT)	0.167 PM2.5 (lb/acre)	0.11
E (lb/VMT) = k x 0.051 x (S) ^{2.0} for PM10 and k x 0.040 x (S) ^{2.5} for PM2.5		
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)		
S = Mean Vehicle Speed assumed to be 7.1 mph		
Assumes VMT = 3 x hours in use		
E = EF * VMT		
VMT = Acres graded / Wb * 43560(sft/acre) / 5280(ft/mi)		
Wb = blade width of grading equipment = 12 ft		
	0.6875 VMT/acre	

Source:

[1] AP-42 Chapter 11.9 & CalEEMod 2021, Appendix A, Section 4.3.

Table 18. Material Loading/Handling Dust Emission Factors

PM10 (lb/ton)	0.0560274
PM2.5 (lb/ton)	0.0084841
EF = (k)(0.0032)[(U/5) ^{1.3}]/[(M/2) ^{1.4}]	
EF = lb/ton	
k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)	
U = average wind speed = 2.2 m/s (CalEEMod), 4.9 mph	
M = moisture content = 12% (CalEEMod)	
Soil density (ton/cyd):	1.26
Truck capacity (cyd)	20
Truck capacity (ton)	25.28

Source:

[1] AP-42 13.2.4 & CalEEMod

Table 19. Debris Loading Dust Emission Factors

PM10 (lb/ton)	0.0203
PM2.5 (lb/ton)	0.0031
EF = k*0.058	
EF = lb/ton of debris	
k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)	

Source:

[1] CalEEMod 2021, Appendix A.

Table 20. Asphalt Paving

VOC (lb/acre)	2.62	(lb/ft2)	6.01469E-05
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Source:

[1] CalEEMod, Appendix A, Section 4.8.

Table 21. Fugitive Dust Control

Regulatory Requirement	61% Water disturbed areas within the construction site: 2xday (3.2-hour watering interval). SCAQMD Rule 403
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Source:

[1] SCAQMD Rule 403, as applicable for Small Projects (<50 acres disturbed, <5,000 yd3 3 times per year).

[2] 2006 WRAP Fugitive Dust Handbook.

Table 22. GHG Emission Factors

Source	CO2	CH4	N2O	Fuel
offroad construction equipment ^{[1],[2]}	(kg CO2/gal fuel) 10.21	(kg CH4/gal fuel) 0.000576	(kg N2O/gal fuel) 0.000256	diesel
onroad medium and heavy duty vehicles ^{[1],[3]}	(kg CO2/gal fuel) 10.21	(g CH4/mile) 0.0051	(g N2O/mile) 0.0048	diesel
onroad light duty vehicles ^{[1],[3]}	8.78	0.2024	0.022	gasoline
non-transport fuel combustion ^{[4],[5]}	kg CO2/gal 5.72	kg/MMBtu 0.003	kg/MMBtu 0.0006	propane
non-transport fuel combustion ^{[4],[5]}	kg CO2/MMBtu 53.06	kg/MMBtu 0.001	kg/MMBtu 0.0001	natural gas

Notes:

[1] CO2 emission factors: 2016 Climate Registry Default Emission Factors, Table 13.1, US Default CO2 Emission Factors for Transport Fuels.

[2] N2O and CH4 emission factors: 2016 Climate Registry Default Emission Factors, Table 13.7, Default CH4 and N2O Emission Factors for Non-Highway Vehicles.

[3] N2O and CH4 emission factors: 2016 Climate Registry Default Emission Factors, Table 13.4, Default CH4 and N2O Emission Factors for Highway Vehicles by Technology Type.

[4] CO2 emission factors: 2016 Climate Registry Default Emission Factors, Table 12.1, Default Factors for Calculating CO2 Emissions from Fossil Fuel and Biomass Combustion.

[5] CH4 and N2O emission factors: 2016 Climate Registry Default Emission Factors, Table 12.9.1, Default CH4 and N2O Emission Factors by Fuel Type, Industrial and Energy Sectors.

Table 23. Energy Use

Emission Source	Emissions (MT CO₂/yr)	Fuel	CO₂ Emission Factor (kg CO₂/MMBtu)	High Heat Value (MMBtu/gal)	Fuel Use (gal/yr)
Year 2022					
Offroad Construction Equipment	529	diesel	73.96	0.138	51,914
Marine	120	diesel	73.96	0.138	11,753
Haul Trucks	57	diesel	73.96	0.138	5,627
Delivery Trucks	83	diesel	73.96	0.138	8,128
Pick-Up Trucks	26	diesel	73.96	0.138	2,517
Worker Vehicles	128	gasoline	70.22	0.125	14,570
Total Diesel Consumption					79,940
Total Gasoline Consumption					14,570

Notes:

[1] Year 2022 reflects the maximum construction year.

Source:

[2] Fuel consumption calculated from quantified CO₂ emissions and from The Climate Registry 2021 Emission Factors, Table 1.1.

CO ₂ emission factor diesel (kg CO ₂ /gal):	10.21
CO ₂ emission factor gasoline (kg CO ₂ /gal):	8.78
Diesel carbon content (kg C/MMBTU):	20.2
Gasoline carbon content (kg C/MMBTU):	19.2
C/CO ₂ ratio:	0.27

Operational Emissions Assumptions and Calculation Tables

Key tables

- Table 1. OGV Main Engine Rated Power
- Table 2. OGV Average Aux Engine & Aux Boiler Loads
- Table 3. OGV Maximum Rated Vessel Speed
- Table 4. OGV Transit Speed (knots)
- Table 5. OGV Transit Distance (nm)
- Table 6. OGV Propulsion/Boiler Engine Emission Factors for 0.1% S MGO Fuel (g/kW-hr)
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- Table 22. Peakday Main Engine Composite Emission Factors in grams per kilowatt hour
- Table 23. Peakday Auxiliary Engine Composite Emission Factors in grams per kilowatt hour
- Table 24. Trucks and Worker Vehicles Peakday Emissions

Note: Year 2025 assumed as earliest possible start of the Project. Actual Project start date would depend on construction schedule.

Table 1. OGV Main Engine Rated Power

Year	Vessel Type	Peak Day ¹	Annual Average
		Main Eng Avg (kW)	Main Eng Avg (kW)
2019	OGV Barge	0	0
2019	ATB		5,999
2019	Tanker - Handysize	8,116	8,116
2019	Tanker - Chemical		8,831
2019	Tanker - Panamax	11,067	11,067
2019	Tanker - Aframax	13,500	13,500
2019	Bunkering Barge	0	0
2025	OGV Barge	0	0
2025	ATB		5,999
2025	Tanker - Handysize	8,116	8,116
2025	Tanker - Chemical		8,831
2025	Tanker - Panamax	11,067	11,067
2025	Tanker - Aframax	13,500	13,500
2025	Bunkering Barge	0	0

Source:

- [1] Updated based on average 2019 Wharfingers data.
- [2] Barges are not self-propelled; no propulsion engines.
- [3] OGV Barge do not have propulsion engines, only auxiliary and pump engines.
- [4] Aframax characteristics from 2019 POLA Inventory Table 3.9.

Table 2. OGV Average Aux Engine & Aux Boiler Loads

Vessel Type	Engine Type	Average Loads (kW)			
		Transit	Maneuvering	Berthing	Anchorage
ATB	Auxiliary Engine	79	208	102	79
ATB	Pump Generator			390	
Tanker - Chemical	Auxiliary Engine	658	890	816	402
Tanker - Chemical	Auxiliary Boiler	59	136	568	255
Tanker - Handysize	Auxiliary Engine	537	601	820	560
Tanker - Handysize	Auxiliary Boiler	144	144	2,586	144
Tanker - Panamax	Auxiliary Engine	561	763	623	379
Tanker - Panamax	Auxiliary Boiler	167	351	3,421	451
Tanker - Aframax	Auxiliary Engine	576	719	724	474
Tanker - Aframax	Auxiliary Boiler	179	438	5,030	375
OGV Barge	Auxiliary Engine	38	38	67	67
OGV Barge	Pump Generator			520	
Bunkering Barge	Auxiliary Engine	79	79	137	
Bunkering Barge	Pump Generator				

Source:

- [1] ATB pump load at berth: Berth 167-169 Shell Marine Oil Terminal Wharf Improvement Project DEIR, Appendix B, Table B1.27. FEIR certified August 2018.
- [2] Tanker loads: 2019 Port Emissions Inventory, Auxiliary Engines Table 3.2 and Auxiliary Boiler Table 3.5.
- [3] OGV barge auxiliary engine size (kw) at berth and anchorage from LAHD, 2021. BERTH 163-164 [NuStar-Valero] MARINE OIL TERMINAL WHARF IMPROVEMENTS PROJECT Draft IS/MND
- [4] Bunkering barge aux engine kw are assumed to be the same as assist tugboats (2019 Port Emissions Inventory, Table 4.2). Bunkering barges do not use their pumps during loading at the terminal; the terminal's shore-side pumps are used
- [5] Bunkering barge aux engine kw are multiplied by load factors from Barge and Dredge CARB Model

Table 3. OGV Maximum Rated Vessel Speed

Category	Speed (knots)
Tanker - Chemical	14.6
Tanker - Handysize	15.1
Tanker - Panamax	14.9
Tanker - Aframax	14.4
ATB	15
OGV Barge	
Bunkering Barge	

Source:

[1] 2019 Port Emissions Inventory, Table 3.9.

Table 4. OGV Transit Speed (knots)

Year	Vessel Type	Anchorage	Berthing	Maneuvering	Precautionary Area	20-Nautical Miles to Precautionary Area	40 to 20 Nautical Miles	State Boundary to 40 Nautical Miles
any	OGV Barge	0	0	6	9	12.18	12.26	14
any	ATB	0	0	6	9	12.18	12.26	14
any	Tanker - Handysize	0	0	6	9	12.18	12.26	14
any	Tanker - Chemical	0	0	6	9	12.18	12.26	14
any	Tanker - Panamax	0	0	6	9	12.18	12.26	14
any	Tanker - Aframax	0	0	6	9	12.18	12.26	14
any	Bunkering Barge	0	0	6	9			

Note:

[1] 2019 speed at 20nm and 40 nm mark (12.18 and 12.26 knots respectively) based on 2019 VSRP compliance rates reports from Port of Los Angeles.

[2] Mitigation speed 8.5 knots or lower only applies to future scenario in zones 3 and 4.

Table 5. OGV Transit Distance (nm)

Year	Vessel Type	Anchorage	Berthing	Maneuvering	Precautionary Area	20-Nautical Miles to Precautionary Area	40 to 20 Nautical Miles	State Boundary to 40 Nautical Miles
any	OGV Barge	0	0	4	8	16	24	130
any	ATB	0	0	4	8	16	24	130
any	Tanker - Handysize	0	0	4	8	16	24	130
any	Tanker - Chemical	0	0	4	8	16	24	130
any	Tanker - Panamax	0	0	4	8	16	24	130
any	Tanker - Aframax	0	0	4	8	16	24	130
any	Bunkering Barge	0	0	4	8			

Table 6. OGV Propulsion/Boiler Engine Emission Factors for 0.1% S MGO Fuel (g/kW-hr)

Engine	IMO Tier	Model Year	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Slow Speed Diesel	Tier 0	≤1999	0.255	0.240	0.255	17.01	0.389	1.4	0.6	0.63	589	0.012	0.029
Medium Speed Diesel	Tier 0	≤1999	0.255	0.240	0.255	13.16	0.426	1.1	0.5	0.53	649	0.01	0.029
Slow Speed Diesel	Tier 1	2000-2010	0.255	0.240	0.255	15.98	0.389	1.4	0.6	0.63	589	0.012	0.029
Medium Speed Diesel	Tier 1	2000-2010	0.255	0.240	0.255	12.22	0.426	1.1	0.5	0.53	649	0.01	0.029
Slow Speed Diesel	Tier 2	2011-2015	0.255	0.240	0.255	14.38	0.389	1.4	0.6	0.63	589	0.012	0.029
Medium Speed Diesel	Tier 2	2011-2015	0.255	0.240	0.255	10.53	0.426	1.1	0.5	0.53	649	0.01	0.029
Slow Speed Diesel	Tier 3	≥2016	0.255	0.240	0.255	3.38	0.389	1.4	0.6	0.63	589	0.012	0.029
Medium Speed Diesel	Tier 3	≥2016	0.255	0.240	0.255	2.63	0.426	1.1	0.5	0.53	649	0.01	0.029
Gas Turbine	na	all	0.050	0.040	0.000	5.73	0.611	0.2	0.1	0.11	922	0.002	0.075
Steam Engine and Boiler	na	all	0.136	0.128	0.000	1.97	0.611	0.2	0.1	0.11	922	0.002	0.075
Steam Engine and Boiler	na	all	0.136	0.128	0.000	1.97	0.611	0.2	0.1	0.11	922	0.002	0.075

Notes:

- [1] Slow speed diesel: engine speed < 150 rpm; assumed as default for propulsion engines.
- [2] Bonnet control is assumed in future years, Compliance with reduced rates per At-Berth Rule for tanker boilers is not necessary due to Bonnet control in future scenario

Source:

[1] San Pedro Bay Ports Emission Inventory Methodology Report Version 1-2019, Tables 2.3 and 2.4. April 2019.

Table 7. OGV Auxiliary Engine Emission Factors for 0.1% MGO Fuel (g/kW-hr)

Engine	IMO Tier	Model Year	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
High Speed Diesel	Tier 0	≤1999	0.255	0.24	0.255	10.90	0.455	1.10	0.50	0.53	656	0.010	0.029
Medium Speed Diesel	Tier 0	≤1999	0.255	0.24	0.255	13.82	0.455	1.40	0.60	0.63	686	0.012	0.029
High Speed Diesel	Tier 1	2000-2010	0.255	0.24	0.255	9.78	0.455	1.10	0.50	0.53	656	0.010	0.029
Medium Speed Diesel	Tier 1	2000-2010	0.255	0.24	0.255	12.22	0.455	1.40	0.60	0.63	686	0.012	0.029
High Speed Diesel	Tier 2	2011-2015	0.255	0.24	0.255	7.71	0.455	1.10	0.50	0.53	656	0.010	0.029
Medium Speed Diesel	Tier 2	2011-2015	0.255	0.24	0.255	10.53	0.455	1.40	0.60	0.63	686	0.012	0.029
High Speed Diesel	Tier 3	≥2016	0.255	0.24	0.255	1.97	0.455	1.10	0.50	0.53	656	0.010	0.029
Medium Speed Diesel	Tier 3	≥2016	0.255	0.24	0.255	2.63	0.455	1.40	0.60	0.63	686	0.012	0.029

Notes:

- [1] Tanker auxiliary engines are medium speed.
- [2] Calculations assume that auxiliary and propulsion engines are the same model year.
- [3] Tanker auxiliary engines are conservatively assumed to be Tier 1 for peak day future years.

Source:

[1] San Pedro Bay Ports Emission Inventory Methodology Report Version 1-2019, Tables 2.9 and 2.10. April 2019.

Table 8. OGV Emission Factor Adjustment (EFA) for Propulsion Engines

Vessel Category	PM	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
Vessels without Slide Valves	1.0	1.0	1.0	1.0	1.0	0.44	1.0	1.0	1.0	1.0	1.0
Vessels with Slide Valves	1.0	1.0	1.0	1.0	1.0	0.59	0.43	0.4	1.0	1.0	1.0

Notes:

[1] Factors apply to pollutants for which test results were significantly different in magnitude than the base emission factors used in the SP Bay Inventory.

Source:

[1] San Pedro Bay Ports Emission Inventory Methodology Repo

Table 9. OGV Emission Factor Adjustments (LAF*EFA) for MAN 2-Stroke Propulsion Engines without Slide Valves

Load	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
1%	0.83	0.83	0.83	1.90	1.00	0.61	2.53	2.53	1.00	2.53	1.90
2%	0.83	0.83	0.83	1.86	1.00	0.60	2.45	2.45	1.00	2.45	1.86
3%	0.83	0.83	0.83	1.82	1.00	0.59	2.37	2.37	1.00	2.37	1.82
4%	0.82	0.82	0.82	1.77	1.00	0.59	2.30	2.30	1.00	2.30	1.77
5%	0.82	0.82	0.82	1.72	1.00	0.58	2.23	2.23	1.00	2.23	1.72
6%	0.81	0.81	0.81	1.68	1.00	0.57	2.16	2.16	1.00	2.16	1.68
7%	0.81	0.81	0.81	1.64	1.00	0.56	2.10	2.10	1.00	2.10	1.64
8%	0.80	0.80	0.80	1.60	1.00	0.55	2.03	2.03	1.00	2.03	1.60
9%	0.80	0.80	0.80	1.56	1.00	0.55	1.97	1.97	1.00	1.97	1.56
10%	0.79	0.79	0.79	1.52	1.00	0.55	1.91	1.91	1.00	1.91	1.52
11%	0.79	0.79	0.79	1.49	1.00	0.54	1.86	1.86	1.00	1.86	1.49
12%	0.78	0.78	0.78	1.45	1.00	0.53	1.80	1.80	1.00	1.80	1.45
13%	0.78	0.78	0.78	1.42	1.00	0.53	1.75	1.75	1.00	1.75	1.42
14%	0.78	0.78	0.78	1.39	1.00	0.52	1.70	1.70	1.00	1.70	1.39
15%	0.77	0.77	0.77	1.36	1.00	0.52	1.65	1.65	1.00	1.65	1.36
16%	0.77	0.77	0.77	1.33	1.00	0.51	1.61	1.61	1.00	1.61	1.33
17%	0.77	0.77	0.77	1.30	1.00	0.51	1.56	1.56	1.00	1.56	1.30
18%	0.77	0.77	0.77	1.28	1.00	0.51	1.52	1.52	1.00	1.52	1.28
19%	0.76	0.76	0.76	1.25	1.00	0.50	1.48	1.48	1.00	1.48	1.25
20%	0.76	0.76	0.76	1.23	1.00	0.50	1.44	1.44	1.00	1.44	1.23
21%	0.76	0.76	0.76	1.20	1.00	0.50	1.41	1.41	1.00	1.41	1.20
22%	0.76	0.76	0.76	1.18	1.00	0.49	1.37	1.37	1.00	1.37	1.18
23%	0.76	0.76	0.76	1.16	1.00	0.49	1.34	1.34	1.00	1.34	1.16
24%	0.75	0.75	0.75	1.14	1.00	0.48	1.31	1.31	1.00	1.31	1.14
25%	0.75	0.75	0.75	1.12	1.00	0.48	1.28	1.28	1.00	1.28	1.12
26%	0.75	0.75	0.75	1.11	1.00	0.48	1.25	1.25	1.00	1.25	1.11
27%	0.75	0.75	0.75	1.09	1.00	0.48	1.22	1.22	1.00	1.22	1.09
28%	0.75	0.75	0.75	1.07	1.00	0.48	1.20	1.20	1.00	1.20	1.07
29%	0.75	0.75	0.75	1.06	1.00	0.47	1.17	1.17	1.00	1.17	1.06
30%	0.75	0.75	0.75	1.05	1.00	0.47	1.15	1.15	1.00	1.15	1.05
31%	0.75	0.75	0.75	1.03	1.00	0.47	1.13	1.13	1.00	1.13	1.03
32%	0.75	0.75	0.75	1.02	1.00	0.47	1.11	1.11	1.00	1.11	1.02
33%	0.75	0.75	0.75	1.01	1.00	0.46	1.09	1.09	1.00	1.09	1.01
34%	0.75	0.75	0.75	1.00	1.00	0.46	1.08	1.08	1.00	1.08	1.00
35%	0.76	0.76	0.76	0.99	1.00	0.46	1.06	1.06	1.00	1.06	0.99
36%	0.76	0.76	0.76	0.98	1.00	0.46	1.05	1.05	1.00	1.05	0.98
37%	0.76	0.76	0.76	0.98	1.00	0.45	1.04	1.04	1.00	1.04	0.98
38%	0.76	0.76	0.76	0.97	1.00	0.45	1.02	1.02	1.00	1.02	0.97
39%	0.76	0.76	0.76	0.96	1.00	0.45	1.01	1.01	1.00	1.01	0.96
40%	0.76	0.76	0.76	0.96	1.00	0.45	1.00	1.00	1.00	1.00	0.96
41%	0.77	0.77	0.77	0.95	1.00	0.44	0.99	0.99	1.00	0.99	0.95
42%	0.77	0.77	0.77	0.95	1.00	0.44	0.99	0.99	1.00	0.99	0.95
43%	0.77	0.77	0.77	0.94	1.00	0.44	0.98	0.98	1.00	0.98	0.94
44%	0.78	0.78	0.78	0.94	1.00	0.44	0.97	0.97	1.00	0.97	0.94
45%	0.78	0.78	0.78	0.94	1.00	0.44	0.97	0.97	1.00	0.97	0.94

46%	0.78	0.78	0.78	0.94	1.00	0.44	0.96	0.96	1.00	0.96	0.94
47%	0.79	0.79	0.79	0.94	1.00	0.44	0.96	0.96	1.00	0.96	0.94
48%	0.79	0.79	0.79	0.93	1.00	0.43	0.96	0.96	1.00	0.96	0.93
49%	0.79	0.79	0.79	0.93	1.00	0.43	0.96	0.96	1.00	0.96	0.93
50%	0.80	0.80	0.80	0.93	1.00	0.43	0.96	0.96	1.00	0.96	0.93
51%	0.80	0.80	0.80	0.94	1.00	0.43	0.95	0.95	1.00	0.95	0.94
52%	0.81	0.81	0.81	0.94	1.00	0.43	0.95	0.95	1.00	0.95	0.94
53%	0.81	0.81	0.81	0.94	1.00	0.42	0.95	0.95	1.00	0.95	0.94
54%	0.82	0.82	0.82	0.94	1.00	0.42	0.95	0.95	1.00	0.95	0.94
55%	0.82	0.82	0.82	0.94	1.00	0.42	0.96	0.96	1.00	0.96	0.94
56%	0.83	0.83	0.83	0.94	1.00	0.42	0.96	0.96	1.00	0.96	0.94
57%	0.84	0.84	0.84	0.95	1.00	0.42	0.96	0.96	1.00	0.96	0.95
58%	0.84	0.84	0.84	0.95	1.00	0.42	0.96	0.96	1.00	0.96	0.95
59%	0.85	0.85	0.85	0.95	1.00	0.41	0.96	0.96	1.00	0.96	0.95
60%	0.86	0.86	0.86	0.95	1.00	0.41	0.97	0.97	1.00	0.97	0.95
61%	0.86	0.86	0.86	0.96	1.00	0.41	0.97	0.97	1.00	0.97	0.96
62%	0.87	0.87	0.87	0.96	1.00	0.41	0.97	0.97	1.00	0.97	0.96
63%	0.88	0.88	0.88	0.96	1.00	0.41	0.98	0.98	1.00	0.98	0.96
64%	0.89	0.89	0.89	0.97	1.00	0.41	0.98	0.98	1.00	0.98	0.97
65%	0.89	0.89	0.89	0.97	1.00	0.40	0.98	0.98	1.00	0.98	0.97
66%	0.90	0.90	0.90	0.98	1.00	0.40	0.99	0.99	1.00	0.99	0.98
67%	0.91	0.91	0.91	0.98	1.00	0.40	0.99	0.99	1.00	0.99	0.98
68%	0.92	0.92	0.92	0.98	1.00	0.40	0.99	0.99	1.00	0.99	0.98
69%	0.93	0.93	0.93	0.99	1.00	0.40	1.00	1.00	1.00	1.00	0.99
70%	0.94	0.94	0.94	0.99	1.00	0.40	1.00	1.00	1.00	1.00	0.99
71%	0.94	0.94	0.94	0.99	1.00	0.40	1.00	1.00	1.00	1.00	0.99
72%	0.95	0.95	0.95	1.00	1.00	0.40	1.01	1.01	1.00	1.01	1.00
73%	0.96	0.96	0.96	1.00	1.00	0.40	1.01	1.01	1.00	1.01	1.00
74%	0.97	0.97	0.97	1.00	1.00	0.40	1.01	1.01	1.00	1.01	1.00
75%	0.98	0.98	0.98	1.01	1.00	0.40	1.01	1.01	1.00	1.01	1.01
76%	0.99	0.99	0.99	1.01	1.00	0.40	1.01	1.01	1.00	1.01	1.01
77%	1.00	1.00	1.00	1.01	1.00	0.40	1.01	1.01	1.00	1.01	1.01
78%	1.01	1.01	1.01	1.01	1.00	0.40	1.01	1.01	1.00	1.01	1.01
79%	1.03	1.03	1.03	1.02	1.00	0.40	1.01	1.01	1.00	1.01	1.02
80%	1.04	1.04	1.04	1.02	1.00	0.40	1.01	1.01	1.00	1.01	1.02
81%	1.05	1.05	1.05	1.02	1.00	0.40	1.01	1.01	1.00	1.01	1.02
82%	1.06	1.06	1.06	1.02	1.00	0.40	1.01	1.01	1.00	1.01	1.02
83%	1.07	1.07	1.07	1.02	1.00	0.40	1.01	1.01	1.00	1.01	1.02
84%	1.08	1.08	1.08	1.02	1.00	0.40	1.00	1.00	1.00	1.00	1.02
85%	1.10	1.10	1.10	1.02	1.00	0.40	1.00	1.00	1.00	1.00	1.02
86%	1.11	1.11	1.11	1.02	1.00	0.41	0.99	0.99	1.00	0.99	1.02
87%	1.12	1.12	1.12	1.02	1.00	0.41	0.99	0.99	1.00	0.99	1.02
88%	1.13	1.13	1.13	1.02	1.00	0.41	0.98	0.98	1.00	0.98	1.02
89%	1.15	1.15	1.15	1.01	1.00	0.42	0.97	0.97	1.00	0.97	1.01
90%	1.16	1.16	1.16	1.01	1.00	0.42	0.97	0.97	1.00	0.97	1.01
91%	1.17	1.17	1.17	1.01	1.00	0.42	0.96	0.96	1.00	0.96	1.01
92%	1.19	1.19	1.19	1.00	1.00	0.43	0.94	0.94	1.00	0.94	1.00
93%	1.20	1.20	1.20	1.00	1.00	0.43	0.93	0.93	1.00	0.93	1.00
94%	1.22	1.22	1.22	0.99	1.00	0.44	0.92	0.92	1.00	0.92	0.99
95%	1.23	1.23	1.23	0.99	1.00	0.44	0.91	0.91	1.00	0.91	0.99
96%	1.24	1.24	1.24	0.98	1.00	0.45	0.89	0.89	1.00	0.89	0.98
97%	1.26	1.26	1.26	0.97	1.00	0.45	0.87	0.87	1.00	0.87	0.97
98%	1.28	1.28	1.28	0.97	1.00	0.46	0.86	0.86	1.00	0.86	0.97
99%	1.29	1.29	1.29	0.96	1.00	0.47	0.84	0.84	1.00	0.84	0.96
100%	1.31	1.31	1.31	0.95	1.00	0.48	0.82	0.82	1.00	0.82	0.95

Notes:

[1] Emission factor adjustments are used to adjust standard emission factors, for MAN engines without slide valves. EF = fuel corrected EF*LAF*EFA.

[2] Emission factor adjustments are used in peak day calculations, where the type of engine has been identified or can be assumed.

Table 10. OGV Emission Factor Adjustments (LAF*EFA) for MAN 2-Stroke Propulsion Engines with Slide Valves

Load	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
1%	0.36	0.36	0.36	1.90	1.00	0.07	0.58	0.58	1.00	1.36	1.90
2%	0.37	0.37	0.37	1.86	1.00	0.07	0.57	0.57	1.00	1.32	1.86
3%	0.38	0.38	0.38	1.82	1.00	0.07	0.55	0.55	1.00	1.28	1.82
4%	0.38	0.38	0.38	1.78	1.00	0.07	0.53	0.53	1.00	1.24	1.78
5%	0.39	0.39	0.39	1.74	1.00	0.07	0.52	0.52	1.00	1.20	1.74
6%	0.40	0.40	0.40	1.70	1.00	0.07	0.50	0.50	1.00	1.17	1.70
7%	0.41	0.41	0.41	1.67	1.00	0.07	0.49	0.49	1.00	1.14	1.67
8%	0.41	0.41	0.41	1.63	1.00	0.07	0.48	0.48	1.00	1.11	1.63
9%	0.42	0.42	0.42	1.60	1.00	0.07	0.46	0.46	1.00	1.08	1.60
10%	0.43	0.43	0.43	1.57	1.00	0.07	0.45	0.45	1.00	1.05	1.57
11%	0.44	0.44	0.44	1.53	1.00	0.15	0.44	0.44	1.00	1.02	1.53
12%	0.45	0.45	0.45	1.50	1.00	0.23	0.43	0.43	1.00	0.99	1.50
13%	0.45	0.45	0.45	1.47	1.00	0.31	0.42	0.42	1.00	0.97	1.47
14%	0.46	0.46	0.46	1.45	1.00	0.38	0.40	0.40	1.00	0.94	1.45
15%	0.47	0.47	0.47	1.42	1.00	0.44	0.40	0.40	1.00	0.92	1.42
16%	0.48	0.48	0.48	1.39	1.00	0.50	0.39	0.39	1.00	0.90	1.39
17%	0.49	0.49	0.49	1.37	1.00	0.56	0.38	0.38	1.00	0.88	1.37
18%	0.49	0.49	0.49	1.34	1.00	0.61	0.37	0.37	1.00	0.86	1.34
19%	0.50	0.50	0.50	1.32	1.00	0.66	0.36	0.36	1.00	0.84	1.32
20%	0.51	0.51	0.51	1.30	1.00	0.71	0.35	0.35	1.00	0.82	1.30
21%	0.52	0.52	0.52	1.28	1.00	0.75	0.35	0.35	1.00	0.81	1.28
22%	0.53	0.53	0.53	1.26	1.00	0.79	0.34	0.34	1.00	0.79	1.26
23%	0.54	0.54	0.54	1.24	1.00	0.83	0.34	0.34	1.00	0.78	1.24
24%	0.54	0.54	0.54	1.22	1.00	0.86	0.33	0.33	1.00	0.76	1.22
25%	0.55	0.55	0.55	1.20	1.00	0.89	0.32	0.32	1.00	0.75	1.20
26%	0.56	0.56	0.56	1.19	1.00	0.91	0.32	0.32	1.00	0.74	1.19
27%	0.57	0.57	0.57	1.17	1.00	0.94	0.31	0.31	1.00	0.73	1.17
28%	0.58	0.58	0.58	1.16	1.00	0.96	0.31	0.31	1.00	0.72	1.16
29%	0.59	0.59	0.59	1.14	1.00	0.98	0.31	0.31	1.00	0.71	1.14
30%	0.60	0.60	0.60	1.13	1.00	0.99	0.30	0.30	1.00	0.70	1.13
31%	0.60	0.60	0.60	1.12	1.00	1.00	0.30	0.30	1.00	0.70	1.12
32%	0.61	0.61	0.61	1.10	1.00	1.01	0.30	0.30	1.00	0.69	1.10
33%	0.62	0.62	0.62	1.09	1.00	1.03	0.30	0.30	1.00	0.69	1.09
34%	0.63	0.63	0.63	1.08	1.00	1.03	0.29	0.29	1.00	0.68	1.08
35%	0.64	0.64	0.64	1.07	1.00	1.03	0.29	0.29	1.00	0.68	1.07
36%	0.65	0.65	0.65	1.06	1.00	1.03	0.29	0.29	1.00	0.68	1.06
37%	0.66	0.66	0.66	1.05	1.00	1.03	0.29	0.29	1.00	0.67	1.05
38%	0.67	0.67	0.67	1.05	1.00	1.03	0.29	0.29	1.00	0.67	1.05
39%	0.68	0.68	0.68	1.04	1.00	1.03	0.29	0.29	1.00	0.67	1.04
40%	0.69	0.69	0.69	1.03	1.00	1.02	0.29	0.29	1.00	0.67	1.03
41%	0.70	0.70	0.70	1.03	1.00	1.01	0.29	0.29	1.00	0.67	1.03
42%	0.70	0.70	0.70	1.02	1.00	1.01	0.29	0.29	1.00	0.68	1.02
43%	0.71	0.71	0.71	1.02	1.00	1.00	0.29	0.29	1.00	0.68	1.02
44%	0.72	0.72	0.72	1.01	1.00	0.99	0.29	0.29	1.00	0.68	1.01
45%	0.73	0.73	0.73	1.01	1.00	0.97	0.30	0.30	1.00	0.69	1.01
46%	0.74	0.74	0.74	1.00	1.00	0.96	0.30	0.30	1.00	0.69	1.00
47%	0.75	0.75	0.75	1.00	1.00	0.94	0.30	0.30	1.00	0.70	1.00
48%	0.76	0.76	0.76	1.00	1.00	0.93	0.30	0.30	1.00	0.70	1.00
49%	0.77	0.77	0.77	0.99	1.00	0.91	0.31	0.31	1.00	0.71	0.99
50%	0.78	0.78	0.78	0.99	1.00	0.89	0.31	0.31	1.00	0.71	0.99
51%	0.79	0.79	0.79	0.99	1.00	0.87	0.31	0.31	1.00	0.72	0.99
52%	0.80	0.80	0.80	0.99	1.00	0.86	0.31	0.31	1.00	0.73	0.99
53%	0.81	0.81	0.81	0.99	1.00	0.83	0.32	0.32	1.00	0.74	0.99
54%	0.82	0.82	0.82	0.99	1.00	0.81	0.32	0.32	1.00	0.75	0.99
55%	0.83	0.83	0.83	0.98	1.00	0.80	0.32	0.32	1.00	0.75	0.98
56%	0.84	0.84	0.84	0.98	1.00	0.77	0.33	0.33	1.00	0.76	0.98
57%	0.85	0.85	0.85	0.98	1.00	0.75	0.33	0.33	1.00	0.77	0.98
58%	0.86	0.86	0.86	0.98	1.00	0.73	0.34	0.34	1.00	0.78	0.98
59%	0.87	0.87	0.87	0.98	1.00	0.71	0.34	0.34	1.00	0.80	0.98
60%	0.88	0.88	0.88	0.98	1.00	0.68	0.35	0.35	1.00	0.81	0.98
61%	0.89	0.89	0.89	0.98	1.00	0.67	0.35	0.35	1.00	0.82	0.98
62%	0.90	0.90	0.90	0.98	1.00	0.64	0.36	0.36	1.00	0.83	0.98
63%	0.91	0.91	0.91	0.99	1.00	0.63	0.36	0.36	1.00	0.84	0.99
64%	0.92	0.92	0.92	0.99	1.00	0.60	0.37	0.37	1.00	0.85	0.99
65%	0.93	0.93	0.93	0.99	1.00	0.58	0.37	0.37	1.00	0.87	0.99
66%	0.94	0.94	0.94	0.99	1.00	0.56	0.38	0.38	1.00	0.88	0.99
67%	0.95	0.95	0.95	0.99	1.00	0.54	0.38	0.38	1.00	0.89	0.99
68%	0.97	0.97	0.97	0.99	1.00	0.52	0.39	0.39	1.00	0.91	0.99
69%	0.98	0.98	0.98	0.99	1.00	0.50	0.40	0.40	1.00	0.92	0.99
70%	0.99	0.99	0.99	0.99	1.00	0.48	0.40	0.40	1.00	0.93	0.99
71%	1.00	1.00	1.00	0.99	1.00	0.47	0.41	0.41	1.00	0.95	0.99
72%	1.01	1.01	1.01	0.99	1.00	0.45	0.41	0.41	1.00	0.96	0.99
73%	1.02	1.02	1.02	0.99	1.00	0.44	0.42	0.42	1.00	0.98	0.99
74%	1.03	1.03	1.03	0.99	1.00	0.42	0.43	0.43	1.00	0.99	0.99
75%	1.04	1.04	1.04	0.99	1.00	0.41	0.43	0.43	1.00	1.00	0.99
76%	1.05	1.05	1.05	0.99	1.00	0.39	0.44	0.44	1.00	1.02	0.99
77%	1.06	1.06	1.06	0.99	1.00	0.38	0.44	0.44	1.00	1.03	0.99
78%	1.07	1.07	1.07	0.99	1.00	0.37	0.45	0.45	1.00	1.05	0.99
79%	1.09	1.09	1.09	0.99	1.00	0.36	0.46	0.46	1.00	1.06	0.99
80%	1.10	1.10	1.10	0.99	1.00	0.35	0.46	0.46	1.00	1.08	0.99
81%	1.11	1.11	1.11	0.99	1.00	0.34	0.47	0.47	1.00	1.09	0.99
82%	1.12	1.12	1.12	0.99	1.00	0.34	0.47	0.47	1.00	1.10	0.99
83%	1.13	1.13	1.13	0.98	1.00	0.34	0.48	0.48	1.00	1.12	0.98
84%	1.14	1.14	1.14	0.98	1.00	0.33	0.49	0.49	1.00	1.13	0.98
85%	1.15	1.15	1.15	0.98	1.00	0.33	0.49	0.49	1.00	1.15	0.98
86%	1.16	1.16	1.16	0.98	1.00	0.33	0.50	0.50	1.00	1.16	0.98

87%	1.18	1.18	1.18	0.97	1.00	0.33	0.51	0.51	1.00	1.18	0.97
88%	1.19	1.19	1.19	0.97	1.00	0.34	0.51	0.51	1.00	1.19	0.97
89%	1.20	1.20	1.20	0.96	1.00	0.34	0.52	0.52	1.00	1.20	0.96
90%	1.21	1.21	1.21	0.96	1.00	0.35	0.52	0.52	1.00	1.22	0.96
91%	1.22	1.22	1.22	0.95	1.00	0.36	0.53	0.53	1.00	1.23	0.95
92%	1.23	1.23	1.23	0.95	1.00	0.37	0.53	0.53	1.00	1.24	0.95
93%	1.25	1.25	1.25	0.94	1.00	0.38	0.54	0.54	1.00	1.25	0.94
94%	1.26	1.26	1.26	0.93	1.00	0.40	0.55	0.55	1.00	1.27	0.93
95%	1.27	1.27	1.27	0.93	1.00	0.41	0.55	0.55	1.00	1.28	0.93
96%	1.28	1.28	1.28	0.92	1.00	0.43	0.55	0.55	1.00	1.29	0.92
97%	1.29	1.29	1.29	0.91	1.00	0.45	0.56	0.56	1.00	1.30	0.91
98%	1.31	1.31	1.31	0.90	1.00	0.48	0.56	0.56	1.00	1.31	0.90
99%	1.32	1.32	1.32	0.89	1.00	0.50	0.57	0.57	1.00	1.32	0.89
100%	1.33	1.33	1.33	0.88	1.00	0.53	0.58	0.58	1.00	1.34	0.88

Notes:

[1] Emission factor adjustments are used to adjust standard emission factors, for MAN engines with slide valves. EF = fuel corrected EF*LAF*EFA.

[2] Emission factor adjustments are used in peak day calculations, where the type of engine has been identified or can be assumed.

Table 11. Annual Ocean Going Vessel Transit Call Count and Tier Distribution

Year	Vessel Type	Annual Calls - Transit Trip				Annual Calls - Percentage Weight			
		Tier 0	Tier 1	Tier 2	Tier 3	Tier 0	Tier 1	Tier 2	Tier 3
2019	OGV Barge	52	0	0	0	100%	0%	0%	0%
2019	ATB	0	2	3	0	0%	43%	57%	0%
2019	Tanker - Handysize	2	1	0	0	67%	33%	0%	0%
2019	Tanker - Chemical	2	8	1	0	20%	70%	10%	0%
2019	Tanker - Panamax	0	10	1	0	0%	90%	10%	0%
2019	Tanker - Aframax	0	0	0	0	0%	0%	0%	0%
2019	Bunkering Barge	0	0	0	147	0%	0%	0%	100%
2025	OGV Barge	69	0	0	0	100%	0%	0%	0%
2025	ATB	0	3	5	0	0%	43%	57%	0%
2025	Tanker - Handysize	2	1	0	0	67%	33%	0%	0%
2025	Tanker - Chemical	2	8	1	0	20%	70%	10%	0%
2025	Tanker - Panamax	0	18	2	0	0%	90%	10%	0%
2025	Tanker - Aframax	1	3	2	1	9%	52%	31%	8%
2025	Bunkering Barge	0	0	0	189	0%	0%	0%	100%

Table 12. Annual Ocean Going Vessel Call Activity for all Years

Year	Vessel Type	Total Vessel Activity		by Engine Tier Calls - Berthing				Slide Valves	
		Calls to Berth	Calls to Anchorage	Tier 0	Tier 1	Tier 2	Tier 3	With	Without
2019	OGV Barge	52	18	52	0	0	0	0	0
2019	ATB	5	2	0	2	3	0	0	5
2019	Tanker - Handysize	3	0	2	1	0	0	1	2
2019	Tanker - Chemical	11	2	2	8	1	0	3	8
2019	Tanker - Panamax	11	0	0	10	1	0	9	2
2019	Tanker - Aframax	0	0	0	0	0	0	0	0
2019	Bunkering Barge	147	0	0	0	0	147	0	0
2019	Total	229	22	56	21	5	147	13	17
2025	OGV Barge	69	24	69	0	0	0	0	0
2025	ATB	8	3	0	3	5	0	0	8
2025	Tanker - Handysize	3	1	2	1	0	0	1	2
2025	Tanker - Chemical	11	1	2	8	1	0	3	8
2025	Tanker - Panamax	20	2	0	18	2	0	16	4
2025	Tanker - Aframax	6	1	1	3	2	1	5	1
2025	Bunkering Barge	189	0	0	0	0	189	0	0
2025	Total	306	32	74	33	10	189	25	23

Source:

[1] 2019 call activity provided by tenant and Wharfingers. Forecasted future activity provided by the tenant

Table 13. Annual Ocean Going Vessel Hotelling and Anchorage Duration in Hours per Call

Year	Vessel Type	Peak Day - Uncontrolled ^{1,4}		Annual Average - Uncontrolled		Annual - Connected to Bonnet ⁵	
		Hotelling Time at Berth (hr/call)	Time at Anchorage (hr/day)	Hotelling Time at Berth (hr/call) ²	Time at Anchorage (hr/call) ³	Hotelling Time at Berth (hr/call)	Time at Anchorage (hr/day)
2019	OGV Barge	0	24	76	53	0	0
2019	ATB	0	0	56	69	0	0
2019	Tanker - Handysize	18	24	36	37	0	0
2019	Tanker - Chemical	0	0	48	49	0	0
2019	Tanker - Panamax	5	18	70	55	0	0
2019	Tanker - Aframax	0	0	112	42	0	0
2019	Bunkering Barge	0	0	1		0	0
2025	OGV Barge	0	20	76	53	0	0
2025	ATB	0	0	56	69	0	0
2025	Tanker - Handysize	5	18	3	37	33	0
2025	Tanker - Chemical	0	0	3	49	45	0
2025	Tanker - Panamax	0	0	3	55	67	0
2025	Tanker - Aframax	18	0	3	42	109	0
2025	Bunkering Barge	0	0	1	-	0	0

Source:

- [1] Peak hotelling and anchorage time was obtained from information provided by Tenant (Reply to Port of LA CEQA Data Request 092020.pdf)
- [2] Average hotelling time for OGV barge, ATB, Tanker - Chemical, Handysize, and Panamax Provided by P66
- [3] Average anchorage time for tankers: 2019 POLA Emissions Inventory
- [4] Time at berth for bunkering barges is assumed based Port description of bunkering activities. Bunkering barges do not spend time at anchorage.
- [5] Only hotelling at berth subject to control. Time connection to Bonnet during anchorage does not apply.

Table 14. Annual Main Engine Composite Emission Factors in grams per kilowatt hour

Year	Vessel Type	Emission Factors (g/kW-hr) - Weighted										
		PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
2019	OGV Barge	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000
2019	ATB	0.255	0.240	0.255	11.254	0.426	1.100	0.500	0.527	649	0.010	0.029
2019	Tanker - Handysize	0.255	0.240	0.255	16.667	0.389	1.400	0.600	0.632	589	0.012	0.029
2019	Tanker - Chemical	0.255	0.240	0.255	16.026	0.389	1.400	0.600	0.632	589	0.012	0.029
2019	Tanker - Panamax	0.255	0.240	0.255	15.820	0.389	1.400	0.600	0.632	589	0.012	0.029
2019	Tanker - Aframax	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000
2019	Bunkering Barge	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000
2025	OGV Barge	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000
2025	ATB	0.255	0.240	0.255	11.254	0.426	1.100	0.500	0.527	649	0.010	0.029
2025	Tanker - Handysize	0.255	0.240	0.255	16.667	0.389	1.400	0.600	0.632	589	0.012	0.029
2025	Tanker - Chemical	0.255	0.240	0.255	16.026	0.389	1.400	0.600	0.632	589	0.012	0.029
2025	Tanker - Panamax	0.255	0.240	0.255	15.820	0.389	1.400	0.600	0.632	589	0.012	0.029
2025	Tanker - Aframax	0.255	0.240	0.255	14.500	0.389	1.400	0.600	0.632	589	0.012	0.029
2025	Bunkering Barge	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000

Table 15. Annual Auxiliary Engine Composite Emission Factors in grams per kilowatt hour

Year	Vessel Type	Emission Factors (g/kW-hr) - Weighted										
		PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
2019	OGV Barge	0.255	0.240	0.255	13.820	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	ATB	0.255	0.240	0.255	8.597	0.455	1.100	0.500	0.527	656	0.010	0.029
2019	Tanker - Handysize	0.255	0.240	0.255	13.287	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	Tanker - Chemical	0.255	0.240	0.255	12.371	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	Tanker - Panamax	0.255	0.240	0.255	12.051	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	Tanker - Aframax	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000
2019	Bunkering Barge	0.198	0.182	0.000	6.803	0.007	5.283	0.000	0.721	652	0.005	0.031
2025	OGV Barge	0.255	0.240	0.255	13.820	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	ATB	0.255	0.240	0.255	8.597	0.455	1.100	0.500	0.527	656	0.010	0.029
2025	Tanker - Handysize	0.255	0.240	0.255	13.287	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	Tanker - Chemical	0.255	0.240	0.255	12.371	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	Tanker - Panamax	0.255	0.240	0.255	12.051	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	Tanker - Aframax	0.255	0.240	0.255	11.016	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	Bunkering Barge	0.198	0.182	0.000	6.803	0.007	5.283	0.000	0.721	652	0.005	0.031

Table 16. Trucks and Worker Vehicles Annual Emissions

Calendar Year	Vehicle Category	Fuel	Mileage/visit	Population	Year	Emissions (lbs)												
						NOx	PM2.5	PM2.5TW	PM2.5BW	PM10	PM10TW	PM10BW	CO	Sox	VOC	CO2	CH4	N2O
2019	LDA	GAS	50	365	1	3	0	0	0	0	0	0	44	0	1	12,387	0	0
2019	T7 POLA	DSL	30	1800	1	549	4	1	4	4	4	11	35	2	11	196,966	1	31
2025	LDA	GAS	50	365	1	2	0	0	0	0	0	30	0	0	11,378	0	0	
2025	T7 POLA	DSL	30	1800	1	183	3	1	3	3	4	9	10	2	1	194,391	0	31
2019 Total						552	4	1	4	4	5	11	79	2	12	209,353	1	31
2025 Total						185	3	1	3	3	5	10	40	2	2	205,769	0	31

Table 17. Annual Landside Sources Throughout and VOC Emissions for all Years

Year	Landside Sources	Annual Throughput (bbls)	VOC annual total (lbs)	VOC Daily total (lbs)
2019	Storage Tanks		1319	
2019	Other Processes		88	
2019	Fugitives		11443	
2019	Total	7,658,573	12851	35
2025	Storage Tanks		2364	
2025	Other Processes		158	
2025	Fugitives		20506	
2025	Total	13,724,000	23028	63

Source:

[1] Tenant provided 2019 permitted emissions for landside sources. 2025 emissions scaled based on throughput

Table 18. Harbor Craft Data

Year	Vessel Type	HC Classification	Engine Type	Engine Count per HC	HC Average MY	HC Average HP	HC Average kW	Load Factor
2019	Tanker Assist	Assist Tugboat	Propulsion	2	2007	2,004	1,495	0.31
2019	Tanker Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2019	ITB/ATB Assist	Assist Tugboat	Propulsion	2	2007	2,004	1,495	0.31
2019	ITB/ATB Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2019	OGV Barge Assist	Assist Tugboat	Propulsion	2	2007	2,004	1,495	0.31
2019	OGV Barge Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2019	Bunkering Barge Assist	Assist Tugboat	Propulsion	2	2007	2,004	1,495	0.31
2019	Bunkering Barge Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2019 Total								
2025	Tanker Assist	Assist Tugboat	Propulsion	2	2020	2,004	1,495	0.31
2025	Tanker Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2025	ITB/ATB Assist	Assist Tugboat	Propulsion	2	2020	2,004	1,495	0.31
2025	ITB/ATB Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2025	OGV Barge Assist	Assist Tugboat	Propulsion	2	2020	2,004	1,495	0.31
2025	OGV Barge Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2025	Bunkering Barge Assist	Assist Tugboat	Propulsion	2	2020	2,004	1,495	0.31
2025	Bunkering Barge Assist	Assist Tugboat	Auxiliary	2	2011	184	137	0.43
2025	Barge (for Bonnet System)	Tugboat	Propulsion - Tug	2	2010	788	588	0.68
2025	Barge (for Bonnet System)	Tugboat	Auxiliary - Tug	2	2010	62	46	0.43
2025 Total								

Notes:

[1] Tugboats are used to assist OGVs and OGV Barges during maneuvering and bunkering barges during maneuvering and transit. In general, two tugboats are needed in Zone 1 for tankers; ATBs only need one tugboat because another tug is already attached to the ATB; bunkering barges are pushed short distances in the Port and only require one tugboat. In general, one tugboat is needed in Zone 2 for all vessels; one tugboat is needed in Zones 3-6 for OGV Barge assist.

[2] Applicable engine Tier is identified based on the EPA requirements for new engines and ARB harbor craft compliance schedule and average model year. Conservatively assumed to be Tier 3 for baseline and 2025.

[3] EPA emission standards, which are reported as NOx+THC, were converted by Nox and HC assuming 95% and 5% are Nox and HC, respectively, per Carl Moyer Program guidelines.

[4] SOx emission factor is based on 15 ppm fuel sulfur content.

[5] PM2.5 is 89% of PM10, per SCAQMD 2006 Final Methodology to Calculate PM2.5 and PM 2.5 Significance Thresholds, Table 5.

Source:

[1] Tugboat engine characteristics are from the 2018 Port Emissions Inventory, Tables 4.1 and 4.2.

[2] CO2 and N2O emission factors are from IVL: Methodology for Calculating Emissions from Ships: Update on Emission Factors, 2004, also summarized in POLA 2019 Emissions Inventory, Appendix B. CH4 is 2% of HC, per IVL study.

Table 19. Peakday Ocean Going Vessel Transit Call Count and Tier Distribution

Year	Vessel Type	Peakday Calls - Transit Trip				Peakday Calls - Percentage Weight			
		Tier 0	Tier 1	Tier 2	Tier 3	Tier 0	Tier 1	Tier 2	Tier 3
2019	OGV Barge	1	0	0	0	100%	0%	0%	0%
2019	ATB	0	0	0	0	0%	0%	0%	0%
2019	Tanker - Handysize	2	1	0	0	67%	33%	0%	0%
2019	Tanker - Chemical	0	0	0	0	0%	0%	0%	0%
2019	Tanker - Panamax	0	3	0	0	0%	90%	10%	0%
2019	Tanker - Aframax	0	0	0	0	0%	0%	0%	0%
2019	Bunkering Barge	0	0	0	0	0%	0%	0%	0%
2025	OGV Barge	2	0	0	0	100%	0%	0%	0%
2025	ATB	0	0	0	0	0%	0%	0%	0%
2025	Tanker - Handysize	2	1	0	0	67%	33%	0%	0%
2025	Tanker - Chemical	0	0	0	0	0%	0%	0%	0%
2025	Tanker - Panamax	0	0	0	0	0%	0%	0%	0%
2025	Tanker - Aframax	0	1	1	0	9%	52%	31%	8%
2025	Bunkering Barge	0	0	0	0	0%	0%	0%	0%

Table 20. Peakday Ocean Going Vessel Call Activity for all Years

Year	Vessel Type	Uncontrolled Hotelling Time	Controlled Hotelling Time	Anchorage Time	Transit Time	Notes
2019	OGV Barge			24		One OGV barge at anchorage
2019	ATB					
2019	Tanker - Handysize	18		24	5	Two handysizes: one at berth and leaving, one at anchorage for 24 hrs
2019	Tanker - Chemical					
2019	Tanker - Panamax	5		18	1	One panamax going from anchorage to berth
2019	Tanker - Aframax					
2019	Bunkering Barge					
	Total	23		66	6	
2025	OGV Barge			20	4	One OGV barge at anchorage, leaving/arriving
2025	ATB					
2025	Tanker - Handysize	5		18	1	One handysize moving from anchor to berth for 5 hours
2025	Tanker - Chemical					
2025	Tanker - Panamax					One aframax at berth for 18 hr and leaving
2025	Tanker - Aframax	18			5	
2025	Bunkering Barge					
	Total	23		38	10	

Table 21. Peakday Ocean Going Vessel Hotelling and Anchorage Duration in Hours per Call

Year	Vessel Type	Peak Day ^{1,4} - Aux Engines		Annual Average		Peak Day - Boiler/Pumps ^{1,4}	
		Hotelling Time at Berth (hr/call)	Time at Anchorage (hr/day)	Hotelling Time at Berth (hr/call) ²	Time at Anchorage (hr/call) ³	Hotelling Time at Berth (hr/call)	Time at Anchorage (hr/day)
2019	OGV Barge	0	24	76	53	0	24
2019	ATB	0	0	56	69	0	0
2019	Tanker - Handysize	18	24	36	37	18	24
2019	Tanker - Chemical	0	0	48	49	0	0
2019	Tanker - Panamax	5	18	70	55	5	18
2019	Tanker - Aframax	0	0	112	42	0	0
2019	Bunkering Barge	0	0	1		0	0
2025	OGV Barge	0	20	76	53	0	20
2025	ATB	0	0	56	69	0	0
2025	Tanker - Handysize	5	18	36	37	5	18
2025	Tanker - Chemical	0	0	48	49	0	0
2025	Tanker - Panamax	0	0	70	55	0	0
2025	Tanker - Aframax	18	0	112	42	18	0
2025	Bunkering Barge	0	0	1	-	0	0

Source:

[1] Peak hoteling and anchorage time was obtained from information provided by Tenant (Reply to Port of LA CEQA Data Request 092020.pdf)

[2] Average hoteling time for OGV barge, ATB, Tanker - Chemical, Handsize, and Panamax Provided by P66

[3] Average anchorage time for tankers: 2019 POLA Emissions Inventory

[4] Time at berth for bunkering barges is asumed based Port description of bunkering activities. Bunkering barges do not spend time at anchorage.

Table 22. Peakday Main Engine Composite Emission Factors in grams per kilowatt hour

Year	Vessel Type	Emission Factors (g/kW-hr) - Weighted										
		PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
2019	OGV Barge	0	0	0	0	0	0	0	0	0	0	0
2019	ATB	0	0	0	0	0	0	0	0	0	0	0
2019	Tanker - Handysize	0.255	0.240	0.255	16.667	0.389	1.400	0.600	0.632	589	0.012	0.029
2019	Tanker - Chemical	0	0	0	0	0	0	0	0	0	0	0
2019	Tanker - Panamax	0.255	0.240	0.255	15.820	0.389	1.400	0.600	0.632	589	0.012	0.029
2019	Tanker - Aframax	0	0	0	0	0	0	0	0	0	0	0
2019	Bunkering Barge	0	0	0	0	0	0	0	0	0	0	0
2025	OGV Barge	0	0	0	0	0	0	0	0	0	0	0
2025	ATB	0	0	0	0	0	0	0	0	0	0	0
2025	Tanker - Handysize	0.255	0.240	0.255	16.667	0.389	1.400	0.600	0.632	589	0.012	0.029
2025	Tanker - Chemical	0	0	0	0	0	0	0	0	0	0	0
2025	Tanker - Panamax	0	0	0	0	0	0	0	0	0	0	0
2025	Tanker - Aframax	0.255	0.240	0.255	14.500	0.389	1.400	0.600	0.632	589	0.012	0.029
2025	Bunkering Barge	0	0	0	0	0	0	0	0	0	0	0

Table 23. Peakday Auxiliary Engine Composite Emission Factors in grams per kilowatt hour

Year	Vessel Type	Emission Factors (g/kW-hr) - Weighted										
		PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	CH4	N2O
2019	OGV Barge	0.255	0.240	0.255	13.820	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	ATB	0	0	0	0	0	0	0	0	0	0	0
2019	Tanker - Handysize	0.255	0.240	0.255	13.287	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	Tanker - Chemical	0	0	0	0	0	0	0	0	0	0	0
2019	Tanker - Panamax	0.255	0.240	0.255	12.051	0.455	1.400	0.600	0.632	686	0.012	0.029
2019	Tanker - Aframax	0	0	0	0	0	0	0	0	0	0	0
2019	Bunkering Barge	0.198	0.182	0	6.803	0.007	5.283	0	0.721	652	0.005	0.031
2025	OGV Barge	0.255	0.240	0.255	13.820	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	ATB	0	0	0	0	0	0	0	0	0	0	0
2025	Tanker - Handysize	0.255	0.240	0.255	13.287	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	Tanker - Chemical	0	0	0	0	0	0	0	0	0	0	0
2025	Tanker - Panamax	0	0	0	0	0	0	0	0	0	0	0
2025	Tanker - Aframax	0.255	0.240	0.255	11.016	0.455	1.400	0.600	0.632	686	0.012	0.029
2025	Bunkering Barge	0.198	0.182	0	6.803	0.007	5.283	0	0.721	652	0.005	0.031

Table 24. Trucks and Worker Vehicles Peakday Emissions

Calendar Year	Vehicle Category	Fuel	Mileage/visit	Population	Days	Emissions (lbs)												
						NOx	PM2.5	PM2.5TW	PM2.5BW	PM10	PM10TW	PM10BW	CO	Sox	VOC	CO2	CH4	N2O
2019	LDA	GAS	50	1	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	34	0.00	0.00
2019	T7 POLA	DSL	30	5	1	1.50	0.01	0.00	0.01	0.01	0.01	0.03	0.09	0.01	0.03	540	0.00	0.08
2025	LDA	GAS	50	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	31	0.00	0.00
2025	T7 POLA	DSL	30	5	1	0.50	0.01	0.00	0.01	0.01	0.01	0.03	0.03	0.01	0.00	533	0.00	0.08
2019 Total						1.51	0.01	0.00	0.01	0.01	0.01	0.03	0.22	0.01	0.03	574	0.00	0.09
2025 Total						0.51	0.01	0.00	0.01	0.01	0.01	0.03	0.11	0.01	0.00	564	0.00	0.08