DRAFT

BERTHS 195-200A, WWL VEHICLE SERVICES AMERICAS, INC. PROJECT

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

THE PORT OF LOS ANGELES

Prepared For:
The Los Angeles Harbor Department
Environmental Management Division
425 S. Palos Verdes St.
San Pedro, CA 90731

May 2012

Berths 195-200A,
WWL Vehicle Services Americas, Inc. Project

Draft Initial Study/Mitigated Negative Declaration

Prepared for:

Los Angeles City Harbor Department
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1.0 INTRODUCTION

The City of Los Angeles Harbor Department (LAHD) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to address the environmental effects of the Berths 195-200A WWL (WWL) Vehicle Services Americas, Inc. Project (hereafter "proposed project"). LAHD is the lead agency under the California Environmental Quality Act (CEQA).

The existing WWL facility is an operating vehicle-processing terminal that accepts new automobiles shipped from overseas, and undertakes necessary final preparations to those automobiles such that they can be tracked, distributed, and sold in the U.S. The operation currently processes approximately 150,233 vehicles a year. Based on 2010 data, and projections for market recovery, the facility expects to process 220,000 vehicles a year in the coming years dependent on the rate of overall market recovery. The proposed project includes maintenance and improvements to the existing wharf infrastructure, the addition of rail loading tracks, a lease extension up to 15 years, and adjustments to the facility's leased area in response to the Berth 200 Rail Yard Project that was previously assessed and approved in the Berths 136-147 [TraPac] Container Terminal Project in 2007 (LAHD 2007a). The completion of the project would improve and update the infrastructure of the facility and minimize operational inefficiencies. The projected capacity of the facility of 220,000 vehicles per year would be accommodated and processed with or without the proposed project. For the purposes of this analysis, the increase in throughput is conservatively analyzed as part of the project, as it would occur under post-project conditions subsequent to the lease renewal and facility improvements.

1.1 CEQA PROCESS

This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 *et seq*. and the State CEQA Guidelines, California Code of Regulations (CCR) Section 15000 *et seq*, and the City of Los Angeles CEQA Guidelines (City of Los Angeles 2002). One of the main objectives of CEQA is to disclose to the public and decision-makers the potential environmental effects of proposed activities. CEQA requires that the potential environmental effects of a project be evaluated prior to implementation. This IS/MND includes a discussion on the proposed project's effects on the existing environment, including the identification of avoidance, minimization, and mitigation measures.

Under CEQA, the Lead Agency is the public agency with primary responsibility over approval of a proposed project. Pursuant to Section 15367, the CEQA Lead Agency for the proposed project is the LAHD. LAHD has directed the preparation of an environmental document that complies with CEQA.

LAHD will consider the information in this document when determining whether to approve the proposed use of LAHD property.

The preparation of initial studies is guided by Section 15063 of the State CEQA Guidelines; whereas Sections 15070–15075 guide the process for the preparation of a Negative or Mitigated Negative Declaration. Where appropriate and supportive to an understanding of the issues, reference will be made to the statute, the State CEQA Guidelines, or appropriate case law.

This IS/MND meets CEQA content requirements by including a project description; a description of the environmental setting, potential environmental impacts, and mitigation measures for any significant effects; discussion of consistency with plans and policies; and names of the document preparers.

In accordance with the CEQA statutes and Guidelines, the IS/MND is being circulated for a period of 30 days for public review and comment. The public review period for this IS/MND is scheduled to begin on May 21, 2012, and will conclude on June 20, 2012. The IS/MND has specifically been distributed to interested or involved public agencies, organizations, and private individuals for review. The IS/MND was made available for general public review at the following locations:

- Los Angeles Harbor Department Environmental Management Division at 222 West 6th Street, San Pedro, CA 90731;
- Los Angeles City Library, San Pedro Branch at 931 S. Gaffey Street, San Pedro, CA 90731; and
- Los Angeles City Library, Wilmington Branch at 1300 North Avalon, Wilmington, CA 90744.

In addition, the IS/MND is available online at http://www.portoflosangeles.org.

Approximately 250 notices were sent to community residents, stakeholder, and local agencies.

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 project will have a significant effect on the environment and that the IS/MND reflects the Lead Agency's independent judgment and analysis.” When adopting an IS/MND, a Mitigation Monitoring and Reporting Program (MMRP) must also be adopted to ensure implementation of mitigation required as a condition of approval.

In reviewing the IS/MND, 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, and ways in which the potential significant effects of the project are proposed to be avoided

or mitigated. Comments on the IS/MND should be submitted in writing prior to the end of the 30-day public review period and must be postmarked by June 20, 2012. Please submit written comments to:

Chris Cannon, Director
City of Los Angeles Harbor Department
Environmental Management Division
425 S. Palos Verdes St.
San Pedro, CA 90731

Written comments may also be sent via email to ceqacomments@portla.org. Comments sent via email should include the project title in the subject line and a valid mailing address in the email.

For additional information, please contact the Port of Los Angeles Environmental Management Division at (310) 732-3675.

1.2 DOCUMENT FORMAT

This IS/MND contains nine sections.

Section 1. **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 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 a given 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 appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level.

Section 5. Mitigation Monitoring and Reporting Program. This section identifies the required mitigation measures as well as the timing of those measures and the responsible party.

Section 6. Proposed Finding. This section presents the proposed finding regarding environmental impacts.

Section 7. Preparers and Contributors. This section provides a list of key personnel involved in the preparation of the IS/MND.

Section 8. Acronyms and Abbreviations. This section provides a list of acronyms and abbreviations used throughout the IS/MND.

Section 9. References. This section provides a list of reference materials used during the preparation of the IS/MND.

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

Potentially Significant Impact. This category is only applicable if 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. Given that this is an IS/MND, no impacts were identified that fall into this category.

Less than Significant Impact 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 a proposed project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the Lead Agency, which show that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the proposed project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2.0 PROJECT BACKGROUND

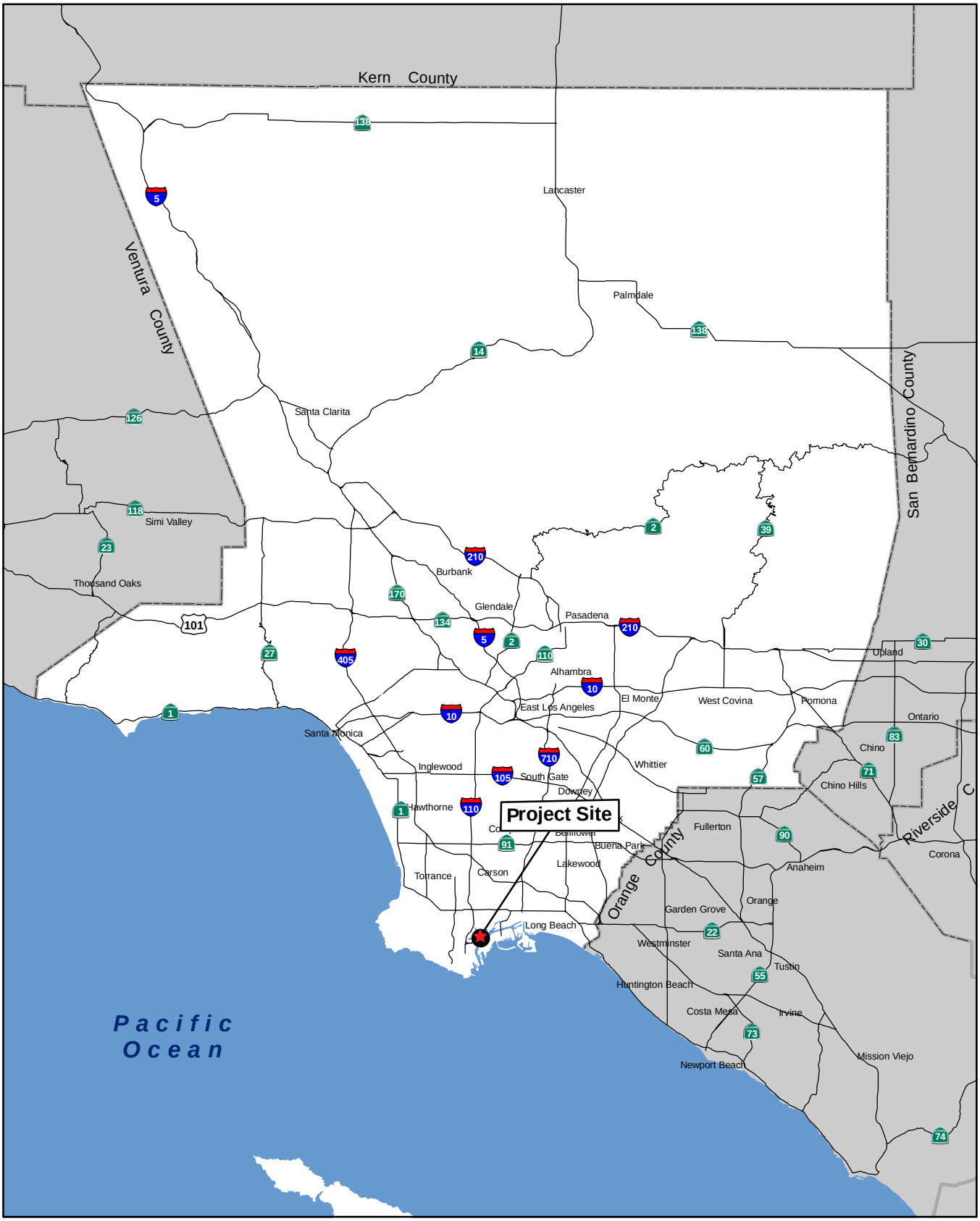
This IS/MND is being prepared to evaluate the potential environmental impacts that may result from the proposed project. Since 1969, WWL or its predecessors have leased the property from LAHD. Customers include Nissan, Nissan Diesel, and Infiniti. Implementation of the proposed project would allow for the continued use of the property for processing and operations of vehicle cargo terminal. This chapter discusses the location, description, and objectives of the proposed project.

2.1 PROJECT LOCATION

2.1.1 Regional Setting

The Port of Los Angeles (Port or POLA) is located in San Pedro Bay, approximately 20 miles south of downtown Los Angeles, encompassing 7,500 acres of land and water along 43 miles of waterfront (Figure 2-1). The Port features 25 passenger and cargo terminals, including automobile, breakbulk, container, dry and liquid bulk; 270 berths and 3,800 recreational boat slips; and warehouse facilities that handle billions of dollars worth of cargo each year.

Amidst the backdrop of international trade and shipping, POLA includes the World Cruise Center, Ports O' Call Village, Vincent Thomas Bridge, Fanfare Fountains and Water Features, Angels Gate Lighthouse, Waterfront Red Car Line, and 22nd Street Park. The site is within the Port of Los Angeles Community Plan area in the City of Los Angeles, which is adjacent to the communities of San Pedro and Wilmington, and approximately 20 miles south of downtown Los Angeles (see Figure 2-1). Access to and from the project site is provided by a network of freeways and arterial routes. The freeway network consists of the Harbor Freeway (I-110), the Long Beach Freeway (I-710), the San Diego Freeway (I-405), and the Terminal Island Freeway (SR-103/SR-47).



Source: California Geospatial Information Library (2003-5)

N

0 3 6 12 18 24 Miles

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Figure 2 - 1
Regional Location Map

2.1.2 Project Setting

Existing WWL Facility

The existing WWL facility is composed of Berths 195-200A. However, the proposed project would involve construction at Berths 196-199 within LAHD property (see Figure 2-2). The project site is bounded by Alameda Street to the northwest, South Avalon Boulevard to the west, East Water Street to the south, and Berth 200B to the east. The project site is also situated north of Berths 187-191 (Vopak) and the East Basin Channel.

The project site is identified as Los Angeles County Assessor's Parcel Number (APN) 7440-010-910 and is zoned for heavy industrial uses ([Q] M3-1) (see Figure 2-3 and Figure 2-4). The classification "[Q]"refers to a zone change. A "[Q]" classification is a permanent zone change with no time limit for construction of projects on the property (City of Los Angeles 2005). The ([Q] M3-1) designation permits all M-2 ("light industrial") uses, including the cargo container storage yard, when located in whole or in part within the boundaries of the Port of Los Angeles Community Plan area.

In addition, the project site is in Area 5: Wilmington District, per the Port Master Plan (Port of Los Angeles 1980). The Wilmington District surrounds the northerly terminus of the Main Channel and is composed of Berths 133-200, and an area of land known as the Consolidated Slip, which is northeast of Berth 200. Physically, the Wilmington District occupies a wedge, bounded east and west, respectively, by the East and West Basins, and on the south by the Main Turning Basin. Slips 1 and 5 jut into the wedge forming two peninsulas. One peninsula forms the westernmost portion and the other forms the central portion. Wilmington District is the oldest part of the harbor and is approximately 622 acres. The project site is designated by the Port Master Plan as "General Cargo" and "Other." General Cargo areas are those that include container, unit, break-bulk, neo-bulk, and passenger facilities. Other uses include some vacant land, proposed acquisitions; rights-of-way for rail, utilities, and roads; and areas not designated for a specific short-term use. The Port Master Plan called for "backland modification and restoration" for Berths 196-199, which included the demolition of the passenger-access facility and the removal of various concrete walks and islands to modify the backland for neo-bulk cargo handling and storage.

According to the Port of Los Angeles 2009 Shipping Handbook, the existing WWL facility is used for vehicle processing and logistics services for such companies as Nissan, Nissan Diesel, and Infiniti. WWL is a supply chain management services company of ocean transportation, inland distribution, and terminal handling, and is the terminal operator. WWL's existing uses on the terminal involve receiving, storing, servicing, distributing, and assembling vehicles for import and export. The facility loads and unloads vehicles using roll on roll off, or 'roro' operations. Physical improvements on the project site include offices, warehouses, repair shops, vehicle accessories assembly and installations areas, and a car wash. A 10,000-gallon underground storage tank is located at the northeastern portion of the project site for fueling vehicles.

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Source:

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Figure 2 - 2
Existing WWL Facility

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Basemap Source: ESRI I3 Imagery Prime World 2D

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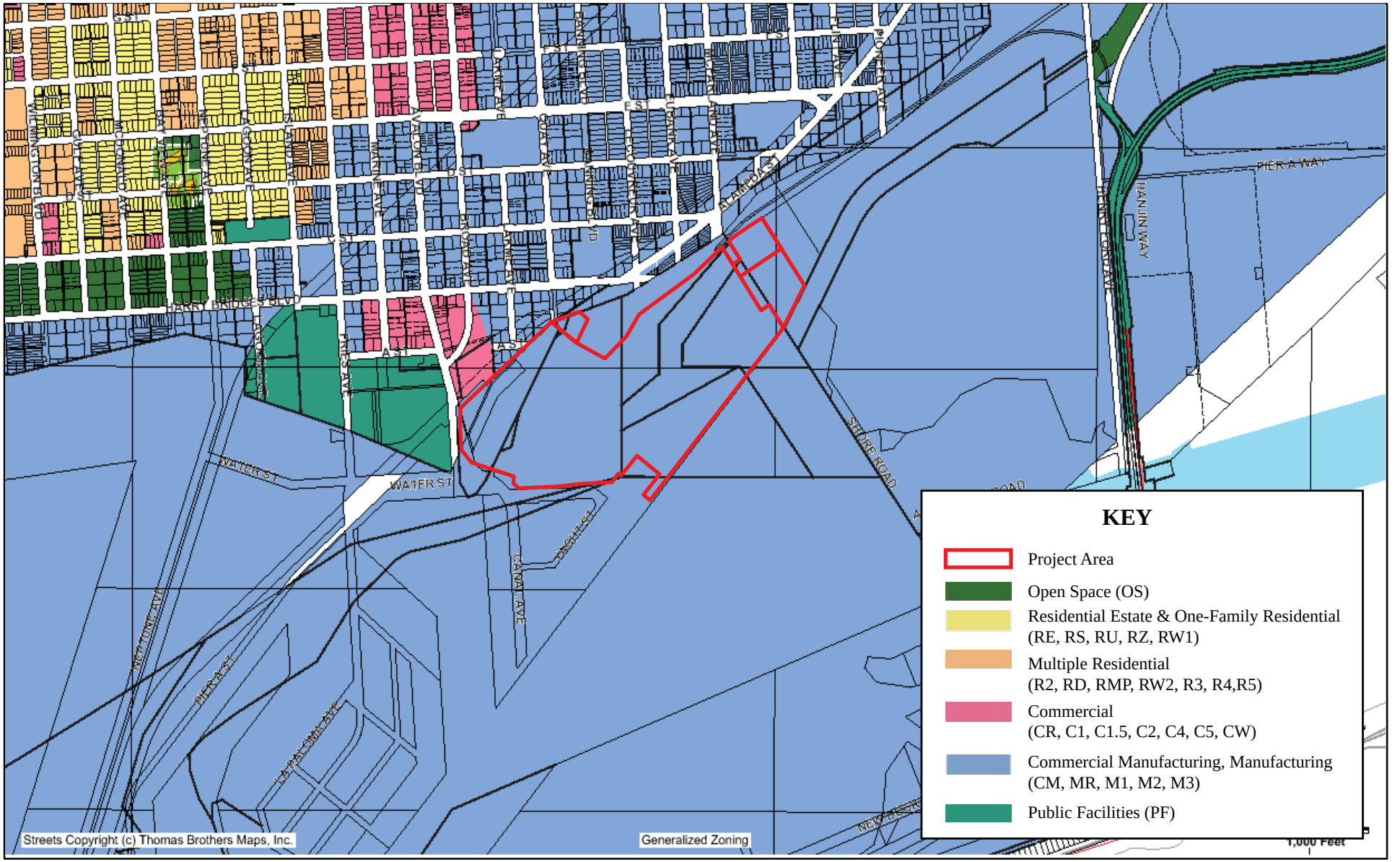
0 0.25 0.5 0.75 1 Miles

Figure 2 - 3
Land Use



Basemap Source: City of Los Angeles. "Zimas version 3.0.910." 2011

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No Scale

Figure 2-4

Zoning

One historical hazardous site overlaps the project site boundary. The former Koppers facility, which is on the northwest corner of the project site, is located at the northeastern corner of the intersection of South Avalon Boulevard and East Water Street, south of Avalon Boulevard, northwest of Berths 196-199, and northeast of Berths 185-187. The physical address is 210 South Avalon Boulevard, Wilmington, CA 90744. The former Koppers facility is a hazardous waste site and renders the project site a "Border Zone Property." According to Section 25117.4 of the California Health and Safety Code, a "Border Zone Property" pursuant to Section 25229, is any property within 2,000 feet of a significant disposal of hazardous waste, and the wastes so located are a significant existing or potential hazard to present or future public health or safety on the land in question. In a 2007 Preliminary Environmental Review prepared by Tetra Tech in support of the Proposed Pacific Energy Pipeline Project, the former Koppers Facility was occupied by American Lumber and Treating, a wood-treating facility, from the 1920s through approximately 1954, when Koppers took over operations of the site. Unknown quantities of hazardous wastes containing arsenic, selenium, antimony, zinc, cadmium, copper, chromium, fungicides, halogenated compounds, and, dioxins were reported to have been disposed of in onsite wastewater ponds and other areas. In 1972, Koppers ceased operations and demolished their structures before turning over control of the site to POLA. According to the 2007 Preliminary Environmental Review prepared by Tetra Tech, the former Koppers Facility was added to the State Superfund List by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in 1984. The site is designated by the U.S. Environmental Protection Agency (USEPA) as EPA ID# CAD008267072. According to the 2007, Tetra Tech review, the full lateral and vertical extent of soil and groundwater contamination has not been delineated (Tetra Tech 2007).

In 2010, the peak number of workers at WWL was 200. Currently, there are four work shifts: Monday through Thursday (daytime) from 5:00 a.m. to 4:00 p.m.; Monday through Thursday (evening) from 4:30 p.m. to 1:00 a.m.; Thursday through Sunday (daytime) from 5:00 a.m. to 4:00 p.m; and Thursday through Sunday (evening) from 4:30 p.m. to 1:00 a.m.

The current terminal features five berths, with a storage capacity of up to 8,000 vehicles and a rail yard for loading and unloading of vehicles (Port of Los Angeles 2011a). On average, approximately eight cargo vessel calls per month import or export vehicles at the WWL facility. The vehicles are subsequently transported on approximately 800 railcars and about 417 carrier trucks per month, which equates to 5,008 trucks per year. In 2010, this facility handled approximately 150,233 vehicles. Cargo vessels that call are currently not loaded to capacity and any future increase in throughput at the facility would be achieved by increasing the number of vehicles to vessels. An increase in the number of vessels or calls would not change as a result of the project. The facility loads and unloads vehicles using roll on roll off, or 'roro' operations; therefore, cargo handling equipment is used infrequently[1].

[1] Cargo handling equipment is limited to 3 diesel forklifts (brake horsepower rating no greater than 175) operated from 10 to 190 hours per year.

Six Pacific Harbor Line railroad-loading tracks are located at the southern portion of the project site along East Water Street. The Pacific Harbor Line, a short-line rail operator, provides rail transportation, maintenance, and dispatching services to the Ports of Long Beach and Los Angeles, and manages on-dock rail yards at the Port of Los Angeles. The PHL delivers to four rail yards within the POLA: Intermodal Container Transfer Facility (ICTF), Mead Yard, Manual Yard, and the BNSF Watson Yard. Train operations currently consist of two pickups of full railcars and two drop-offs of empty railcars on the peak day. Empty railcars are stored at Berth 200 and delivered to WWL as needed. On peak days, there are 39 railcars on the first pickup and between 5 and 21 railcars on the second pickup.

Surrounding Land Uses

The overall character of the surrounding area is primarily manufacturing. The properties to the north and west of the project site are zoned Light Industrial (M-2) according to the Los Angeles City Zoning Ordinance. All uses except some heavy industries, which require a conditional use permit (CUP), are permitted. However, residential uses and schools are prohibited. Properties zoned [Q]C2 ("Commercial") are found in the vicinity of the project site. PF ("Public Facilities") zones, also found west of the project site, provide regulations for the use and development of publicly owned land in order to implement the City of Los Angeles' adopted General Plan, including the circulation and service systems designations in the City's adopted district and community plans, and other relevant General Plan elements, including the circulation, public recreation and service systems elements (see Figure 2-3 and Figure 2-4).

The nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. These include properties zoned One-Family (R-1) and Restricted Density Multiple Dwelling (RD). The permitted uses include one- and two-family dwellings, multiple dwellings, apartments, and park playgrounds or community centers (City of Los Angeles 2011). However, liveaboard boat tenants (someone who makes a boat their primary residence) were identified to be located approximately 425 feet east of the proposed project, across the East Basin.

The project site is in the general vicinity of three other known recorded hazardous material sites. The first site is the former Exxon Mobil oil production area, which is owned by LAHD and leased to Exxon Mobil for oil production activities in the late 1940s, which ceased in the early 1990s. The property is located south of Harry Bridges Boulevard, adjacent to the Pacific Harbor Line railroad track in Wilmington, California. The WWL property is located directly south of the former Exxon Mobil oil production area. The western and the eastern portions of this property are currently used as a temporary parking lot for WWL; the remaining portion is vacant. A Phase I/Limited Phase II Environmental Site Assessment completed in April 2011 determined that arsenic, cadmium, chromium, and lead in the soil are contaminants of concern (CH2MHill 2011a).

The second site is the CP Transfer Yard. The CP Transfer Yard site is primarily an undeveloped parcel of land bounded by Harry Bridges Boulevard to the north, the WWL property to the southwest and east-

southeast, and by the railroad track and undeveloped land to the west. The CP Transfer Yard site is also within the former Exxon Mobil oil production area (CH2MHill 2011b).

The third site is the adjacent International Longshore and Warehouse Union (ILWU) Local 13 Dispatch Hall Project northeast of the project site. A Phase I and Phase II Environmental Site Assessment was conducted in 2008. The environmental site assessments determined that the project site is recorded by California Department of Conservation, Division of Oil, Gas, and Geothermal Resources as having five oil wells. All five wells were abandoned. The ILWU Local 13 Dispatch Hall Project is located in an area identified as a potential methane hazard site due to its proximity to methane gas sources. The environmental site assessments determined detectable concentrations of petroleum hydrocarbon (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); and other volatile organic compounds (VOCs) (The Source Group 2008).

2.2 PROJECT BACKGROUND AND OBJECTIVES

2.2.1 PROJECT BACKGROUND

Since 1969, WWL or its predecessors have leased the property from LAHD. Customers include Nissan, Nissan Diesel, and Infiniti. The WWL facility was originally constructed in the 1950s, and over time, buildings and features have been added and removed from the facility. Despite these alterations to the facility, it continues to function as originally built. Historic aerial photographs indicated that the current configuration of the WWL facility was in place by approximately 1980. The portion of the wharf structure within the project site was built between 1950 and 1960. WWL's lease is currently in holdover status.

An application for a successor permit has been requested under ADP No. 110315-033. The term agreement would be a 10-year contract with one 5-year option to renew. The lease is expected to be renewed in early 2013.

2.2.2 Project Goal

The primary goal of the proposed project is to accommodate current and projected needs of WWL, while accommodating necessary boundary changes resulting from the adjacent Berth 200 Rail Yard Project. Figure 2-2 displays the proposed project.

2.2.3 Project Objectives

Key objectives of the proposed project include the following:

- Lease renewal
- Adjustment of leased boundary area

- Continued operations by WWL for processing and operations of vehicle cargo operations with revised lease boundaries
- Wharf maintenance and rehabilitation at Berths 196-199
- Provision of additional railroad loading tracks

2.3 PROJECT DESCRIPTION

The proposed project includes maintenance and improvements to the existing wharf infrastructure, the addition of rail loading tracks, a lease extension up to 15 years, and adjustments to the facility's leased area. The specific elements of the proposed project are described in more detail below.

2.3.1 Project Elements

Lease Renewal

An application for a successor permit has been requested by WWL under ADP No. 110315-033. The term agreement would be a 10-year contract with one 5-year option to renew. The lease is expected to be renewed in early 2013.

Adjustment of Leased Boundary Area

The existing WWL facility is approximately 88 acres. The proposed project includes an adjustment in the existing leased boundary area. The Berth 200 Rail Yard Project would result in relocation of perimeter fences in two locations to allow adequate clearance for a proposed roadway on the northwestern portion of the project boundary that would connect to Avalon Boulevard. Additionally, the usable portion of Parcel 1 has been reduced with the recent expansion of the LAHD Port Police facility. As a result, Parcel 1 acreage would be reduced by 1.43 acres, resulting in a total of 78.5 acres (see Figure 2-5). As a result of the proposed roadway relocation, Parcel 2 would be reduced by 0.81 acre, resulting in a total of 2.39 acres. Parcel 3 would remain unchanged at 4.80 acres. Parcel 4 (1.07 acres) would be added to the leased boundary, and would be reduced by 0.29 acre because of the Berth 200 Rail Yard Project, which would result in 0.78 acre. Parcel 5 (3.89 acres) would be added to the existing leased boundary. Because of unusable area and encroachment resulting from the Berth 200 Rail Yard Project, Parcel 5 would be reduced by 0.69 acre for a total of 3.2 acres. In addition, Parcel 6 would also be added to the existing leased boundary for employee parking, which is a total of 1.31 acres. The new WWL lease area would be approximately 91 acres for the remaining term of the lease.

Continued Operations by WWL

The current terminal features five berths, with a storage capacity of up to 8,000 vehicles and a rail yard for loading and unloading of vehicles (Port of Los Angeles 2011a). In 2010, this facility handled

approximately 150,233 vehicles. WWL projects that the facility will process approximately 220,000 vehicles per year. The proposed project itself would not result in an increase in berth throughput capacity as the number of berths and loading/unloading unloading capabilities would remain the same. For the purposes of this analysis, the increase in throughput is conservatively analyzed as part of the project, as it would occur under post-project conditions subsequent to the lease renewal and facility improvements.

Wharf Rehabilitation at Four Berths: Berths 196-197, Berth 198, and Berth 199

Implementation of the proposed project would result in improvements at four berths: Berths 196-197, Berth 198, and Berth 199. The WWL facility was originally constructed in the 1950s and 1960s, and over time, buildings and features have been added and removed from the facility. Despite these alterations to the facility, it continues to function as originally built. Historic aerial photographs indicated that the current configuration of the WWL facility was in place by approximately 1980. The portion of the wharf structure within the project site was built between 1950 and 1960. In general, construction would involve removal and replacement of timber pile, removal of asphalt concrete, and construction of new asphalt concrete pavement.

The proposed project would also realize necessary maintenance and rehabilitation of Berths 196-199 as listed in Table 2-1. The proposed project would involve joist repair. Timber joists are structural elements that transfer the load from the wharf deck to the pile caps. Typical timber joist dimensions are 6 inches by 12 inches, 8 inches by 16 inches, 10 inches by 16 inches, or 12 inches by 16 inches, and joists vary in length from 11 feet to 35 feet. The joists are located just below the asphalt concrete and timber decking.

The proposed project would also consist of repairs to the concrete wharf. This involves repairing cracks, spalls, and any broken component of the concrete portions of the wharf.

In addition, the proposed project would involve timber pile repair. Repair of timber piles, which are typically 14 inches in diameter, would consist of replacing damaged timber wharf components in-kind or repairing them. Damaged timber wharf components may include pile caps, beams, bracing, blocking, decking, bull rails, or any other miscellaneous components. Diving inspection may also be needed for any work in the water, such as timber/concrete pile replacement, timber/concrete pile repairs, and timber pile wrap replacement/repair.

Based on LAHD engineering inspections, approximately 84 timber piles would involve either in-water removal or replacement, and approximately 107 joists would be repaired or replaced as part of the project. In addition, concrete wharf repairs would be performed. The maintenance and rehabilitation would also involve the removal and construction of 120,230 square feet (at 3 inches in thickness) of asphalt concrete along the berths. Additional dive inspections are proposed to ensure the condition of existing and proposed wharf support components. These rehabilitation elements are necessary to ensure improved

structural strength and continued support capacity of the wharf to match adjacent berth conditions and maintain safe operations.

Additional Railroad Loading Tracks

Implementation of the proposed project would result in the construction of two additional railroad-loading tracks on the southern portion of the project site. The construction of the new tracks would increase the maximum number of railcars per train from 39 to 50. To account for increased throughout there would not be an increase in the number of rail trips per day, however there would be an increase in the frequency of peak days.

The proposed project elements are summarized the in Table 2-1.

Table 2-1
Summary of Project Elements

Project Element	Description
Proposed Maintenance and Rehabilitation of Berths 196-197	• In-water removal or replacement of approximately 49 timber piles • Repair or replace of approximately 63 joists • Repair of the concrete wharf • Timber repair • Removal and replacement of approximately 79,470 square feet of asphalt concrete[1] • Provision of diving inspection services for any work in the water that involves timber/concrete pile replacement, timber/concrete pile repairs, and timber pile wrap replacement/repair
Proposed Maintenance and Rehabilitation of Berth 198	• In-water removal or replacement of approximately 27 timber piles • Repair or replace of approximately 44 joists • Removal and replacement of approximately 1,650 square feet of asphalt concrete[1] • Provision of diving inspection services for any work in the water that involves timber/concrete pile replacement, timber/concrete pile repairs, and timber pile wrap replacement/repair
Proposed Maintenance and Rehabilitation of Berth 199	• In-water removal or replacement of approximately 8 timber piles • Concrete wharf repair • Removal and replacement of approximately 39,110 square feet of asphalt concrete[1] • Provision of diving inspection services for any work in the water that involves timber/concrete pile replacement, timber/concrete pile repairs, and timber pile wrap replacement/repair
Proposed Lease Area Reduction of Parcel 1,and Parcel 2	• The Berth 200 Rail Yard Project would result in relocation of perimeter fences in two locations to allow adequate clearance for a proposed roadway on the northwestern portion of the project boundary that would connect to Avalon Boulevard. Additionally, the usable portion of Parcel 1 has been reduced with the recent expansion of the LAHD Port Police facility. As a result, Parcel 1 acreage would be reduced by 1.43 acre; and Parcel 2 would be reduced by 0.81 acre.
Proposed Lease Area Increase – Parcel 4 and Parcel 5	• 1.07 acres (Parcel 4) would be added to the leasehold. Because of encroachment by the Berth 200 Rail Yard Project, Parcel 5 would be reduced by 0.29 acre for a total of 0.78 acres • 3.89 acres (Parcel 5) would be added to the leasehold. Because of unusable area and encroachment, Parcel 5 would be reduced by 0.69 acre for a total of 3.2 acres
Addition of Parcel 6 for Employee Parking	• Parcel 6 would also be added to the existing leased boundary for employee parking, which is a total of 1.31 acres.
Proposed Construction of Additional Rail Tracks	• Construction of two additional railroad-loading tracks on the southern portion of the project site • Anticipated to disturb soil approximately 2 feet below ground surface.

[1] Asphalt concrete removal quantities are provided in square feet because that is the unit of measurement used for assessing impacts and payment during construction. Construction of new asphalt concrete placement is provided in square feet. However, new asphalt concrete is purchased in tons. A conversion formula for cubic feet to tons is available.

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Source:

Not to Scale

AECOM

Figure 2-5
Proposed Project

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2.4 CONSTRUCTION AND OPERATION

2.4.1 Construction

Construction would occur along Berths 196-199 and would involve removal of asphalt concrete, removal and replacement of timber pile, timber repair, joist repair, concrete wharf repair, and construction of new asphalt concrete pavement. Wharf construction would involve the use of one tugboat within East Marina. The primary use of the tugboat would be to position a barge used to transfer and store construction equipment and materials.

Table 2-2 summarizes the construction equipment that would most likely be used for each project element.

Table 2-2
Summary of Construction Equipment

Project Element	Construction Equipment
Proposed Maintenance and Rehabilitation of Berths 196-197, 198, and 199	• Chainsaw • Compressor • Concrete Truck • Diesel Hammer • Diesel Pile Hammer • Excavators • Graders • Paving Equipment • Rollers • Rubber Tired Dozers • Scrapers • Tractors/Loaders/Backhoes • Water Truck • Derrick Barge • Tugboat • Workboat • Haul Trucks • Delivery Trucks • Pick-Up Truck • Worker Vehicles
Proposed Construction of Additional Rail Tracks	• Compaction Unit • Concrete/Asphalt Saw Cutter • Cranes • Dump Truck • Excavators

Project Element	Construction Equipment
	• Haul Trucks • Delivery Trucks • Worker Vehicles

Source: Port of Los Angeles staff, URBEMIS defaults, and equipment used in the San Pedro Waterfront analysis

There are two proposed phasing options for the construction and rehabilitation of the wharves. Both construction-phasing options would take approximately two 180-day phases (totaling approximately 360 days). Construction for the rail tracks is anticipated to take approximately 60 days and would overlap with repair at Berths 196-197. It is anticipated that construction of the new railroad-loading tracks would disturb soil approximately 2 feet below ground surface. The construction area for each phase would be less than five acres (the overall construction area would be approximately 2.97 acres or 129,491 square feet). [2] Table 2-3 below summarizes the proposed construction schedule for the project.

Under Option I, design and construction would be phased. Construction and rehabilitation of Berths 196-197 would initiate in early April 2013 and cease by October 2013, which is approximately 180 days. Construction and rehabilitation of Berths 198-199 would initiate in early December 2013 and cease by June 2014, which is approximately 180 days. The total construction duration would be approximately 360 days.

Under Option II, design and construction would be concurrent. Construction and rehabilitation of Berths 196-197 would initiate in early May 2013 and cease by November 2013, which is approximately 180 days. Construction and rehabilitation of Berths 198-199 would initiate in early November 2013 and cease by May 2014, which is approximately 180 days. The total construction duration would be approximately 360 days.

[2] The acreage calculation is based off the following dimensions. The width for the berths is approximately 64'2". The lengths for each berth are as follows: Berth 196 is 504'; Berth 197 is 704'; Berth 198 is 196', and Berth 199 is 613'. The total length is approximately 2,017'. The total berth area is 129,491 square feet or 2.97 acres.

Table 2-3
Construction Summary

Project Component	Construction Months																		
	2013												2014						
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Option I - Phased Design and Construction																			
Berths 196-197 • Pile Replacement • Asphalt Concrete Replacement on Wharf																			
Berths 198 and 199 • Pile Replacement • Asphalt Concrete Replacement on Wharf																			
Option II - Concurrent Design and Construction																			
Berths 196-197 • Pile Replacement • Asphalt Concrete Replacement on Wharf																			
Berths 198 and 199 • Pile Replacement • Asphalt Concrete Replacement on Wharf																			
Other Project Elements																			
Rail Tracks Construction																			

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2.4.2 Operation

The increase in throughput is conservatively analyzed as part of the project, as it would occur under post-project conditions subsequent to the lease renewal and facility improvements. The post-project conditions would commence in 2014. Operations would occur through 2028, based upon a lease renewal in 2013 that would include a 10-year contract with one 5-year option to renew.

Table 2-4 compares activity of existing conditions versus projected operations at WWL. The projections are based on business and market conditions. While the projections would not change with or without the proposed project, the associated increases are assigned to the project as proposed project conditions. The peak number of workers during 2010 was 200. At peak future throughput, WWL is anticipated to increase to 240 full-time workers. The additional workers would be generally assigned to the Monday through Thursday evening shift. The facility operates four work shifts:

- Monday through Thursday (daytime) from 5:00 a.m. to 4:00 p.m.;
- Monday through Thursday (evening) from 4:30 p.m. to 1:00 a.m.;
- Thursday through Sunday (daytime) from 5:00 a.m. to 4:00 p.m; and
- Thursday through Sunday (evening) from 4:30 p.m. to 1:00 a.m.

Table 2-4
Project Activities Comparison

Activity	Existing (2010)	Proposed (2014)
General		
Terminal Acreage (approximate)	89 acres	91 acres
Vehicles processed (annually)	150,233	220,000
Workers		
Number of workers (peak)	200	240
Ships		
Vessel Calls (monthly)	8	8
Vessel Hoteling Time – Largest Ship (hours/day)	36 hours	36 hours
Vessel Hoteling Time – Average Ship (hours/day)	12 hours	12 hours
Truck		
Truck Trips (annually)	5,008	7,400

Activity	Existing (2010)	Proposed (2014)
Truck Trips (monthly)	417	617
Rail		
Rail Trips (average per year)	876	1,294
Rail Trips (peak daily)	4 (two pickups of loaded railcars and two dropoffs of empty railcars)	4 (two pickups of loaded railcars and two dropoffs of empty railcars)
Peak Number of Railcars Per Locomotive Trip	39	50

The current terminal features five berths, with a storage capacity of up to 8,000 vehicles and a rail yard for loading and unloading of vehicles (Port of Los Angeles 2011a). On average, approximately eight cargo vessel calls per month import or export vehicles at the WWL facility. The number of vessels calling at the berths would not increase. Vessels are currently calling partially loaded and the increase would be accommodated by the available capacity of these vessels. The vehicles are subsequently transported on approximately 800 railcars and about 417 carrier trucks per month, which equates to 5,008 trucks per year. In 2010, this facility handled approximately 150,233 vehicles. WWL projects that the facility will process approximately 220,000 vehicles per year on 7,400 carrier trucks per year (approximately 617 carrier trucks per month) in the coming years dependent on the rate of overall market recovery. The remainder of vehicles would be handled by rail. There would be an increase in the number of railcars delivered to the rail yards and annual rail trips. However, there would not be an increase in the number of peak daily rail trips, only an increase in the frequency of peak days. Train operations currently consist of two pickups of full railcars and two drop-offs of empty railcars on peak days. With the completion of additional loading tracks, the maximum number of railcars per train would increase by 11 railcars (from 39 cars currently, to 50 cars). Because the facility loads and unloads using roll on roll off, or 'roro' operations, cargo handling equipment is used infrequently, and no additional heavy equipment would be installed to facilitate the increase in throughput[3].

2.5 POTENTIAL RESPONSIBLE AGENCIES, TRUSTEES, AND CITY OF LOS ANGELES DEPARTMENTS

Under Section 15381 of the CEQA Guidelines, a "Responsible Agency" means a public agency, which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an Environmental Impact Report (EIR) or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency, which have discretionary approval power over the project. Section 15386 of the CEQA Guidelines defines a "Trustee Agency" as a

[3] Cargo handling equipment is limited to 3 diesel forklifts (less than 175 brake horsepower rating) operated from 10 to 190 hours per year.

state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California, which include the California Department of Fish and Game, the State Lands Commission, the State Department of Parks and Recreation, and the University of California.

The following lists the anticipated Responsible and Trustee agencies, as well as City of Los Angeles Departments:

- California Coastal Commission
- California Department of Toxic Substances Control
- City of Los Angeles Department of Public Works
- City of Los Angeles Department of Transportation
- City of Los Angeles Fire Department
- City of Los Angeles Planning Department
- Los Angeles County
- Los Angeles Regional Water Quality Control Board
- South Coast Air Quality Management District (SCAQMD)
- U.S. Army Corps of Engineers

2.6 ANTICIPATED PROJECT PERMITS AND APPROVALS

Anticipated permits and approvals that may be required to implement the proposed project are listed below:

- City of Los Angeles permits for disposal of materials and haul routes
- LAHD Approval of a Successor Lease
- LAHD Coastal Development Permit
- Los Angeles Regional Water Quality Control Board permits, including the National Pollutant Discharge Elimination System (NPDES) permit for discharge of wastewater into surface waters
- SCAQMD permits including SCAQMD Rules 403 and 1166
- U.S. Army Corps of Engineers Regional General Permit No. 65 (200401242-JLB) for routine wharf repair and maintenance

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3.0 INITIAL STUDY CHECKLIST

1. Project Title: Berths 195-200A WWL Vehicle Services Americas, Inc. (WWL) Project

2. Lead Agency: City of Los Angeles Harbor Department
Environmental Management Division
425 S. Palos Verdes St.
San Pedro, CA 90731

3. Contact Person: James Y. Bahng, Environmental Management Division

4. Project Location: The existing WWL facility is composed of Berths 195-200A. The proposed project would involve construction activities at Berths 196-199 within LAHD property. The project site is bounded by Alameda Street to the northwest, South Avalon Boulevard to the west, East Water Street to the south, and Berth 200B to the east. The project site is also situated north of Berths 187-191 (Vopak) and the East Basin Channel. WWL is a supply chain management services company of ocean transportation, inland distribution, and terminal handling, and is the terminal operator. The Pacific Harbor Line provides rail transportation, maintenance, and dispatching services to the Ports of Long Beach and Los Angeles railroad track, and manages on-dock rail yards at the Port of Los Angeles. Six Pacific Harbor Line railroad-loading tracks are located at the southern portion of the project site along East Water Street. The project site is identified as Los Angeles County Assessor's Parcel Number (APN) 7440-010-910. The former Koppers facility, a hazardous waste site located at 210 South Avalon Boulevard, Wilmington, CA 90744, overlaps the project site and renders it "Border Zone Property."

5. General Plan Designation: Port of Los Angeles (Commercial, Industrial/Non-Hazardous, General/ Bulk Cargo)

6. Zoning: (Q)M3-1 – Industrial Uses

7. Description of Project: The proposed project includes an adjustment in the existing leased boundary area. The Berth 200 Rail Yard Project would result in relocation of perimeter fences in two locations to allow adequate clearance for a proposed roadway on the northwestern portion of the project boundary that would connect to Avalon Boulevard. The proposed project includes continued use of the property by WWL for processing and operations of vehicle cargo with revised lease boundaries; wharf maintenance and rehabilitation at four berths: Berths 196-199; and the construction of two additional rail loading tracks. The current terminal features five berths, with a storage capacity of up to 8,000 vehicles and a rail yard for loading and unloading of vehicles. On average, approximately eight cargo vessel calls per month import or export vehicles at the WWL facility. The vehicles are subsequently transported on approximately 800 railcars and about 417 carrier trucks per month, which equates to 5,008 trucks per year. In 2010, this facility handled

approximately 150,233 vehicles. WWL projects that the facility will process approximately 220,000 vehicles per year on 7,400 carrier trucks per year (approximately 617 carrier trucks per month) in the coming years dependent on the rate of overall market recovery. The remainder of vehicles would be handled by rail. There would be an increase in annual rail trips. However, there would not be an increase in the number of peak daily rail trips, only an increase in the frequency of peak days. With the completion of additional loading tracks, the maximum number of railcars per train is proposed to increase by 11 railcars (from 39 cars currently to 50 cars). Because the facility loads and unloads using roll on roll off, or 'roro' operations, cargo handling equipment is used infrequently, and no additional heavy equipment would be installed to facilitate the increase in throughout. The proposed project itself would not result in an increase in berth throughput capacity as the number of berths and loading/unloading unloading capabilities would remain the same. .For the purposes of this analysis, the increase in throughput is conservatively analyzed as part of the project, as it would occur under post-project conditions under the lease renewal. The post-project conditions would commence in 2014. Operations would occur through 2028, based upon a lease renewal in 2013 that would include a 10-year contract with one 5-year option to renew.

8. Surrounding Land Uses/Setting:

The site is within the Port of Los Angeles Community Plan area in the City of Los Angeles, which is adjacent to the communities of San Pedro and Wilmington, and approximately 20 miles south of downtown Los Angeles. Access to and from the project site is provided by a network of freeways and arterial routes. The freeway network consists of the Harbor Freeway (I-110), the Long Beach Freeway (I-710), the San Diego Freeway (I-405), and the Terminal Island Freeway (SR-103/SR-47).

The properties to the north and west of the project site are zoned Light Industrial (M-2) according to the Los Angeles City Zoning Ordinance. All uses except some heavy industries, which require a conditional use permit (CUP), are permitted. However, residential uses and schools are prohibited. Properties zoned [Q]C2 ("Commercial") and ZI-1192 ("2000 ft. Buffer Zone for Border Zone Property Site") are found directly north and east of the project site. PF ("Public Facilities") zones are also found west of the project site.

The nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. These include properties zoned One-Family (R-1) and Restricted Density Multiple Dwelling (RD). However, liveaboard boat tenants (someone who makes a boat their primary residence) were identified to be located approximately 425 feet east of the proposed project, across the East Basin.

9. Other Public Agencies Whose Approval is Required:

- City of Los Angeles permits for disposal of materials and haul routes
- LAHD Approval of a Successor Lease
- LAHD Coastal Development Permit
- Los Angeles Regional Water Quality Control Board permits, including the NPDES permit for discharge of wastewater into surface waters
- SCAQMD permits including SCAQMD Rules 403 and 1166
- U.S. Army Corps of Engineers Regional General Permit No. 65 (200401242-JLB) for routine wharf repair and maintenance

3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist.

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

3.2 DETERMINATION

On the basis of this initial evaluation:

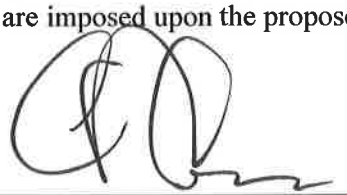
I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

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

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

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

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



05-16-12

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

Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "no impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "no impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "no impact" answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site and on-site cumulative; project-level; indirect and direct; construction, and operational impacts. For the purposes of the analysis, a separate discussion on construction and operational phases was provided for only applicable resource areas to further identify and assess the impacts associated during those stages of project implementation.

3. Once the Lead Agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant impact with mitigation, or less than significant. "Potentially significant impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "potentially significant impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant Impact With Mitigation Incorporated" applies when the incorporation of mitigation measures has reduced an effect from a "potentially significant impact" to a "less than significant impact." The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063[c][3][D]). In this case, a brief discussion should identify the following:

   a. Earlier analysis used. Identify and state where earlier analyses are available for review.

   b. Impacts adequately addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. Mitigation Measures. For effects that are "less than significant impact with mitigation incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead Agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting information sources. A source list should be attached and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and Lead Agencies are free to use different formats; however, Lead Agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:
   a. the significance criteria or threshold, if any, used to evaluate each question, and
   b. the mitigation measure identified, if any, to reduce the impact to a less than significant level.

Environmental Checklist

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS. Would the project:				
a. Have a substantial adverse effect on a scenic vista?				X
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c. Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?			X	
e. Create a new source of substantial shade or shadow that would adversely affect daytime views in the area?				X
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. 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?				X
b. Conflict with existing zoning for agricultural use, or a Williamson act contract?				X
c. Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned timberland production?				X
d. Result in the loss of forest land or conversion of forest land to non-forest use?				X

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X
3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management 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 or clean air programs?			X	
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c. 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 (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?		X		
d. Expose sensitive receptors to substantial pollutant concentrations?		X		
e. Create objectionable odors affecting a substantial number of people?			X	
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 Game or U.S. Fish and Wildlife Service?			X	
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
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?		X		
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X
5. CULTURAL RESOURCES. Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?			X	
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?		X		
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d. Disturb any human remains, including those interred outside of formal cemeteries?			X	
6. GEOLOGY AND SOILS. Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
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.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b. Result in substantial soil erosion, loss of topsoil, or changes in topography or unstable soil conditions from excavation, grading, or fill?			X	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
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?				X
7. GREENHOUSE GAS EMISSIONS: Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	
8. 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?			X	

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
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?			X	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
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 for people residing or working in the project area?				X
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
9. HYDROLOGY AND WATER QUALITY. Would the project:				
a. Violate any water quality standards or waste discharge requirements?			X	

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?			X	
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?			X	
e. 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?			X	
f. Otherwise substantially degrade water quality?			X	
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of sea level rise?			X	
k. Inundation by seiche, tsunami, or mudflow?			X	

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
10. LAND USE AND PLANNING. Would the project:				
a. Physically divide an established community?				X
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
11. 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?				X
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?				X
12. NOISE. Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
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 expose people residing or working in the project area to excessive noise levels?				X

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X
13. POPULATION AND HOUSING. Would the project:				
a. Induce substantial 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)?				X
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
14. PUBLIC SERVICES.				
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?			X	
ii) Police protection?			X	
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
15. 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?				X
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X
16. TRANSPORTATION AND TRAFFIC. Would the project:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e. Result in inadequate emergency access?			X	
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g. Comply with federal, state, and local statutes and regulations related to solid waste?			X	
18. MANDATORY FINDINGS OF SIGNIFICANCE.				
a. Does the project have the potential to 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, 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?		X		

	Potentially Significant Impact	*Less Than Significant Impact After Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
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.		X		
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?		X		

4.0 IMPACTS AND MITIGATION MEASURES

4.1 AESTHETICS

The purpose of this section is to identify and evaluate key visual and aesthetic resources in the project area and to determine the degree of visual and aesthetic impacts that would be attributable to the proposed project.

Various plans and policy documents set forth regulations and guidelines for design quality, streetscape, and light and glare that relate to the development of the proposed project site. The City of Los Angeles divides its jurisdiction into 35 community plan areas. For each of these areas there is a community plan that supports the citywide general plan and general plan framework element. The San Pedro Community Plan contains policies related to visual and aesthetic resources. Because the largest and potentially most sensitive viewing group consists of residents residing in San Pedro, these policies were considered pertinent, even though LAHD does not regulate land uses in this area. Another relevant regulatory mechanism is the Port of Los Angeles Plan, which also contains goals, objectives, and policies pertaining to visual resources. In support of this analysis, the San Pedro Community Plan, the Port Master Plan Element, and the Port of Los Angeles Master Plan (1979 Plus Amendments) were reviewed in order to ascertain the impacts of the proposed project on visual resources.

San Pedro Community Plan

The San Pedro Community Plan is intended to promote an arrangement of land uses, streets, and services that will encourage and contribute to the economic, social and physical health, safety, welfare, and convenience of the people who live and work in the community (San Pedro Community Plan 1999). The plan is also intended to guide development in order to create a healthful and pleasant environment. Goals, objectives, policies, and programs are created to meet the existing and future needs and addresses aesthetics and visual quality issues for areas outside the community plan boundaries (such as the Port).

The San Pedro Community Plan also recognizes that the prosperity of the City is directly related to the prosperity of the Port. Although the Port is not a part of the plan area, the community plan includes recommendations to decision makers having jurisdiction over POLA. Specifically, Goal 19 and the subsequent objectives were reviewed for consistency.

GOAL 19 *Coordinate the development of the port of Los Angeles with surrounding communities to improve the efficiency and operational capabilities of the port to better serve the economic needs of Los Angeles and the region, while minimizing adverse environmental impacts to neighboring communities from port-related activities.*

Objective 19-1 *To recognize the Port of Los Angeles as a regional resource and the predominant influence on the economic well-being of the Community and to promote its continued*

development so as to meet the needs of the fishing industry, recreational users, the handling of passengers and cargo, with special emphasis on the accommodation of increasingly larger ships.

Policy 19-1.2 *The West Bank of the Main Channel (southerly of the Vincent Thomas Bridge) and East Channel areas of the Port be devoted to commercial, restaurant, and tourist-oriented facilities, passenger terminals, facilities serving the sport and commercial fishing industry, and such general cargo and container handling facilities as would not create or add to significant traffic congestion problems on Harbor Boulevard which may result from the generation of additional railroad or industrial traffic.*

Port of Los Angeles Plan Element

The Port of Los Angeles Plan, part of the City of Los Angeles General Plan Land Use Element, was adopted in 1982, and was designed to provide a 20-year official guide to the continued development and operation of the Port. The Plan is one of the local area plans known as Community or District Plans that collectively constitute the City of Los Angeles General Plan Land Use Element. This is a separate document from the Port of Los Angeles Master Plan. The Port of Los Angeles Plan is intended to serve as the official 20-year guide to the continued development and operation of the Port with respect to land uses; it is intended to be consistent with the Port Master Plan. Specifically, Objective 4 is dedicated to prioritizing development within the Port, while addressing the visual impacts to neighboring communities.

Objective 4 *To assure priority for water and coastal dependent development within the Port while maintaining and, where feasible, enhancing the coastal zone environment and public views of, and access to coastal resources.*

Port of Los Angeles Master Plan (1979 Plus Amendments)

The Port of Los Angeles Master Plan is part of the Local Coastal Program, and is consistent with the Port of Los Angeles Plan Element of the City of Los Angeles General Plan. The Port Master Plan, which was certified by the Coastal Commission in 1980, does not contain any element specific to visual resources. However, general provisions contained within Section V, Regulations & Guidelines for Development Projects, establish the need to address visual resources issues for new projects (LAHD 1980).

<u>Would the Project</u>:

a) Have a substantial adverse effect on a scenic vista?

No Impact. The proposed project would be a continuation of an existing use with some maintenance and efficiency improvements. The visual environment would remain very similar to

the existing aesthetic. The proposed project would be consistent with the industrial/commercial landscape of the area and would not block views of the Port of Los Angeles available from public and private vantages, including panoramic views from hillside residential areas of San Pedro. Because no protected or designated scenic vistas are available from the project site, no impacts related to scenic vistas would occur. No mitigation is required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. Per the California Department of Transportation (Caltrans), the nearest officially designated state scenic highway is located approximately 34 miles north of the proposed project (State Highway 2, from approximately 3 miles north of Interstate 210 in La Cañada to the San Bernardino County Line) (Caltrans 2011). The nearest eligible state scenic highway is approximately 10 miles northeast of the project site (State Highway 1, from State Highway 19 near Long Beach to Interstate 5 south of San Juan Capistrano) (California Scenic Highway Mapping System 2011).

Per the City of Los Angeles General Plan, several streets within the project vicinity have been identified as city-designated scenic highways. The John S. Gibson Boulevard, Pacific Avenue, Front Street, and Harbor Boulevard are city-designated scenic highways because they afford views of the Port and the Vincent Thomas Bridge. The project site is located approximately 2 miles northwest and is not visible from city-designated scenic highways. There are no other scenic resources, such as trees, rock outcroppings, or historic buildings within a scenic highway that could be affected by the proposed project. Therefore, no impacts related to scenic resources within a state scenic highway would occur. No mitigation is required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

No Impact. The project site, located at 500 E. Water Street, Wilmington, CA 90744, is zoned for industrial uses ([Q]M3-1) and is completely within LAHD property. ([Q]M3-1 is designated as "quasi-heavy industrial" uses (City of Los Angeles 2011). The proposed project involves wharf rehabilitation at four berths: Berths 196-197, Berth 198, and Berth 199. In general, construction would involve removal and replacement of timber pile, removal of asphalt concrete, and construction of new asphalt concrete pavement. The proposed project would not alter the nature of existing operations and would be consistent with the industrial/commercial landscape and character of the area. The visual environment would remain very similar to the existing aesthetic. Therefore, no impacts related to existing visual character and quality of the site would occur. 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 project site currently includes security lighting and general nighttime lighting on the property and the parking lot. The proposed project would include comparable lighting. Any new lighting would be replacement lighting that would serve the same function as existing lighting, to ensure safe operations for vehicle processing. The proposed project is not anticipated to involve construction of new or additional sources of lighting that would noticeably alter the lighting levels at the facility or form any nighttime vantage of the property. Any new street light fixtures would be installed in accordance with current streetlight standards per municipal code (City of Los Angeles Municipal Code 2011). Therefore, impacts related to light and glare would be less than significant. No mitigation is required.

e) Create a new source of substantial shade or shadow that would adversely affect daytime views in the area?

No Impact. The proposed project would not involve construction of any new structures. Therefore, the proposed project would not create a new source of substantial shade or shadow that would adversely affect daytime views in the area and no impact would result. No mitigation is required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

The purpose of this section is to identify and evaluate agricultural and forestry resources in the project area and to determine the degree of impacts that would be attributable to the proposed project.

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?

No Impact. The California Department of Conservation's Farmland Mapping and Monitoring Program develops maps and statistical data to be used for analyzing impacts on California's agricultural resources (California Department of Conservation 2006). The Farmland Mapping and Monitoring Program categorizes agricultural land according to soil quality and irrigation status; the best quality land is identified as Prime Farmland.

According to the Farmland Mapping and Monitoring Program, the project site is an area designated as Urban and Built-Up Land, which is described as land occupied by structures that has a variety of uses including industrial, commercial, institutional facilities, railroad, or other transportation yards. There is no Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance in the project vicinity (California Department of Conservation 2006). Further, the City of Los Angeles General Plan does not designate the project site as Farmland. No Farmland currently exists on the project site and, therefore, none would be converted to accommodate the proposed project. No impacts would occur. No mitigation is required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments, which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.

The project site is identified as Los Angeles County APN 7440-010-910 and is zoned for heavy industrial uses ([Q] M3-1) (City of Los Angeles 2011). The Williamson Act applies to parcels consisting of at least 20 acres of Prime Farmland or at least 40 acres of land not designated as Prime Farmland. The project site is not located within a Prime Farmland designation, nor does it consist of more than 40 acres of farmland. The project site is not within a Williamson Act

contract. Thus, the proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act Contract. No impacts would occur. No mitigation is required.

c) Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned timberland production?

No Impact. The proposed project is located at Berths 196-199 within LAHD property. The site does not contain any property designated as forest or timberland. The project site is not in the vicinity of any forest or timberland and the project would not result in a change in the use of the existing site or surrounding area. Therefore, the proposed project would not conflict with existing zoning or cause rezoning of forest or timberland. No impacts would occur, and no further analysis is required.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As discussed in the response to Question 4.2(c), the project site does not contain any property designated as forest land. Therefore, the proposed project would not result in the loss of forest land, nor would it convert forest land to a non-forest use. No impacts would occur and no mitigation is required.

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?

No Impact. As discussed in Question 2(a), the project site is not designated as Farmland and is designated as Urban and Built-Up Land. Additionally, no farmland is located within the immediate vicinity of the project site. Construction activities would take place entirely within the LAHD property being leased by the WWL. Implementation of the project would not alter the current use of the site or surrounding area. Therefore, the proposed project would not result in changes to the existing environment that could result in the conversion of Farmland to non-agricultural use. No impacts would occur and no mitigation is required.

4.3 AIR QUALITY

This section includes a description of existing air quality conditions in the proposed project area and analyses of potential short-term and long-term air quality impacts of the proposed project. The methods of analysis for construction, operational, local mobile source, odor, and toxic air contaminant (TAC) emissions are consistent with the guidelines of the South Coast Air Quality Management District (SCAQMD).

Would the Project:

a) Conflict with or obstruct implementation of the applicable air quality plan or clean air programs?

Less than Significant Impact. SCAQMD monitors air quality within the project area and the South Coast Air Basin, which includes Orange County and portions of Los Angeles, Riverside, and San Bernardino counties. The South Coast Air 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. The SCAQMD also has jurisdiction over the Salton Sea Air Basin and a portion of the Mojave Desert in Riverside County.

Air quality plans describe air pollution control strategies to be implemented by a city, county, or region. The primary purpose of an air quality plan is to bring an area that does not attain federal and state air quality standards into compliance with the requirements of the Clean Air Act and California Clean Air Act requirements. The Air Quality Management Plan (AQMP) is prepared by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP provides policies and control measures that reduce emissions to attain both state and federal ambient air quality standards.

The most recent AQMP was adopted by the SCAQMD on June 1, 2007. The 2007 AQMP proposes attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of sulfur oxides (SO_X), directly-emitted particulate matter less than 2.5 microns ($PM_{2.5}$), and nitrogen oxides (NO_X) supplemented with volatile organic compound (VOC) control by 2015. The eight-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NO_X and VOC reductions to meet the standard by 2024. The 2007 AQMP also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP is consistent with and builds upon the approaches taken in the 2003 AQMP. The proposed project would be consistent with the assumptions regarding land use and motor vehicle emissions in the 2007 AQMP. The proposed project would not conflict with or obstruct implementation of the AQMP.

The Port of Los Angeles' Clean Truck Program is a central element of the Clean Air Action Plan (CAAP), which targets major sources of air emissions at the Ports of Los Angeles and Long Beach – ships, trains, trucks, cargo handling equipment and harbor craft. The Clean Truck Program establishes a progressive ban on polluting trucks. Beginning on October 1, 2008, all pre-1989 trucks were banned from entering the Port. Beginning on January 1, 2010, trucks with model years between 1989 and 1993 were also banned, in addition to 1994-2003 trucks that had not been retrofitted. As of January 1, 2012, all trucks that do not meet the model year 2007 Federal Clean Truck Emissions Standards are banned from the Port (Port of Los Angeles 2011c). The proposed project is not subject to the requirements of the Clean Truck Program as the vehicles used at the WWL facility are automobile carriers, which are exempt. Per the California Air Resources Board Truck Exemption Guidelines, exempt vehicles are typically Class 8 heavy-duty trucks, which are not configured to haul containers. Examples include automobile carriers, tanker trucks, and power units with non-standard fifth wheel configurations, and uni-body vehicles that do not have separate tractor and trailers (California Air Resources Board 2010).

Through its Port Leasing Policy, Port tenants are required to comply with environmental requirements included in lease agreements in order to achieve the required reductions in environmental impact (Port of Los Angeles 2008). The lease requirements are distinct from CEQA mitigation measures and is subject to discretionary approval by the Board. The following lease requirement are recommended for inclusion in the lease.

LAHD would require all cargo-handling equipment (CHE) to comply with CAAP CHE-1 requirements upon lease approval. Beginning January 1, 2012, all CHE were required meet 2007 on-road or Tier 4 off-road requirements upon lease approval (San Pedro Bay Ports 2010). Ports America owns and operates three diesel forklifts on behalf of WWL. The forklifts are 75 hp, 150 hp, and 175 hp. The model year for all three are 1995. This lease requirement includes the following:

San Pedro Bay Ports CAAP Measure CHE-1 Lease Requirement. Upon lease approval, LAHD shall require the tenant to implement CAAP measure CHE-1, which includes the following requirements:

- Beginning 2007, all CHE purchases will meet one of the following performance standards:
  - Cleanest available on-road or off-road NOx standard alternative-fueled engine, meeting 0.01 g/bhp-hr DPM, available at time of purchase, or
  - Cleanest available on-road or off-road NOx standard diesel-fueled engine, meeting 0.01 g/bhp-hr DPM, available at time of purchase.
  - If there are no engines available that meet 0.01 g/bhp-hr DPM, then must purchase cleanest available engine (either fuel type) and install cleanest CARB verified diesel emission control strategy available.

- By 2010, all yard tractors operating at the ports will meet USEPA 2007 or Tier 4 off-road emission engine standards.
- By the end of 2012, all pre-2007 on-road or pre Tier 4 off-road top picks, forklifts, reach stackers, rubber-tired gantry cranes (RTGs), and straddle carriers <=750 hp will meet, at a minimum, the USEPA 2007 on-road engine standards or Tier 4 off-road engine standards.
- By end of 2014, all CHE with engines >750 hp will meet at a minimum the USEPA Tier 4 off-road engine standards. Starting 2007 (until equipment is replaced with Tier 4), all CHE with engines >750 hp will be equipped with the cleanest available California Air Resources Board verified diesel emission control strategy.

LAHD would require tenants to comply with the Vessel Speed Reduction Program, CAAP measure OGV1 (San Pedro Bay Ports 2010).

- **OGV1 - Vessel Speed Reduction Program.** Under this voluntary program, participant vessels are required to reduce their speeds to 12 knots or less within 40 nautical miles of the Point Fermin Lighthouse. This reduction of 3 to 10 knots per ship (depending on the ship's cruising speed) can substantially reduce emissions from the main propulsion engines of the ships.

In addition, LAHD would require tenants to comply with CAAP measures for ocean-going vessels (OGV), specifically OGV3 and OGV4 (San Pedro Bay Ports 2010).

- **OGV3 – OGV Low Sulfur Fuel for Auxiliary Engines and Auxiliary Boilers.** This measure reduces emissions from the auxiliary engines and auxiliary boilers of OGVs during their approach and departure from the ports, by switching to ≤0.2 percent sulfur distillate fuels (marine gas oil or marine diesel oil) within 40 nautical miles of the Point Fermin Lighthouse or while at berth. As of January 2014, the California Air Resources Board requires a rule limit of ≤0.1 percent sulfur distillate fuel for marine gas oil or marine diesel oil within 24 nm of the California Baseline.

- **OGV4 – OGV Low Sulfur Fuel for Main Engines.** This measure reduces emissions from the main propulsion engines of OGVs during their approach and departure from the ports, by switching to ≤0.2 percent sulfur distillate fuels (marine gas oil or marine diesel oil) within 40 nautical miles of the Point Fermin Lighthouse. As of January 2014, the California Air Resources Board requires a rule limit of ≤0.1 percent sulfur distillate fuel for marine gas oil or marine diesel oil within 24 nm of the California Baseline.

Based upon the number of calls, berthing duration, and load requirements the proposed project is not subject to the requirements of the Alternative Maritime Power. Alternative Maritime Power or "AMP" is a one-of-a-kind air quality program that focuses on reducing emissions from container vessels docked at POLA. Instead of running on diesel power while at berth, AMP-equipped ships "plug in" to shore side electrical power. AMP technology is often referred to as "cold ironing" and has been used for many years on naval vessels, Baltic ferries and cruise ships operating in Alaska. The Port of Los Angeles was the first Port in the world to use AMP technology for in-service container ships (Port of Los Angeles 2012). As displayed in Table 2-4, approximately eight cargo vessel calls per month would import or export vehicles at the WWL facility. Berthing time for large vessels is anticipated to last for 36 hours, while berthing time for average sized vessels are anticipated to last approximately 12 hours. LAHD has determined that AMP (CAAP Measure OGV2, Reduction of At-Berth OGV Emissions) is not applicable to this project since there would be a low number of vessel calls per year and lesser power demand while at berth (a function of load and time at berth) as compared to other candidate vessel categories (container ships, passenger ships, and reefers) (San Pedro Bay Ports 2010). This determination is consistent with the California Air Resources Board Report *Evaluation of Cold-Ironing Ocean-Going Vessels at California Ports* (California Air Resources Board 2006) and *Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels at Berth in a California Port* (California Air Resources Board 2009).

To summarize, the proposed project would not conflict with or obstruct implementation of the AQMP. The proposed project is exempt from the Clean Truck Program as the vehicles used at the WWL facility are automobile carriers, which are exempt per the California Air Resources Board Truck Exemption Guidelines (California Air Resources Board 2010). Further, lease requirements have been provided to ensure compliance with CAAP measures CHE-1, which requires all CHE to meet 2007 on-road or Tier 4 off-road requirements; OGV1, which is a voluntary vessel speed reduction program; OGV3, which sets fuel standards for auxiliary engines, and OGV4, which sets fuel standards for main engines. Based on the discussion provided above, the proposed project would have less than significant impacts on applicable air quality plans or clean air programs. Further, as discussed in Question 3(b), the project-related emissions would not exceed the significance thresholds developed by the SCAQMD with implementation of mitigation measures.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact After Mitigation Incorporated. The SCAQMD provides guidance on analysis of the air quality impacts of proposed projects (SCAQMD 2011). Table 4.3-1 shows the SCAQMD thresholds of significance for potential air quality impacts.

Table 4.3-1
SCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 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) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment) Hazard Index ≥ 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants[a]		
NO_2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.100 ppm (federal) and 0.18 ppm (state) 0.03 ppm (state) and 0.053 ppm (federal)	
$PM_{2.5}$ 24-hour average annual arithmetic mean	10.4 μg/m^3 (recommended for construction)[a] 2.5 μg/m^3 (operation) 12 μg/m^3	
PM_{10} 24-hour average annual arithmetic mean	10.4 μg/m^3 (recommended for construction)[b] 2.5 μg/m^3 (operation) 20 μg/m^3	
Sulfate 24-hour average	25 μg/m^3	
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) 9.0 ppm (state/federal)	

Notes: lbs/day = pounds per day
ppm = parts per million
μg/m3 = micrograms per cubic meter
≥ = greater than or equal to

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

[b] Ambient air quality thresholds based SCAQMD Rule 403.

Source: SCAQMD 2011

In addition, the SCAQMD has developed the Localized Significance Threshold (LST) methodology to assist CEQA lead agencies in analyzing localized air quality impacts from proposed projects. The LSTs are only for emissions of NOx, carbon monoxide (CO), particulate matter less than 10-microns in diameter (PM_{10}), and $PM_{2.5}$. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. PM_{10} LSTs were derived based on requirements in SCAQMD Rule 403 – Fugitive Dust. The LST methodology may be used for projects that must undergo an environmental analysis pursuant to CEQA or the National Environmental Policy Act (NEPA) and that are five acres or less, in lieu of performing air dispersion modeling. The construction area for the berths would be less than five acres. The overall construction area for the berths is approximately 2.97 acres (or 129,491 square feet).[4] The LST methodology was employed to evaluate ambient air quality impacts from proposed project construction. For each phase of construction, air emissions from proposed construction activities mainly would occur from mobile off-road construction equipment and fugitive dust within approximately 1-acre project sites.

Construction

Construction emissions are described as "short-term" or temporary in duration and have the potential to represent a significant impact with respect to air quality, especially fugitive dust emissions. Fugitive dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on- and off-site. Reactive Organic Gases (ROG), which are assumed to be equivalent to VOC (for the purposes of this analysis), and NO_x emissions are primarily associated with mobile equipment exhaust.

Construction s anticipated to commence in 2013. There are two proposed phasing options for the construction and rehabilitation of the wharves. Both options would take approximately two 180-day phases (approximately 360 days). In general, construction would involve removal and replacement of timber pile, removal of asphalt concrete, and construction of new asphalt concrete pavement. The proposed project would also result in the construction of additional railroad-loading tracks on the southern portion of the project site. Construction equipment used at the project site would include, but not be limited to, bulldozers, graders, rollers, asphalt grinders, diesel pile hammers, excavators, paving equipment, scrapers, tractors/loaders/backhoes, derrick barge, workboat, etc. Trip generation would not be substantial since equipment and material deliveries by truck would be supplemented by barge delivery. Wharf construction would utilize

[4] The acreage calculation is based off the following dimensions. The width for the berths is approximately 64'2". The lengths for each berth are as follows: Berth 196 is 504'; Berth 197 is 704'; Berth 198 is 196', and Berth 199 is 613'. The total length is approximately 2,017'. Overall the berths encompass 129,491 square feet or 2.97 acres.

one tugboat. The primary use of the tugboat would be to position a barge used to transfer and store construction equipment and materials.

Construction of the proposed project would result in the temporary generation of VOCs, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Total construction-related emissions were modeled using EMFAC2011, California Air Resources Board's (ARB) tool for estimating emissions from off-road and on-road equipment and vehicles. Table 4.3-2 summarizes the construction emissions results without mitigation for the proposed construction years of 2013 and 2014. Based on the modeling conducted, without mitigation, construction of the proposed project would result in NO_X emissions that would exceed the daily emission thresholds. In addition, the proposed project would result in NO_X, PM_{10}, and $PM_{2.5}$ emissions that would exceed localized emission thresholds established by SCAQMD. The detailed results of the model are included in Appendix A.

Table 4.3-2
Construction Emissions Summary (Unmitigated)

	Peak Day Emissions (lb/day)						
	VOCs[a]	**CO**	**NO_X**	**SO_X[a]**	**PM_{10}**	**$PM_{2.5}$**	**DPM**
Construction Year 2013							
On-Site Sources	17	113	202	0	48	16	9
Off-Site Sources	1	7	10	0	1	1	1
Maximum Daily Emissions	**18**	**120**	**212**	**0**	**49**	**17**	**10**
Significance Threshold	75	550	100	150	150	55	na
Exceed Significance?	No	No	**Yes**	No	No	No	na
Localized Significance Threshold	na	789	58	na	13	5	na
Exceed Significance?	na	No	**Yes**	na	**Yes**	**Yes**	na
Construction Year 2014							
On-Site Sources	12	86	149	0	18	9	6
Off-Site Sources	0	3	7	0	0	0	0
Maximum Daily Emissions	**13**	**89**	**156**	**0**	**19**	**9**	**7**
Significance Threshold	75	550	100	150	150	55	na
Exceed Significance?	No	No	**Yes**	No	No	No	na
Localized Significance Threshold	na	789	58	na	13	5	na
Exceed Significance?	na	No	**Yes**	na	**Yes**	**Yes**	na

Source:
Air Quality Screening Assessment prepared by iLANCO Environmental, LLC. 2012. (Appendix A)
Notes:
[a] SCAQMD has not developed a localized significance threshold for VOCs or SO_X.
na = not applicable

Mitigation measures AQ-1 through AQ-5, provided below, include the use of tugboats with Tier 2 engines, additional fugitive dust reductions, and the application of the *Sustainable Construction Guidelines* prepared by LAHD for reducing air emissions from all LAHD-sponsored construction projects (LAHD 2009). The *Sustainable Construction Guidelines* include the use of best management practices (BMPs) aimed at reducing vehicle emissions, construction dust, etc. The *Sustainable Construction Guidelines* require that by January 1, 2012, all on-road heavy-duty

diesel trucks with a gross vehicle weight of 19,500 pounds or greater used at POLA will comply with EPA 2007 on-road emission standards for PM_{10} and NO_X (0.01 g/bhp-hr and at least 1.2 g/bhp-hr, respectively) (LAHD 2009). Further, the mitigation measures also require use of off-road construction equipment with Tier 4 engines. However, Tier 3 engines would be applied on a case-by-case basis in the event Tier 4 technology is not available.[5] Implementation of mitigation measures AQ-1 through AQ-5 would reduce air quality impacts to less than significant.

AQ-1 Harbor Craft Used during Construction

- All harbor craft used during the construction phase of the project will be, at a minimum, repowered to meet the cleanest existing marine engine emission standards or USEPA Tier 2.

AQ-2 Construction Equipment

- From January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp and less than 750 hp, except marine vessels and harbor craft, will meet Tier-4 off-road emission standards at a minimum.
- From January 1, 2015 on: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, will meet Tier-4 off-road emission standards at a minimum.

In lieu of Tier 4 requirements for off-road construction equipment, an "emissions calculator" will be permitted as an emissions control strategy for off-road construction equipment. Development of an "emissions calculator" would occur prior to the bid solicitation package going public and would incorporate the project's emissions limitations, control strategies applicable to construction equipment, and other limitations/specifications developed under the CEQA analysis (*San Pedro Bay Ports Clean Air Action Plan 2010 Update*. *Section 4.6, Construction Activity*. October 2010).

AQ-3 Additional Fugitive Dust Reductions

Increase the frequency of grading site watering from three times per day to once every two hours to achieve a 75 percent reduction of fugitive dust PM_{10} from uncontrolled levels. The construction contractor will designate personnel to monitor the dust control program and to order increased watering, as necessary, to ensure a 75 percent control level.

AQ-4 All construction operations within the Port will comply with LAHD Sustainable Construction Guidelines. General Construction BMPs include:

- Use diesel oxidation catalysts and catalyzed diesel particulate traps.

[5] Tier 4 equipment is required to be used if technology is available. In the event Tier 4 technology is not available, Tier 3 equipment will be used. As such, the emissions calculation for construction mitigation assumed utilization of Tier 4 to be at 75 percent and Tier 3 to be at 25 percent to account for the lack of availability of Tier 4 technology.

- Maintain equipment according to manufacturers' specifications.
- Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use.
- Install high-pressure fuel injectors on construction equipment vehicles.
- Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors.
- Improve traffic flow by signal synchronization.
- Enforce truck parking restrictions.
- Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc.
- Reroute construction trucks away from congested streets or sensitive receptor areas.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.
- Use electric power in favor of diesel power where available.

AQ-5 Fleet Modernization for On-Road Trucks Used During Construction

1. Trucks hauling material, such as debris or any fill material will be fully covered while operating off Port Property.
2. Idling will be restricted to a maximum of 5 minutes when not in use.
3. USEPA Standards:*
   a. For on-road trucks with a gross vehicle weight rating of at least 19,500 pounds (except for Import Haulers and Earth Movers): Comply with USEPA 2007 on-road emission standards for PM_{10} and NO_x (0.01 grams per brake horsepower-hour [g/bhp-hr] and 1.2 g/bhp-hr or better, respectively).
   b. For Import Haulers with a gross vehicle weight rating of at least 19,500 pounds used to move dirt and debris to and from the construction site via public roadways: Comply with USEPA 2004 on-road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).
   c. For Earth Movers with a gross vehicle weight rating of at least 19,500 pounds used to move dirt and debris to and from the construction site: Comply with USEPA 2004 on-road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).

*****The USEPA standards apply to new equipment; however, a typical fleet would be comprised of both new equipment meeting USEPA standards and older equipment. This mitigation measure requires that all equipment used at the site meet USEPA standards for new equipment, thereby reducing emissions from a typical fleet that includes older equipment. For comparison, the California Air Resources Board's in Use Heavy-Duty Diesel Fuel Vehicles Regulation (California Code of Regulations, Title 13, Section 2025) does not require in-use vehicle with a gross vehicle weight rating greater than 26,000 pounds to meet 2010 engine emission standards until 2015 at the earliest.

Table 4.3-3 summarizes the construction emissions results with mitigation for the proposed construction years of 2013 and 2014. Based on the modeling conducted, implementation of mitigation measures, construction-generated emissions of VOCs, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ would not exceed applicable mass emission thresholds established by SCAQMD. The detailed results of the model are included in Appendix A.

Operation

With completion of the project truck traffic would increase by approximately 200 trucks per month, which equates to an additional 20 one-way truck trips per workday, or 10 roundtrips. Based on information provided by LAHD, these roundtrips would occur during the day shift (Monday through Thursday from 5:00 a.m. to 4:00 p.m.), resulting in an average of 2 trips per hour. Implementation of the proposed project would also result in the construction of two additional railroad-loading tracks on the southern portion of the project site. For the purposes of modeling, the number of locomotive trips for the peak day was presumed to be the same for baseline year (2011) and opening year (2014). Operations would also include continued tugboat and vessels as listed in Table 4.3-4. Table 4.3-4 displays existing operational emissions. Table 4.3-5 displays anticipated operational emissions for opening year 2014. The detailed results of the model are included in Appendix A.

Table 4.3-3
Construction Emissions Summary (Mitigated)

	Peak Day Emissions (lb/day)						
	VOCs[a]	**CO**	**NO_X**	**SO_X[a]**	**PM_{10}**	**$PM_{2.5}$**	**DPM**
Construction Year 2013							
On-Site Sources	11	129	58	0	8	4	3
Off-Site Sources	1	6	5	0	1	0	1
Maximum Daily Emissions	**12**	**135**	**63**	**0**	**9**	**4**	**4**
Significance Threshold	75	550	100	150	150	55	na
Exceed Significance?	No	No	No	No	No	No	na
Localized Significance Threshold	na	789	58	0	13	5	na
Exceed Significance?	na	No	No	na	No	No	na
Construction Year 2014							
On-Site Sources	8	93	44	0	3	2	2
Off-Site Sources	0	3	2	0	0	0	0
Maximum Daily Emissions	**8**	**95**	**46**	**0**	**4**	**2**	**2**
Significance Threshold	75	550	100	150	150	55	na
Exceed Significance?	No	No	No	No	No	No	na
Localized Significance Threshold	na	789	58	na	13	5	na
Exceed Significance?	na	No	No	na	No	No	na

Source:
Air Quality Screening Assessment prepared by iLANCO Environmental, LLC. 2012. (Appendix A)
Notes:
[a] SCAQMD has not developed a localized significance threshold for VOCs or SO_X.
na = not applicable

Table 4.3-4
Operational Emissions (Baseline 2011)

			Peak Day Emissions (lb/day)					
Source	**Location**	**VOCs**	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**DPM**
OGV	Fairway	57	143	1,626	203	39	31	39
	Precautionary Zone	11	27	273	34	7	5	7
	Harbor	7	13	88	12	3	2	3
	Berth	30	61	585	127	20	15	18
	Subtotal[a]	**104**	**243**	**2,572**	**375**	**69**	**54**	**67**
Tugboat	Harbor	1	5	16	0	1	1	1
Autocarriers		3	12	60	0	3	2	2.4
Automobiles		0	1	0	0	0	0	0
Worker Vehicles		9	74	20	0	6	3	3
Pacific Harbor Line		0	1	5	0	0	0	0
Total Baseline Emissions[b]		**117**	**336**	**2,673**	**375**	**79**	**60**	**73**

Source:
Air Quality Screening Assessment prepared by iLANCO Environmental, LLC. 2012. (Appendix A)
Notes:
OGV = Ocean Going Vessels
[a] Subtotal numbers are rounded up.
[b] Total is rounded up.

Table 4.3-5
Operational Emissions (Proposed Project 2014)

		Peak Day Emissions (lb/day)						
Source	**Location**	**VOCs**	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**DPM**
OGV	Fairway	57	143	1,626	45	27	21	27
	Precautionary Zone	11	27	273	7	5	4	5
	Harbor	7	13	88	3	2	1	2
	Berth	30	61	585	28	14	10	12
	Subtotal[a]	104	243	2,572	83	47	37	45
Tugboat	Harbor	1	5	17	0	1	1	1
Autocarriers		2	11	72	0	3	2	2
Automobiles		0	1	0	0	0	0	0
Worker Vehicles		7	64	17	0	6	3	3
Pacific Harbor Line		0	1	3	0	0	0	0
Total Project Emissions[b]		**116**	**326**	**2,682**	**84**	**57**	**42**	**51**
	Thresholds	55	550	55	150	150	55	Na
	CEQA Increment[c]	-1	-10	9	-292	-22	-18	-22
	Significance Determination	**No**	**No**	**No**	**No**	**No**	**No**	Na

Source:
Air Quality Screening Assessment prepared by iLANCO Environmental, LLC. 2012. (Appendix A)
Notes:
OGV = Ocean Going Vessels
[a] Subtotal numbers are rounded up.
[b] Total is rounded up.
[c] The CEQA increment is the Total Project Emissions minus the CEQA Baseline.

Based on the modeling conducted and included in Appendix A, operational emissions during 2014 are anticipated to result in a reduction in VOCs, CO, SO_X, PM_{10}, and $PM_{2.5}$, in peak day emissions (lb/day). NO_X emissions would result in a slight increase. However, the operational emissions would be below the emission thresholds established by SCAQMD and would not result in or substantially contribute to emissions concentrations that exceed the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). The proposed project would not violate any air quality standards or contribute substantially to existing or projected air quality violations. Operational impacts would be less than significant.

c) 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 (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact After Mitigation Incorporated. NAAQS and CAAQS have been established for the following criteria pollutants: CO, ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). Areas are classified under the federal Clean Air Act areas as attainment, non-attainment, or maintenance (previously non-attainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. Attainment relative to the California Clean Air Act and state standards is determined by ARB.

Construction

The proposed project site is located in the Los Angeles County portion of the South Coast Air Basin. Los Angeles County is designated as a federal and state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$, a maintenance area for CO, and an attainment area for SO_2, NO_2, and lead. The SCAQMD cumulative analysis focuses on whether a specific project would result in cumulatively considerable emissions. Per CEQA Guidelines Section 15064(h)(4), the existence of significant cumulative impacts caused by other projects alone will not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

As discussed in Question 3(b), construction of the proposed project would result in the temporary generation of VOCs, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Table 4.3-2 summarizes the construction emissions results without mitigation for the proposed construction years of 2013 and 2014. Based on the modeling conducted, without mitigation, construction of the proposed project would result in NO_X emissions that would exceed the daily emission thresholds. In addition, the proposed project would result in NO_X, PM_{10}, and $PM_{2.5}$ emissions that would exceed localized emission thresholds established by SCAQMD. Table 4.3-3 shows that following the implementation of mitigation measures, regional mass daily emissions would be reduced below the levels of significance. The detailed results of the model are included in Appendix A.

Mitigation measures AQ-1 through AQ-5 include the use of tugboats with Tier 2 engines, additional fugitive dust reductions, and the application of the *Sustainable Construction Guidelines* prepared by LAHD for reducing air emissions from all LAHD-sponsored construction projects (LAHD 2009). The *Sustainable Construction Guidelines* include the use of best management practices (BMPs) aimed at reducing vehicle emissions, construction dust, etc. The *Sustainable Construction Guidelines* require that by January 1, 2012, all on-road heavy-duty diesel trucks with a gross vehicle weight of 19,500 pounds or greater used at POLA will comply with EPA 2007 on-road emission standards for PM_{10} and NO_X (0.01 g/bhp-hr and at least 1.2 g/bhp-hr, respectively) (LAHD 2009). Further, the mitigation measures also require use of off-road construction equipment with Tier 4 engines. However, Tier 3 engines would be applied on a case-by-case basis in the event Tier 4 technology is not available.[6] According to the SCAQMD

[6] Tier 4 equipment is required to be used if technology is available. In the event Tier 4 technology is not available, Tier 3 equipment will be used. As such, the emissions calculation for construction mitigation assumed utilization of Tier 4 to be at 75 percent and Tier 3 to be at 25 percent to account for the lack of availability of Tier 4 technology.

thresholds, the proposed project would not contribute to a cumulatively considerable air quality impact with implementation of mitigation measures. The impacts would be reduced to less than significant with the implementation of mitigation measures.

Operation

As discussed in Question 3(b), operational emissions during 2014 are anticipated to result in a reduction in VOCs, CO, SO_X, PM_{10}, and $PM_{2.5}$, in peak day emissions (lb/day). NO_X emissions would result in a slight increase. However, the operational emissions would be below the NO_X emission thresholds established by SCAQMD, for which the region is in attainment and, therefore, would not result in or substantially contribute to a cumulatively considerable increase in emissions concentrations that exceed NAAQS or CAAQS. Therefore, long-term operational impacts would be less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact After Mitigation Incorporated. For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, or convalescent facility where it is possible that an individual could remain for 24 hours. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain onsite for a full 24 hours, but are present for shorter periods of time, such as eight hours (SCAQMD 2003).

The nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. These residential areas include properties zoned One-Family (R-1) and Restricted Density Multiple Dwelling (RD). The permitted uses include one- and two-family dwellings, multiple dwellings, apartments, and park playgrounds or community centers (City of Los Angeles 2011). However, the liveaboard boat tenants were identified to be located approximately 425 feet east of the proposed project, across the East Basin. These receptors represent the nearest land uses with the potential to be impacted as a result of the proposed project.

Impacts to sensitive receptors are evaluated in terms of the greatest exposure to TACs. Diesel particulate matter is a TAC. Construction-related activities would result in short-term project-generated emissions of diesel particulate matter from the exhaust of off-road heavy-duty diesel equipment for pavement removal, site preparation (e.g., excavation, grading, and clearing), paving, materials transport and handling, and other miscellaneous activities. TACs are generally related to diesel particulate matter emissions associated with heavy equipment operations during grading and excavation activities. According to SCAQMD methodology, health effects from carcinogenic TACs are usually described in terms of individual cancer risk, which is based on a 70-year lifetime exposure to TACs.

Construction

The proposed project construction period of two 180-day phases (approximately 360 days) would be much less than the 70 years used for risk determination. With mitigation, the maximum daily emission for diesel particulate matter is 3 lbs/day during construction activities, as displayed in Table 4.3-3. Further, the proposed project would not exceed the SCAQMD localized significance thresholds for PM_{10} and $PM_{2.5}$ with implementation of mitigation measures. Mitigation measures AQ-1 through AQ-5 provided include the use of tugboats with Tier 2 engines, additional fugitive dust reductions, and the application of the *Sustainable Construction Guidelines* prepared by LAHD for reducing air emissions from all LAHD-sponsored construction projects (LAHD 2009). The *Sustainable Construction Guidelines* include the use of best management practices (BMPs) aimed at reducing vehicle emissions, construction dust, etc. The *Sustainable Construction Guidelines* require that by January 1, 2012, all on-road heavy-duty diesel trucks with a gross vehicle weight of 19,500 pounds or greater used at POLA will comply with EPA 2007 on-road emission standards for PM_{10} and NO_X (0.01 g/bhp-hr and at least 1.2 g/bhp-hr, respectively) (LAHD 2009). Further, the mitigation measures also require use of off-road construction equipment with Tier 4 engines. However, Tier 3 engines would be applied on a case-by-case basis in the event Tier 4 technology is not available.[7] Because the use of off-road heavy-duty diesel equipment would be temporary and with implementation of mitigation measures AQ-1 through AQ-5, construction-related emissions of TACs would not expose sensitive receptors to substantial emissions of TACs. The impacts would be less than significant.

Operation

As displayed in Table 4.3-5, the proposed project would result in a decrease in diesel particulate matter during opening year (2014) (approximate reduction of 22 lbs/day). Overall, operational emissions would also realize a reduction in criteria pollutants (VOCs, CO, SO_X, PM_{10}, and $PM_{2.5}$) during opening year (2014). Further, the proposed project would not exceed the SCAQMD localized significance thresholds with implementation of mitigation measures. NO_X would result in a slight increase from the baseline (2011). However, the operational emissions would not exceed significance thresholds. Further, operation of the proposed project would not introduce any new sources of TACs. Therefore, the proposed project would not expose sensitive receptors to substantial operational pollutant concentrations. The impacts would be less than significant. No mitigation is required.

[7] Tier 4 equipment is required to be used if technology is available. In the event Tier 4 technology is not available, Tier 3 equipment will be used. As such, the emissions calculation for construction mitigation assumed utilization of Tier 4 at 75 percent and Tier 3 to be at 25 percent in the event Tier 4 technology is not available for use.

e) Create objectionable odors affecting a substantial number of people?

Less than Significant Impact.

Construction

Construction activities associated with the proposed project could result in odorous emissions from diesel exhaust associated with construction equipment. As discussed above, the nearest sensitive receptors are residential areas are within the community of Wilmington, approximately 0.5 miles to the northwest. However, liveaboard boat tenants were identified to be located approximately 425 feet east of the proposed project, across the East Basin.

Due to the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, nearby receptors (residential areas 0.5 miles northwest and liveaboard boat tenants 425 feet east, across the East Basin) would not be affected by the temporary diesel exhaust odors associated with project construction. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The impacts would be less than significant.

Operation

Operation of the project would not be substantially different from operations today. As such, operation of the proposed project would not result in objectionable odors affecting a substantial number of people. No operational impacts related to creation of objectionable odors would occur.

4.4 BIOLOGICAL RESOURCES

The LAHD conducted biological baseline surveys of the Port area in 2002. Several candidate, sensitive, or special-status species have been identified in the Port area. The following description of biological resources incorporates information from the biological baseline survey conducted in 2002. The 2002 survey studied adult and juvenile fish; ichthyoplankton; benthic invertebrates; riprap associated organisms; kelp and macroalgae surface canopy; eelgrass; birds; and various exotic species. The 2002 survey (MEC 2002) is representative of baseline conditions because operational conditions at the facility have continued since that time through to the present. Because it is paved and used for vehicle processing continuously, the entire facility contains no terrestrial biological resources..

The goal of the biological baseline surveys conducted in 2002 is to provide quantitative information on the physical/chemical and biological conditions within the different marine habitats of both the POLA and the Port of Long Beach (MEC 2002). The potential for indirect impacts were reviewed because waste or other materials leaving the site through processes such as drainage could affect biological resources off-site within the Port area.

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 Game or U.S. Fish and Wildlife Service?

Less than Significant Impact. According to the biological baseline surveys conducted in 2002, several candidate, sensitive, or special-status species have been identified in the Port area, which include adult and juvenile fish, ichthyoplankton, benthic invertebrates, riprap-associated organisms, kelp and macroalgae surface canopy, eelgrass, birds, and various exotic species (MEC 2002). However, the proposed project site is entirely paved and currently operates as a vehicle processing facility, including operation of large vessels on the water, heavy equipment on the wharf, and vehicles and locomotive operations on the backlands areas. The site is not suitable for use by biological species. Therefore, the proposed project is anticipated to have less than significant impacts to candidate, sensitive, or special-status species. No mitigation is required.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

No Impact. As discussed in Question 4(a), the proposed project site is paved and operated as a vehicle processing facility currently including operation of large vessels on the water, heavy equipment on the wharf, and vehicles and locomotive operations on the backlands areas. The

proposed project site does not contain any federally protected wetlands as defined by Section 404 of the Clean Water Act (CWA). The closest wetlands are the Cabrillo Salt Marsh, located at Cabrillo Beach in the outer harbor. Cabrillo Shallow Water Habitat is a 190-acre shallow water habitat, providing a replacement habitat and feeding area for fish and marine birds. (LAHD 2011). The Cabrillo Salt Marsh is approximately 4.6 miles southwest of the project site. As such, no impacts to riparian habitat or sensitive natural community would occur as a result of the proposed project. No mitigation is required.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. The proposed project site does not contain any federally protected wetlands as defined by Section 404 of the Clean Water Act. The closest wetlands are the Cabrillo Salt Marsh, a 3.25-acre wetlands constructed by the Port, located at Cabrillo Beach in the Outer Harbor (LAHD 2011). The Cabrillo Salt Marsh is approximately 4.6 miles southwest of the project site.

Proposed construction activities would be confined to the immediate project site. Proposed project operations, including sailing exercises, would be conducted in the immediate area of the marina and adjacent portions of East Basin, and no activities would occur within or near wetlands. Thus, the proposed project would not affect this or any other federally protected wetlands as defined by Section 404 of the CWA.

Several wetlands and other special marine habitats are present in the Los Angeles Harbor. However, operations associated with the proposed project would be confined to the immediate area of the marina and adjacent portions of East Basin that do not support federally protected wetlands. As such, no impacts to riparian habitat or sensitive natural community would occur as a result of the proposed project. No mitigation is required.

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?

Less than Significant Impact After Mitigation Incorporated. Because the project site is paved and actively used for vehicle processing, it does not contain habitat suitable for wildlife species and is not used by native resident or migratory species for movement or nursery purposes. Further, the project site does not support any vegetation or contain habitat suitable for wildlife species. While the project site is not a suitable resting site and it is not suitable foraging area because of the ongoing industrial infrastructure and activities, marine species including fish and marine mammals are known to traverse and occur throughout the waters of San Pedro Bay. These

species may be impacted by the temporary construction activities associated with the proposed project for which mitigation is identified to reduce impacts to less than significant.

Construction

During construction, the installation of piles may disturb any marine species, particularly marine mammals, in the vicinity. While the project site is not a suitable resting site and it is not suitable foraging area, due to the industrial infrastructure and activities that are ongoing, marine mammals travel and have been seen throughout the waters of the LAHD. As such, to ensure that potential impacts from pile driving activities result in less than significant impacts, mitigation measures BIO-1 and BIO-2 would be implemented for pile driving operations within LAHD to avoid marine mammals.

BIO-1 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 wharf extension shall include establishment of a safety zone, and the area surrounding the operations will be monitored by a qualified marine biologist for pinnipeds. A 100-meter-radius safety zone will be established around the pile-driving site and monitored for marine mammals. As the pile-driving site will move with each new pile, the 100-meter safety zone shall move accordingly.

Prior to commencement of pile-driving, observers on shore or by boat will survey the safety zone to ensure that no marine mammals are seen within the zone before pile-driving of a pile segment begins. If a marine mammal is observed within 10 meter of pile-driving operations, pile-driving shall be delayed until the marine mammal moves out of the area. If a marine mammal in the 100-meter safety zone is observed, but more than 10 meters away, the contractor shall wait at least 15 minutes to commence pile-driving.

If the marine mammal has not left the 100-meter safety zone after 15 minutes, pile-driving can commence with a "soft start". This 15-minute criterion is based on a study indicating that pinnipeds dive for a mean time of 0.50 minutes to 3.33 minutes; the 15-minute delay will allow a more than sufficient period of observation to be reasonably sure the animal has left the proposed Project vicinity.

If marine mammals enter the safety zone after pile-driving of a segment has begun, pile-driving shall continue. If the animal appears distressed, and if it is operationally safe to do so, pile-driving shall cease until the animal leaves the area.

BIO-2 During construction, a biological monitor shall be present to monitor and record any marine mammals observed, and make note of their behavior patterns. Prior to the initiation of each new pile-driving episode, the area shall, again, be thoroughly surveyed by the biologist to monitor and record any marine mammals observed.

Operation

Operation of the proposed project would not result in the expansion of disturbed areas or increase the number of piles in the water. Therefore, the project would not interfere 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 during operation of the proposed project. No mitigation is required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The only designated Significant Ecological Area (SEA) in Los Angeles Harbor is Pier 400, Terminal Island for the California least tern (*Sternula antillarum browni*) nesting site. The project site is approximately 1 mile north of the current nesting site at Pier 400 and does not involve any construction or operational components within the vicinity of Pier 400 and would not impact the least terns. No impact would occur. No mitigation is required.

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?

No Impact. There are no Habitat Conservation Plans (HCPs) currently in place at the project site. The nearest Natural Community Conservation Plan (NCCP) to the project site, the Palos Verdes Peninsula Sub-Regional Plan, is located 4.5 miles southwest. This plan intends to protect coastal sage scrub and does not include Port lands. The proposed project would not conflict with the provisions of an adopted HCP or other approved local, regional, or state HCP. Neither the project site nor any adjacent areas are included as part of an NCCP. No impact would occur. No mitigation is required.

4.5 CULTURAL RESOURCES

Methodology

A brief Cultural Resources Investigation was prepared in support of the IS/MND (AECOM 2012). The results of the investigation are referenced in the analysis. The Cultural Resources Investigation included a records search for archaeological, paleontological, and historic resources within the project site.

Archival research for the project site was conducted on January 30, 2012 at the South Central Coastal Information Center housed at the California State University, Fullerton (SCCIC). The research focused on the identification of previously recorded cultural resources within a 0.5-mile radius of the project site. The archival research involved review of archaeological site records, historic maps, and historic sites. In addition, the National Register of Historic Places (NRHP) database and listings for the California State Historic Resources Inventory (HRI), and the California Historical Landmarks (CHL) Register were examined to determine whether any sites in this radius were listed on or had been determined eligible for these registers. The record search revealed that a total of 19 cultural resource investigations were previously conducted, and a total of ten cultural resources have been previously recorded within a 0.5-mile radius of the project site. Two of the cultural resource investigations overlap with the project site (LA-2399 and LA-4130). These studies are primarily research based, it is unclear whether a systematic survey of the project areas was undertaken. There are no archaeological or historic resources previously recorded within the project site.

As part of this investigation, AECOM conducted a Native American Contact Program on behalf of LAHD to inform interested parties of the proposed project and to address any concerns regarding Traditional Cultural Properties or other resources that might be affected by the project. The program involved contacting Native American representatives provided by the Native American Heritage Commission to solicit comments and concerns regarding the proposed project. The Native American Contact Program includes a Sacred Lands File check, an interested party contact program, and collection and review of other relevant background data. A letter was prepared and mailed to the Native American Heritage Commission on January 31, 2012. No comments were received from any Native American representatives.

A cultural resources field survey of the study area has not been conducted to-date as the entire project site is paved fill or wharf development, and the level of disturbance associated with the project will occur under the paved portions of the project site and underwater. However, a study of aerial photography was performed in lieu of the archaeological survey. As there are no existing structures of historic age on-site or adjacent to the project site, further study of historical resources was not included in this study.

Regulatory Framework

In support of this analysis, a review of the regulatory environment was conducted in order to develop a context for the identification and preliminary evaluation of cultural resources within the proposed project area. The following summarizes the results of the review.

Secretary of the Interior's Standards for the Treatment of Historic Properties

The Secretary of Interior's Standards for the Treatment of Historic Properties were prepared to help protect property owners, developers, and federal managers apply the Secretary of the Interior's "Standards for Rehabilitation" during the project planning stage by providing general design and technical recommendations.

The Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards) are the criteria by which federal agencies and many local government bodies evaluate rehabilitative work on historic properties. The Secretary's Standards are a useful analytic tool for understanding and describing the potential adverse effects to historic properties. Compliance with the Secretary's Standards does not determine whether a project would cause a substantial adverse change to the significance of a historic property. Rather, projects that comply with the Secretary's Standards benefit from a regulatory presumption that they would have not have an adverse effect on a historic property. Projects that do not comply with the Secretary's Standards may or may not have an adverse effect on the significance of a historic property (National Park Service 1998)

California Register of Historical Resources

Cultural resources in California are protected by a number of federal, state, and local regulations, statues, and ordinances. The determination of California Register of Historical Resources (CRHR) significance of a resource is guided by specific legal context outlined in Sections 15064.5 (b), 21083.2, and 21084.1 of the Public Resources Code (PRC), and the CEQA Guidelines (California Code of Regulations Title 14, Section 15064.5). A cultural resource may be eligible for listing on the CRHR if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage:
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for

their significance. Such integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

CEQA and Archaeological Resources

The State of California implements those aspects of the National Historic Preservation Act (NHPA) pertinent to state and local governments through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the State's jurisdictions.

CEQA, as codified in California Public Resources Code (PRC) Sections 21000 et seq., is the principal statute governing the environmental review of projects in the state. The CEQA Guidelines define a historical resource as: (1) a resource in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historic resources, as defined in PRC Section 5020.1(k) or identified as significant in a historic resource survey meeting the requirements of PRC § 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

For a resource to be eligible for the CRHR, in addition to the criteria mentioned in preceding paragraphs, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR. CEQA Section 15164.5(3) notes that, "Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties shall be considered as mitigated to a level of less than significant impact on the historical resource."

An archeological resource can be significant as both or either a "unique" archeological resource and as an "historical resource" but the process by which the resource is identified, under CEQA, as either one or the other is distinct (*CEQA and Guidelines* §§ 21083.2(g), 15064.5(a)(2)). An archeological resource is a "*historical resource*" under CEQA if the resource is:

1. Listed on or determined eligible for listing on the California Register (CEQA Guidelines §15064.5). This includes National Register-listed or –eligible archeological properties.
2. Listed in a "local register of historical resources"133.
3. Listed in a "historical resource survey." [CEQA Guidelines § 15064.5(a)(2)].

Generally, an archeological resource is determined to be an "historical resource" due to its eligibility for listing to the California Register/National Register because of the potential scientific value of the resource, that is, "has yielded, or may be likely to yield, information important in prehistory or history" (*CEQA and Guidelines* § 15064.5 (a)(3)).

A "*unique archaeological resource*" is a category of archeological resources created by the CEQA statutes [*CEQA* § 21083.2(g)]. An archeological resource is a "unique archeological resource" if it meets any of one of three criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type;
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Archeological resources may also be assessed under CEQA as unique archeological resources, defined as archeological artifacts, objects, or sites that contain information needed to answer important scientific research questions.

Would the Project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less than Significant Impact. The WWL facility was investigated for potential project impacts to historic resources as a result of the proposed project. The WWL facility was originally constructed in the 1950s and 1960's, and over time, buildings and features have been added and removed from the facility. Despite these alterations to the facility, it continues to function as originally. Historic aerial photographs indicated that the current configuration of the WWL facility was in place by approximately 1980.

The portion of the wharf structures within the project site were identified to be over 50 years old. As such, the proposed project has the potential to result in impacts to resources that are historic in age. Records provided by LAHD reveal that wharves at Berths 195-198 were constructed in 1950, while the wharf at Berth 199 was constructed during both 1953 and 1960 (Port of Los Angeles 2010). These wharves have not been surveyed by POLA (Port of Los Angeles 2010). As the wharves were constructed between 1950-1960, the wharves within the project site could be considered potentially historic in age. Proposed improvements to the wharves include the removal and replacement of timber pile, repair of timber joists, removal of asphalt concrete, and construction of new asphalt concrete pavement. The proposed project would remove or replace

approximately 49 timber piles for Berths 196-197, 27 timber piles for Berth 198, and eight timber piles for Berth 199, which would result in a total of 84 timber piles. Approximately 107 joists would be repaired or replaced. These rehabilitation elements are necessary to ensure improved structural strength and continued support capacity of the wharf to match adjacent berth conditions and maintain safe operations. The proposed wharf rehabilitation activities are permanent improvements that would abate deterioration and strengthen the facility to maintain its structural integrity. It is anticipated that in‐kind replacement would be utilized in areas of the structure wharf that are severely deteriorated. This would be consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties, which provide guidance on the repair and alteration of pier and wharf substructures to maintain the structural integrity and function. The guideline states the following (National Park Service 1998):

> *If repair by stabilization, consolidation, and conservation proves inadequate, the next level of intervention involves the limited replacement in kind of extensively deteriorated or missing parts of features when there are surviving prototypes (for example, brackets, dentils, steps, plaster, or portions of slate or tile roofing). The replacement material needs to match the old both physically and visually, i.e., wood with wood, etc.*

Improvements to the wharves would utilize materials similar to the materials used on the existing wharves and would not be out of character, which would be consistent with the Secretary's Standards. Further, the wharf rehabilitation activities would not impact the function or integrity of the wharves. As such, the proposed project would result in less than significant impacts to historic-aged structures.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant Impact After Mitigation Incorporated. The records search conducted on January 30, 2012 at the SCCIC indicated that a total of ten cultural resources have been previously recorded within 0.5-mile of the study area. Two of the cultural resource investigations overlap with the project site (LA-2399 and LA-4130). These studies are primarily research based. It is unclear whether a systematic survey of the project areas was undertaken. However, areas adjacent to the project site to the west (LA-4228) and southeast (LA-4455), have been previously surveyed. None of these previous investigations identified cultural resources within the current project site.

The entire project site is obscured by asphalt and a visual inspection for archaeological resources was determined to be infeasible. In lieu of a survey, an examination of modern and historic aerial photographs was completed. Modern aerial photographs were reviewed closely for indications of possible cultural resource issues within the project area. In addition, this information was closely compared to historic aerial photographs and historic maps in order to create a picture of change

and disturbances within the project area to ascertain the presence of possible cultural resources. Satellite imagery of the project area includes complete coverage with medium resolution. This imagery indicated that the current configuration of the WWL facility was in place by approximately 1980.

Ground disturbance within the project site has the potential to impact archaeological resources. The proposed project includes the construction of two additional railroad-loading tracks located on the southern portion of the project site. The proposed construction is anticipated to disturb soil approximately 2 feet below ground surface. Historic maps and photos suggest that a rail spur crossed the center of the proposed project from the 1920s to the 1980s. A Sanborn map, updated between 1921 and 1950, indicated that several railroad tracks ran along the edge of the wharf fronting the East Basin. The western part of this map also indicated that a number of railroad tracks ran northeast to southwest through the middle of the present project area to Slip 5. More railroad lines were also identified leading to the Wilmington Boat Works. To the west of the project area, the Southern Pacific line ran along Alameda Street. From the 1940s to the 1990s, Exxon Mobil operated an oil production facility adjacent to the present project area. By 1972, the portion of the project area southwest of the Exxon Mobil facility had been graded. WWL began leasing land from LAHD in 1969, and these changes were undertaken to convert the project area to an asphalt paved lot for vehicle processing. Railroad lines still ran through the center of the project site towards Slip 5. By 1980, the western portion of the project site had been converted to its present use as an asphalt-paved lot for vehicle processing and storage. Modern aerial images indicate that historic rail lines, which have been removed from service on the proposed project area, may be present under the pavement extending across the center of the project area from the northeast to the southwest, or along the wharf on the eastern portion of the site. The existing rail lines within the project site is identified to be modern. However, ground disturbance resulting from the construction of two additional railroad-loading tracks on the southern portion of the project site has the potential to encounter buried historic spur rail lines.

To avoid potential impacts to buried resources, mitigation measure CUL-1 is provided.

CUL-1 Prior to the start of any ground disturbing activities a qualified archaeologist should be retained to respond on an as-needed basis in the event archaeological discoveries occur. In the event any cultural resources are encountered during earthmoving activities, including the potential for buried historic rail spur lines during the construction of railroad tracks on the southern portion of the project site, the construction contractor shall cease activity in the affected area until the discovery can be evaluated and recorded by the cultural resources specialist in accordance with the provisions of CEQA §15064.5. The archaeologist shall complete any requirements for treatment measures and data recovery.

With the implementation of the above mitigation measure CUL-1, the proposed project would have a less than significant impact on archaeological resources.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. The paleontological records search conducted on February 24, 2012 at the Vertebrate Paleontology Division of the Natural History Museum of Los Angeles County indicated that there is one known vertebrate fossil locality that lies within close proximity to the proposed project site boundaries, along Anaheim Street near the intersection of Henry Ford Avenue. The vertebrate fossil locality (LACM 1163), is associated with older Quaternary Alluvium. This vertebrate fossil locality does not lie within the project site and, as such, the project is not anticipated to impact any known paleontological resources.

Further, based on archival research, it was determined that the project site predominantly consists of artificial fill and surficial deposits composed of younger Quaternary Alluvium resulting from the Dominguez Channel that flows east of the project site. Surface excavations within the artificial fill or shallow excavations in the younger Quaternary Alluvium will likely not uncover significant vertebrate fossils. However, relatively shallow excavations, which extend down into older Quaternary deposits could encounter significant vertebrate fossils of Late Pleistocene age.

The proposed project would involve surface grading or very shallow excavations in the project site. In general, wharf rehabilitation would involve removal and replacement of timber pile, removal of asphalt concrete, and construction of new asphalt concrete pavement. Implementation of the proposed project would also result in the construction of two additional railroad-loading tracks on the southern portion of the project site, which is anticipated to disturb soil approximately 2 feet below ground surface. Paleontological resources are not anticipated to be impacted as a result of the proposed project. As such, the proposed project would have a less than significant impact related to paleontological resources. No mitigation is required.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. The records search indicated that no previously-recorded formal cemeteries are located within a 0.5-mile radius of the project site. No formal cemeteries or other places of human internment are known to exist in the project site itself.

A lack of surface evidence and the fact that human remains have not been encountered in the area however, does not preclude the possibility that unknown and unanticipated human remains may be encountered within the project site. In the event human remains are encountered during construction activities, all work within the vicinity of the remains shall halt in accordance with standard POLA construction requirements, Health and Safety Code §7050.5, Public Resources Code §5097.98, and §15064.5 of the CEQA Guidelines and the Los Angeles County Coroner shall be contacted. If the remains are deemed Native American in origin, the Native American

Heritage Commission will be contacted to request consultation with a Native American Heritage Commission -appointed Most-Likely Descendant pursuant to Public Resources Code §5097.98 and CCR §15064.5.

As such, the proposed project would have a less than significant impact related to the disturbance of human remains. No mitigation is required.

4.6 GEOLOGY AND SOILS

This section describes the regional and local geologic and soil characteristics of the proposed project area.

Would the Project:

a) Expose people or structures to 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. The project site is located within the Los Angeles Coastal Plain of the Peninsular Ranges geomorphic province of Southern California approximately 16 miles southwest of downtown Los Angeles at the north end of the Los Angeles Harbor. The site is at an elevation of approximately 12 feet above mean sea level. The project site is located within the seismically active Southern California region and has the potential to be subjected to ground shaking hazards associated with earthquake events on active faults. The closest known fault is the Newport-Inglewood-Rose Canyon Fault Zone, located approximately 16 miles north of the project site. The Safety Element of the City of Los Angeles General Plan does not identify the project site as located within an Alquist-Priolo Earthquake Fault Zone or in a Fault Rupture Study Area (City of Los Angeles 1996). Therefore, less than significant impacts would occur related to the risk of surface rupture due to faulting. No mitigation is required.

ii) Strong seismic ground shaking?

Less than Significant Impact. The project site is located within the seismically active Southern California region and could experience effects of ground shaking. The project site is not located within an Alquist-Priolo Earthquake Fault Zone or in a Fault Rupture Study Area. The proposed project would not construct any habitable structures. The proposed project involves rehabilitation at four berths—Berths 196-197, Berth 198, and Berth 199 and placement of rail track for rail car storage. This rehabilitation would improve safety by removing and replacing damaged or old infrastructure. Use of the project site would remain the same. The proposed project would comply with all Port and City of Los Angeles building and safety guidelines, restrictions, and permit regulations, which are designed to address the risks associated with seismic groundshaking. Compliance with existing regulations would ensure a less than significant impact. No mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction is the process in which saturated silty to cohesionless soils below the groundwater table temporarily lose strength during strong ground shaking as a consequence of increased pore pressure during conditions such as those caused by an earthquake. Earthquake waves cause water pressures to increase in the sediment and the sand grains to lose contact with each other, leading the sediment to lose strength and behave like a liquid.

Per the City of Los Angeles General Plan Safety Element, the project site is located in an area identified as being susceptible to liquefaction (City of Los Angeles 1996). The area is designated as a "Liquefiable Area (recent alluvial deposits; ground water less than 30 feet deep)." The proposed project would not construct any habitable structures or change the existing use of the project site. Further, the proposed project would comply with all City building and safety guidelines, restrictions, and permit regulations. These regulations and guidelines include requirements for structure design that address safety and stability on sites potentially at risk of liquefaction. Adherence to these requirements would result in less-than-significant impacts related to liquefaction. No mitigation is required.

iv) Landslides?

No Impact. Landslides occur when masses of rock, earth, or debris move down a slope. Landslides are caused by disturbances in the natural stability of a slope. They can accompany heavy rains or follow droughts, earthquakes, or volcanic eruptions. Construction activities, such as grading, can accelerate landslide activity.

The proposed project site is relatively flat with no significant natural or graded slopes. No slope grading would occur with project construction. According to the City of Los Angeles Safety Element, the project site is not located within an area susceptible to landslides (City of Los Angeles 1996). The potential for seismically induced landslides in the proposed project site is considered remote. As such, no impacts would occur and no mitigation is required.

b) Result in substantial soil erosion, loss of topsoil, or changes in topography or unstable soil conditions from excavation, grading, or fill?

Less than Significant Impact. According to a geological map of the Long Beach Quadrangle (California Geological Survey 2003), the vicinity of the project area is characterized by artificial fill. To the north of the project area, old alluvial flood plain deposits are mapped. Prior to the early 20th century, the site was located within the Wilmington Lagoon, an area described

historically as mudflats, which experienced periodic inundation. Substantial dredging and filling were conducted to create the modern inner harbor. The proposed project lies partially on filled land and partially on a built wharf structure supported by wooden piles. The surface of the site consists of asphalt paving. No vegetation is present.

Construction

Construction of the proposed project would result in ground surface disturbance during excavation and grading that could create the potential for erosion to occur. Construction activities associated with the proposed project would expose soils for a limited time, allowing for possible erosion.

The existing WWL facility is approximately 87.21 acres. The proposed project would involve construction and rehabilitation at four berths: Berths 196-197, Berth 198, and Berth 199. In general, wharf rehabilitation would involve removal and replacement of timber pile, removal of asphalt concrete, and construction of new asphalt concrete pavement.

Implementation of the proposed project would result in the construction of two additional railroad-loading tracks on the southern portion of the project site. It is anticipated that construction of the new railroad-loading tracks would disturb soil approximately 2 feet below ground surface.

On-site surface runoff water and drainage are directed generally toward Alameda Street to municipal storm drains and sewer. The proposed project would be subject to the requirements of the NPDES Stormwater Program, which requires obtaining coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity, General Construction Permit 2009-0009-DWQ. The General Construction Permit outlines a set of provisions that would comply with the requirements of the NPDES stormwater regulations. This also requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP specifies BMPs aimed at controlling construction-related pollutants that originate from the site as a result of construction-related activities, including sediments. These BMPs include measures for temporary soil stabilization (e.g., preservation of existing vegetation, hydroseeding, and slope drains); temporary sediment control (e.g., silt fence, storm drain protection, and wind erosion control); and tracking control (e.g., stabilized construction entrance/exit).

Implementation of appropriate BMPs; preparation of a SWPPP; and compliance with the requirements of the NPDES Stormwater Program, City of Los Angeles Municipal Code, and all other applicable federal, state, and local regulations prior to project approval would result in a less-than-significant impact. No mitigation is required.

Operation

Long-term operation of the proposed project would not result in substantial soil erosion or loss of topsoil because the project site would be entirely developed with structures and pavement. The proposed project would result in a less-than-significant impact. No mitigation is required.

c) Be 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. As discussed in the response to Question 4.6(a)(iv) above, the project site is not located within an area susceptible to landslides (City of Los Angeles 1996). As discussed in Question 4.6(a)(iii), the project site is located in an area identified as being susceptible to liquefaction area (City of Los Angeles 1996). Construction of all new structures would be subject to Port and City of Los Angeles building and safety guidelines, restrictions, and permit regulations related to geologic safety. Adherence to these requirements would result in less-than-significant impacts related to unstable geologic units or soils. No mitigation is required.

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

Less than Significant Impact. Expansive soils are clay-based soils that tend to expand (increase in volume) as they absorb water and shrink (lessen in volume) as water is drawn away. Expansive soils can occur in any climate; however, arid and semi-arid regions are subject to more extreme cycles of expansion and contraction than more consistently moist areas. The hazard associated with expansive soils lie in the structural damage that may occur when buildings are placed on these soils. Expansive soils are often present in liquefaction zones due to the high level of groundwater typically associated with liquefiable soils.

As previously discussed in Question 4.6(a)(iii), the project site is located in an area identified as susceptible to liquefaction area (City of Los Angeles 1996). Operation of the project would not be substantially different from current operations. Implementation of the proposed project would allow for the continued use of the property for processing and operations of vehicle cargo with modified lease boundaries. All new structures would be subject to Port and City of Los Angeles building and safety guidelines, restrictions, and permit regulations. Compliance with the existing regulations would minimize any risks relating to expansive soils. Impacts would be less than significant. No mitigation is required.

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?

No Impact. The proposed project would utilize the sewer system currently being used by existing operations. The use of septic tanks or other alternative wastewater disposal systems would not be

necessary. Therefore, no impacts associated with use of wastewater disposal systems would occur. No mitigation is required.

4.7 GREENHOUSE GAS EMISSIONS

This section describes the projected greenhouse gas emissions (GHG) and the potential impacts associated with the proposed project.

GHG emissions have the potential to adversely affect the environment because they contribute, on a cumulative basis, to global climate change. In turn, global climate change has the potential to result in rising sea levels, which can inundate low-lying areas; affect rain and snow fall, leading to changes in water supply; affect habitat, leading to adverse effects on biological and other resources. Thus, GHG emissions require consideration in CEQA documents.

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation is absorbed by GHGs; as a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on earth. Without the naturally occurring greenhouse effect, Earth would not be able to support life as we know it.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The following are the gases that are widely seen as the principal contributors to human-induced global climate change:

- CO_2
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)

GHG emissions related to human activities are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (IPCC 2007).

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas; the global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. GHGs with lower emissions rates than CO_2 may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2. The concept of

CO_2-equivalents (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

Heavy-duty off-road equipment, materials transport, and worker commutes during construction of the proposed project would result in exhaust emissions of GHGs. GHG emissions generated by construction would be primarily in the form of CO_2. Although emissions of other GHGs, such as CH_4 and N_2O, are important with respect to global climate change, the emission levels of these other GHGs from on- and off-road vehicles used during construction are relatively small compared with CO_2 emissions, even when factoring in the relatively larger global warming potential of CH_4 and N_2O.

To date, there are no local, regional, state, or federal regulations to establish a threshold of significance to determine the project specific impacts of GHG emissions on global warming. In addition, the City of Los Angeles has not established such a threshold. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, the SCAQMD staff formed the GHG CEQA Significance Threshold Working Group. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. At the time of this analysis, the SCAQMD has only adopted a significance threshold for GHG emissions of 10,000 metric tons per year, where SCAQMD is the Lead Agency for an industrial project. SCAQMD recommends that construction emissions be amortized over 30 years and added to the operational emissions of the project.

Would the Project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. As discussed, SCAQMD has only adopted a significance threshold for GHG emissions of 10,000 metric tons per year, where SCAQMD is the lead agency for an industrial project. To evaluate a projects impact on GHG emissions, construction emissions were amortized over 30 years and added to the operational emissions of the project (SCAQMD 2008). For the purposes of this analysis, LAHD is using SCAQMD's significance threshold for GHG emissions of 10,000 metric tons per year. Table 4.7-1 summarizes the results of the GHG analysis.

Construction

There are two proposed phasing options for the construction and rehabilitation of the wharves, both resulting in two 180-day phases (approximately 360 days).

Table 4.7-1
GHG Emissions

	CO_2e (Metric Tons per Year)
Total Baseline (2011)	5,487
Construction GHG Emissions (30-year Amortization)	85
Operational Emissions (2014)	6,225
Total Project GHG Emissions[b]	6,310
SCAQMD Proposed Threshold	10,000
CEQA Increment[a]	824
Exceed Significance Threshold?	**No**

Source:
Air Quality Screening Assessment prepared by iLANCO Environmental, LLC. 2012. (Appendix A)
Note:
[a] The CEQA increment is the Total Project Emissions minus the CEQA Baseline.
[b] Total is rounded up.
Threshold and amortization, per SCAQMD Policy on GHG thresholds, December 5, 2008, Agenda No. 31.
Mitigation measures would not affect GHG emissions, therefore unmitigated GHG emissions assumed to equal mitigated GHG emissions.

As displayed in Table 4.7-1, construction-generated emissions (amortized over 30 years) for the proposed project would result in annual emissions of approximately 85 metric tons of CO_2e. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment. The impacts would be less than significant. No mitigation is required.

Operation

Implementation of the proposed project would allow for the continued use of the property for processing and operations of vehicle cargo with modified lease boundaries. Operation of the proposed project would not generate additional traffic or increase the number of vehicle trips per day. The proposed project would not increase the volume-to-capacity ratio for roads and would not increase traffic congestion at intersections. Implementation of the proposed project would result in the construction of two additional railroad-loading tracks on the southern portion of the project site. As displayed in Table 4.7-1, operation of the proposed project in 2014 (amortized over 30 years) is anticipated to generate 6.225 metric tons of CO_2e per year, which would not exceed the SCAQMD GHG threshold. Therefore, the proposed project would not generate GHG emissions during operation of the proposed project that may have a significant impact on the environment. The impacts would be less than significant. No mitigation is required.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. Statewide GHG emissions must adhere to the requirements of Assembly Bill (AB) 32, first signed by Governor Arnold Schwarzenegger in 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions.

In addition, AB 32 directed the California Air Resources Board (ARB) to develop a scoping plan and identify a list of early action GHG reduction measures. In June 2007, ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The early action items focus on industrial production processes, agriculture, and transportation sectors. Early action items are either not specifically applicable to the proposed project or would result in a reduction of GHG emissions associated with the project.

In 2007, Mayor Villaraigosa issued Executive Directive No. 10, Sustainable Practices in the City of Los Angeles. This Directive sets forth his vision to transform Los Angeles into the most sustainable large city in the country and includes goals in the areas of energy and water, procurement, contracting, waste diversion, nontoxic product selection, air quality, training, and public outreach. In 2008, the Port evaluated its existing practices and submitted to the Mayor the Port of Los Angeles Sustainability Assessment and Plan Formulation, which outlined the extensive environmental and social programs already in place. In May 2007, the City of Los Angeles adopted Green LA: An Action Plan to Lead the Nation in Fighting Global Warming (City of Los Angeles 2007). The goal of Green LA is to reduce CO_2 emissions 35 percent below 1990 levels by 2030, by increasing the generation of renewable energy, improving energy conservation and efficiency, and changing transportation and land use patterns to reduce dependence on automobiles. Green LA directed the Port to develop an individual Climate Action Plan, consistent with the goals of Green LA, to explore opportunities to reduce GHG emissions from municipal operations. In accordance with Executive Directive No. 10, the LAHD prepared a Harbor Department Climate Action Plan (December 2007) detailing GHG emissions related to municipally controlled Port activities (such as Port buildings and Port workforce operations) and outlining current and proposed actions to reduce GHG from these operations (LAHD 2007b).

The Port is a member of the California Climate Action Registry (CCAR) and The Climate Registry (TCR). The LAHD has submitted GHG emissions inventories for 2006 and 2007 and would begin submitting annual GHG inventories for trucks, ships, and rail to CCAR, beginning in 2008 for the year 2006. To better understand emissions associated with Port-wide activities, the Port has also expanded its GHG emissions inventory to include indirect GHG emissions

associated with tenant operations, harbor craft, and cargo-handling equipment. These emissions are generated by sources not owned or controlled by the Port, but occur as a result of Port activities. However, these emissions are not reported to TCR.

As summarized in the table provided in Question 7(a), construction and operation of the proposed project would not exceed the SCAQMD GHG threshold of 10,000 metric tons of CO_2e per year. The proposed project would not conflict with AB 32, Executive Directive No. 10, City of Los Angeles' Green LA. At the time of this analysis, neither the County nor any other agency with jurisdiction over this project has adopted climate change or GHG reduction measures with which the proposed project would conflict. The impacts would be less than significant. No mitigation is required.

4.8 HAZARDS AND HAZARDOUS MATERIALS

Hazardous substances are defined by state and federal regulations as substances that must be regulated to protect the public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be hazardous. The California Code of Regulations Title 22, Chapter 11, Article 2, Section 66261 provides the following definition:

> A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed.

According to Title 22 (CCR Chapter 11, Article 3), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, contaminated, or stored prior to disposal.

Toxic substances may cause short-term or long-term health effects, ranging from temporary effects to permanent disability or death. Examples of toxic substances include most heavy metals, pesticides, benzene, petroleum, hexane, natural gas, sulfuric acid, lye, explosives, pressurized canisters, and radioactive and biohazardous materials. Soils may also be toxic because of accidental spilling of toxic substances.

This section discusses the potential for the proposed project to expose people to 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?

Less than Significant Impact.

Construction

Construction activities are temporary in nature and would involve the limited transport, storage, use, and disposal of hazardous materials. Wharf construction would include the use of one tugboat, which would position a barge to be used for the transfer and storage construction equipment and materials. Such hazardous materials could include on-site fueling/servicing of

construction equipment, and the transport of fuels, lubricating fluids, and solvents. These types of standard construction materials are not acutely hazardous, and all storage, handling, and disposal of these materials are regulated by DTSC, USEPA, the Occupational Safety & Health Administration, the Los Angeles Fire Department (LAFD), and the Los Angeles County Health Department. The transport, use, and disposal of construction-related hazardous materials would occur in conformance with all applicable local, federal, state, and local regulations governing such activities. Impacts would be less than significant with required adherence to required regulations and standards. No mitigation is required.

Operation

After construction of the proposed project, the WWL facility would continue existing operations, which consist of vehicle processing; logistics services for such companies as Nissan, Nissan Diesel, and Infiniti; and loading and unloading of vehicles. Because future operations would be very similar to the existing operations, long-term operation of the proposed project would not involve the transport, storage, use, or disposal of hazardous materials in a manner different than currently exists. Thus, operation of the proposed project would not pose a significant hazard to the public or the environment. The continued transport, use, and disposal of hazardous materials during operation would occur in conformance with all applicable local, federal, state, and local regulations governing such activities. Impacts would be less than significant with required adherence to required regulations and standards. No mitigation is required.

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?

Less than Significant Impact.

Construction

The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous material into the environment. As discussed in the response to Question 4.8(a), construction activities are temporary in nature and would involve limited transport, storage, use, and disposal of hazardous materials, which could include on-site fueling/servicing of construction equipment, and the transport of fuels, lubricating fluids, and solvents. However, these activities are temporary in nature, and would be subject to applicable federal, state, and local health and safety requirements. Due to its proximity to three sites of concern (i.e. former Koppers Facility, the Former Exxon Mobil Oil Production Area, and the CP Transfer Yard), as discussed in Question 4.8(d), it is possible that soil and groundwater contamination may be discovered during construction activities. Contaminated soil or groundwater encountered within the confines of the

construction area will be addressed in accordance with the requirements set forth, or as agreed upon with, the applicable federal, state, or local regulatory agency, as well as POLA leasing requirements related to site remediation and groundwater contamination contingency. The lease requirement is distinct from CEQA mitigation measures and is subject to discretionary approval by the Board. These requirements include the following:

Site Remediation Lease Requirement. Unless otherwise authorized by the lead regulatory agency for any given site, the Applicant shall address all contaminated soils within proposed project boundaries discovered during demolition, excavation, and grading activities. Contamination existing at the time of discovery shall be the responsibility of the past and/or current property owner. Contamination as a result of the construction process shall be the responsibility of the Applicant and/or the Applicant's contractors. Remediation shall occur in compliance with local, state, and federal regulations and as directed by the lead regulatory agency for the site.

Soil removal shall be completed such that remaining contamination levels are below risk-based health screening levels for industrial sites established by the Office of Environmental Health Hazard Assessment and/or applicable action levels (e.g., Environmental Screening Levels, Preliminary Remediation Goals) established by the lead regulatory agency with jurisdiction over the site. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) and/or risk-based soil assessments for industrial sites, but are subject to the review of the lead regulatory agency. Excavated contaminated soil shall be properly disposed of off-site unless use of such material on site is beneficial to construction and approved by the agency overseeing environmental concerns. All imported soil to be used as backfill in excavated areas shall be sampled to ensure that it is suitable for use as backfill at an industrial site.

Contamination Contingency Plan Lease Requirement. The following contingency plan shall be implemented to address contamination discovered during demolition, excavation, grading, and construction.

(a) All trench excavation and filling operations shall be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination shall be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor shall notify the Applicant and the LAHD's environmental representative. The LAHD shall confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site shall require the approval of the LAHD Project Engineer.
(b) Excavation of VOC-impacted soil may require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit.

(c) The remedial option(s) selected shall be dependent upon a suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis. Both off-site and on-site remedial options may be evaluated.
(d) The extent of removal actions shall be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area shall be remediated to the satisfaction of the applicant, LAHD, and the lead regulatory agency for the site. The Port Project Manager overseeing removal actions shall inform the contractor when the removal action is complete.
(e) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Port Project Manager within 60 days of project completion.
(f) In the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material must be trained in accordance with EPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the work place.
(g) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation.
(h) All excavations shall be backfilled with structurally suitable fill material that is free from contamination.

Therefore, impacts related to the release of hazardous materials into the environment would be less than significant. No mitigation is required.

Operation

After construction of the proposed project, the WWL facility would continue existing operations, which consist of vehicle processing; logistics services for such companies as Nissan, Nissan Diesel, and Infiniti; and loading and unloading of vehicles. Because future operations would be very similar to the existing operations, long-term operation of the proposed project would not involve the transport, storage, use, or disposal of hazardous materials in a manner different than currently exists. The continued transport, use, and disposal of hazardous materials during operation would occur in conformance with all applicable local, federal, state, and local regulations governing such activities. Thus, project operation would not pose a significant hazard to the public or the environment. Therefore, impacts would be less than significant. No mitigation is required.

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

Less than Significant Impact. The project site is not located within 0.25 mile of an existing or proposed school. The nearest school is Banning Elementary School (500 Island Avenue), which is approximately 0.7 miles northwest of the project site. Wilmington Park Elementary School (1140 Mahar Avenue) is approximately 1.3 miles northwest of the project site.

Construction

Construction activities associated with the proposed project would involve the handling of hazardous materials (fuels, lubricants, and oils). However, the handling of minor amounts of hazardous materials, as previously discussed, would comply with applicable regulations. Additionally, construction activities are temporary in nature and would involve the limited transport, storage, use, and disposal of hazardous materials. Impacts of the proposed project related to the emission and handling of hazardous materials within 0.25 mile of a school would be less than significant. No mitigation is required.

Operation

Future operations would be very similar to the existing operations, long-term operation of the proposed project would not involve the transport, storage, use, or disposal of hazardous materials in a manner different than currently exists. The continued transport, use, and disposal of hazardous materials during operation would occur in conformance with all applicable local, federal, state, and local regulations governing such activities. Impacts of the proposed project related to the emission and handling of hazardous materials within 0.25 mile of a school would be less than significant. No mitigation is required.

d) Be 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. This question would apply only if the project site is included on any of the above referred to lists and, therefore, would pose an environmental hazard to surrounding sensitive uses. There are four sites of concern within or near the project site. The following provides a brief description of the sites:

- **Former Koppers Facility.** The former Koppers Facility is within Port property situated at the northeastern corner of the intersection of South Avalon Boulevard and East Water Street, northwest of Berths 195-200A and northeast of Berths 185-187. The physical address is 210 South Avalon Boulevard, Wilmington, CA 90744. Parcel 1, Parcel 4, and the eastern

boundary of Parcel 6 of the project site are within the former Koppers Facility. The former Koppers facility renders the project site a "Border Zone Property." According to Section 25117.4 of the California Health and Safety Code, a "Border Zone Property" pursuant to Section 25229, is any property within 2,000 feet of a significant disposal of hazardous waste, and the wastes so located are a significant existing or potential hazard to present or future public health or safety on the land in question.

Per a 2007 Preliminary Environmental Review prepared by Tetra Tech in support of the Proposed Pacific Energy Pipeline Project, the former Koppers Facility was occupied by American Lumber and Treating, a wood-treating facility, from the 1920s through approximately 1954, when Koppers took over operations of the site. On-site activities included treatment of wood (telephone poles, dock pilings, lumber, and railroad ties). Various wood preservatives were used, including creosote, creosote mixed with diesel fuel, "Wolman Salts" (a mixture of sodium fluoride and dinitrophenol with sodium or potassium dichromate), copper chromate, copper chromated arsenate, and pentachlorophenol in oil. Unknown quantities of hazardous wastes containing arsenic, selenium, antimony, zinc, cadmium, copper, chromium, fungicides, halogenated compounds, and, dioxins were reported to have been disposed of in on-site wastewater ponds and other areas. In 1972, Koppers ceased operations and demolished their structures before turning over control of the site to the Port.

Per the 2007 Preliminary Environmental Review prepared by Tetra Tech, the former Koppers Facility was added to the State Superfund List by the California Environmental Protection Agency, DTSC in 1984. Based on the investigations conducted, the shallow subsurface environment (soil and groundwater) at the former Koppers facility has been impacted with various organic and inorganic contaminants (i.e. PCP, copper, chromium, and arsenic). The site is designated by USEPA as EPA ID# CAD008267072. According to the 2007 Tetra Tech review, the full lateral and vertical extent of soil and groundwater contamination has not been delineated (Tetra Tech 2007).

The site is now capped with asphalt paving. The northeastern portion of the site is undeveloped; the majority of the site is a parking lot; and four small buildings are located at the western portion (Tetra Tech 2007).

- **Former Exxon Mobil Oil Production Area.** The property is owned by the Port and was leased to Exxon Mobil for oil production activities in the late 1940s and ceased in the early 1990s. The Former Exxon Mobil Oil Production Area is located north of the project area, south of Harry Bridges Boulevard, and adjacent to the Pacific Harbor Line railroad track. Currently, 90 percent of the property is vacant land covered by vegetation and fenced in from all sides. The western and the eastern portions of the property are a temporary parking lot for

WWL. The parking lot is currently filled with imported vehicles and miscellaneous car parts. However, this site is outside the existing leased boundary.

The site has not been identified as a Superfund site at this time. However, a Phase I/Limited Phase II investigation was completed in April 2011. Based on the analytical results, it appears that arsenic, cadmium, chromium, and lead in soil are contaminants of concern. Several metals, VOCs, and semivolatile organic compounds (SVOCs) were detected in the groundwater samples collected from the subject property. Nine metals, one VOC, and three SVOCs exceeded the Los Angeles Regional Water Quality Control Board screening criteria in groundwater.

The former Exxon Mobil site is not anticipated to be affected by the proposed project.

- **CP Transfer Yard.** The CP Transfer Yard is outside the existing leased boundary, located northwest of Parcel 1 and east of Parcel 4, within the former Exxon Mobil site and south of Alameda Street. Per GeoTracker, the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, the site is identified as the CP Transfer Yard (SL0603775919) (SWRCB 2011). The site is primarily an undeveloped parcel of land located south of Harry Bridges Boulevard/Alameda Street adjacent to the Pacific Harbor Line railroad track in Wilmington. Harry Bridges Boulevard merges into Alameda Street just north of the site. The site is also within the former Exxon Mobil oil production area. The entrance is from Harry Bridges Boulevard via a dirt road that crosses the railroad track. The CP Transfer Yard contains railroad tracks orientated in an east-west direction, a metal control signal house, and several underground pipelines. It is bounded to the north by Harry Bridges Boulevard, to the southwest by the WWL property, to the east-southeast by Distribution Auto Services, Inc., and to the west by the railroad track and undeveloped land.

  In the fall of 2005, Alameda Corridor Transportation Authority installed railroad track signals at the site and during the trenching activities, crude oil and petroleum-impacted soil were encountered.

  A Final Site Investigation Report was prepared in February 2011. During the site investigation, black tar-like material was observed in soil around the CP Transfer Yard Control House, and to the northeast of the control house along the railroad tracks. Several metals, including arsenic and lead, were detected above their reporting limit in the soil sample collected from the soil stockpile. Total petroleum hydrocarbon (TPH) was detected in most of the soil samples collected at the site. The concentrations of these VOCs (2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, o-xylene, and toluene) in the soil samples were below screening criteria. In addition, low concentrations of VOCs were detected in groundwater samples from six of 10 soil boring locations. It was recommended that a

supplemental investigation be conducted to further delineate the lateral extent of the impacted soil.

The former CP Transfer Yard is not anticipated to be affected by the proposed project.

- **ILWU Local 13 Dispatch Hall Project.** A Phase I and Phase II Environmental Site Assessments were conducted in 2008 for the nearby ILWU Local 13 Dispatch Hall Project, which is northeast of the project site. The Phase I and Phase II Environmental Site Assessment determined that the project site is recorded as having five oil wells by California Department of Conservation, Division of Oil, Gas, and Geothermal Resources All five were abandoned. The International Longshore and Warehouse Union (ILWU) Local 13 Dispatch Hall Project is located in an area identified as a potential methane hazard site due to its proximity to methane gas sources. The environmental site assessment determined detectable concentrations of TPH; benzene, toluene, ethylbenzene and xylenes (BTEX); and other VOCs (The Source Group 2008). Any contamination would be remediated in accordance with DTSC, the Los Angeles Regional Water Quality Control Board (RWQCB), and City requirements. Deeper excavations associated with the building foundation and removal of an electrical substation may encounter groundwater contamination, which would be remediated in accordance with cleanup target levels established by the Los Angeles RWQCB under a Voluntary Cleanup Oversight Agreement. The proposed project is not anticipated to affect the ILWU Local 13 Dispatch Hall Project.

The proposed project is not anticipated to affect the CP Transfer Yard, former Exxon Mobil site, and the ILWU Local 13 Dispatch Hall Project. Ground-disturbing activities would be limited to the construction of two additional railroad-loading tracks on the southern portion of the project site, which could impact the former Koppers facility. Construction of the railroad tracks would involve asphalt removal and soil compacting. Construction of the railroad-loading tracks is anticipated to disturb approximately 2 feet of soil below ground surface. Because of the proximity to three sites of concern, it is possible that soil and groundwater contamination may be discovered during construction activities. Contaminated soil or groundwater encountered within the confines of the construction area will be addressed in accordance with the requirements set forth, or as agreed upon with, the applicable federal, state, or local regulatory agency, and POLA leasing requirements as aforementioned. Therefore, impacts related to the release of hazardous materials into the environment would be less than significant. 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 for people residing or working in the project area?

No Impact. The project site is not located within two miles of a public airport, nor is it located within an airport land use plan. The nearest airport facility are helicopter-landing pads at Berth 95

(2.8 miles southwest of the project site) and at 1175 Queens Highway, in Long Beach (over 3.4 miles to the southeast northeast of the site). Small helicopters operate from these locations and transit primarily via the Main Channel of the Port. Given the distance of the heliport and the fact that no tall structures would be constructed, persons at or near the project site would not be exposed to safety hazards associated with aircraft. No mitigation is required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. Further, the project site is not located in the vicinity of a private airstrip. The nearest airport facilities are helicopter-landing pads at Berth 95 (2.8 miles southwest of the project site) and at 1175 Queens Highway, in Long Beach (over 3 miles to the southeast, northeast of the site). Only small helicopters operate from these locations and transit primarily via the Main Channel of the Port. Given the distance of the heliport and the fact that no tall structures would be constructed, persons at or near the project site would not be exposed to safety hazards associated with aircraft. No impact related to public airport uses would occur. No impact related to public airport uses would occur. No mitigation is required.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The proposed project is anticipated to increase the efficiency of operations of the WWL vehicle processing facility and address maintenance needs to improve the safety of operations. The proposed project involves construction of additional railroad loading tracks on the southern portion of the project site. All construction activities would conform to the City of Los Angeles Municipal Code (City of Los Angeles Municipal Code 2011). Further, the project applicant would coordinate with both the LAFD and Los Angeles Police Department (LAPD) prior to commencement of construction activities to ensure that emergency response vehicles are able to access and/or traverse the project site. As such, impacts to any adopted emergency response plan or emergency evacuation plan would be less than significant. No mitigation is required.

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. Per the Safety Element of the City of Los Angeles General Plan, the project site is not located in an area designated as Very High Fire Hazard Severity Zone (City of Los Angeles 1996). The site is currently paved and would be repaved after construction activities; thus, limiting the potential for wildland fires due to lack of flammable vegetation. Neither construction nor operation of the proposed project would create the potential for wildland fires to occur within

the vicinity. Therefore, no impacts related to wildland fires would occur and no further analysis is required. No mitigation is required.

4.9 HYDROLOGY AND WATER QUALITY

This section describes the existing conditions relating to hydrology and water quality and the potential impacts associated with the proposed project. In addition, this analysis includes a discussion on the potential sea-level rise impacts that may result with implementation of the proposed project.

Would the Project:

a) Violate any water quality standards or waste discharge requirements?

Less than Significant Impact.

Construction

Construction activities associated with the proposed project would expose soils for a limited time, allowing for possible erosion and the potential introduction of sediments into surface runoff and drainage from the site. Surface runoff water and drainage is directed generally towards Alameda Street to municipal storm drains and sewer.

The proposed project is subject to the requirements of the State of California's Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.). The act established the SWRCB and nine regional water quality control boards, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The Porter-Cologne Act also implements many provisions of the federal CWA, such as the NPDES permitting program. As discussed in Question 4.6(b), the proposed project would be subject to the requirements of the NPDES Stormwater Program, which requires obtaining coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity, General Construction Permit 2009-0009-DWQ (EPA 2005, Cal EPA 2010). The General Construction Permit requires each facility covered under the permit to develop and implement a SWPPP. The SWPPP specifies BMPs aimed at controlling construction-related pollutants that originate from the site as a result of construction-related activities. These BMPs include measures for temporary soil stabilization (e.g. preservation of existing vegetation; hydroseeding; and slope drains); temporary sediment control (e.g., silt fence; storm drain protection; and wind erosion control); and tracking control (e.g., stabilized construction entrance/exit) (Cal EPA 2010).

The proposed project is also subject to the requirements of the Regional General Permit No. 65 (200401242-JLB) originally issued by the U.S. Army Corps of Engineers Permit (USACE) in 2004 (USACE 2004). Under the permit, Section 10 activities of the Rivers and Harbors Act are covered, which include routine wharf maintenance work, such as "like-for-like repair or replacement of piles, fenders, or other wharf structural components."

The proposed project would involve in-water timber pile removal activities. The proposed project would remove or replace approximately 49 timber piles for Berths 196-197, 27 timber piles for Berth 198, and eight timber piles for Berth 199, which would result in a total of 84 timber piles. Approximately 107 joists would be repaired or replaced. These rehabilitation elements are necessary to ensure improved structural strength and continued support capacity of the wharf to match adjacent berth conditions and maintain safe operations. All have the potential to result in water quality impacts.

Pile removal, pile installation, and sheet pile installation activities would suspend bottom sediments into the water column, causing localized and temporary turbidity. Piles would be removed one at a time and each would be pulled or cut at the mud line. Resuspended sediments would settle rapidly (within hours) and turbidity levels would decrease once activities were completed. Contaminants, including metals and organics, could be released into the water column during the pile removal/driving operations. However, any increase in contaminant levels in the water is expected to be localized and of short duration. Sediments containing contaminants that are suspended by the pile removal/installation are anticipated to settle back to the bottom within a period of several hours. Transport of suspended particles by tidal currents would result in some redistribution of sediment contaminants. The amount of contaminants redistributed in this manner would be small, and the distribution localized within the East Basin adjacent to the work area.

The proposed project would include BMPs aimed at controlling construction-related pollutants that originate from the site as a result of construction-related activities, and include measures for temporary soil stabilization (e.g., preservation of existing vegetation, hydroseeding, and slope drains); temporary sediment control (e.g., silt fence, storm drain protection, and wind erosion control); and tracking control (e.g., stabilized construction entrance/exit). Further, the proposed project would comply with the requirements of the Regional General Permit No. 65 (200401242-JLB). Further, the proposed project would comply with the requirements of the NPDES Stormwater Program, City of Los Angeles Municipal Code, and all other applicable federal, state, and local regulations prior to project approval. As such, the proposed project would result in a less-than-significant impacts to water quality.

Operation

The proposed project would be a continuation of the existing use with some maintenance and efficiency improvement. Compliance with the NPDES requirements, City of Los Angeles Municipal Code, and all other applicable federal, state, and local regulations would result in a less-than-significant impact.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to

a level which would not support existing land uses or planned uses for which permits have been granted)?

No Impact. The proposed project would replace existing concrete and would not increase impervious areas. Groundwater in the harbor area is south of the Dominquez Gap Barrier and is generally impacted by saltwater intrusion (salinity), and is, therefore, unsuitable for use as drinking water. The project site does not support surface recharge of groundwater. In addition, the project site is almost entirely covered with impermeable surfaces. The proposed project would have no effect on existing groundwater supplies. Therefore, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. No impacts would occur. No mitigation is required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?

Less than Significant Impact. The proposed project is a paved property that is not within the course of a stream or a river. As such, construction and operation of the proposed project would not alter the course of a stream or river. Drainage of the site would not be altered as the site would be repaved to the existing elevations. The project would result in a less-than-significant impact. No mitigation is required.

d) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or 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. Please see the response for Question 4.9(c). No additional impervious surface areas would be created with implementation of the proposed project that could generate additional surface runoff.

e) 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. Please see the response for Questions 4.9(a) and 4.9(c).

f) Otherwise substantially degrade water quality?

Less than Significant Impact. Please see the response for Question 4.9(a).

g) Place housing within a 100-year flood hazard area as mapped on a federal flood hazard boundary or Flood Insurance Rate Pap or other flood hazard delineation map?

No Impact. Per the City of Los Angeles General Plan Safety Element, the project site is located within the 100-year flood zone, which results from a severe rainstorm with a probability of occurring approximately once every 100 years (City of Los Angeles 1996). The proposed project would not involve construction or modification of habitable structures. Further, the proposed project would be a continuation of the existing use with some maintenance and efficiency improvement and would not impede or redirect flood flows. Therefore, the impacts would be less than significant. No mitigation is required.

h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?

No Impact. As discussed in the response to Question 4.9(g), the project site is located within the 100-year flood zone (FEMA 2011). Further, no housing is proposed and no structures that would impede or redirect flood flows would result. No impacts related to a 100-year flood hazard area would occur. No mitigation is required.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact. The project site is not within a potential dam or levee inundation area as identified in the Los Angeles General Plan Safety Element (City of Los Angeles 1996). The proposed project would not expose people or structures to significant risk of loss, injury, or death from flooding, including flooding from failure of a levee or dam. No impacts would occur. No mitigation is required.

j) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the sea level rise?

Less than Significant Impact. One of the areas of climate change research where there have been many recent developments is the science underlying the projection of sea level rise. Higher temperatures are expected to further raise sea level by expanding ocean water, melting mountain glaciers and small ice caps, and causing portions of Greenland and the Antarctic ice sheets to melt. The International Panel on Climate Change (IPCC) estimates that the global average sea level would rise between 0.6 and 2 feet (0.18 to 0.59 meters) in the next century (IPCC 2007).

Coastal zones are particularly vulnerable to climate variability and change. Rising sea levels inundate wetlands and other low-lying lands, erode beaches, intensify flooding, and increase the salinity of rivers, bays, and groundwater tables. Some of these effects may be further compounded by other effects of a changing climate. Additionally, measures that people take to protect private property from rising sea level may have adverse effects on the environment and on

public uses of beaches and waterways. Some property owners and state and local governments are already starting to take measures to prepare for the consequences of rising sea level (USEPA 2011).

On November 14, 2008, the Governor's Executive Order S-13-08 was issued in order to provide guidance for incorporating sea-level rise projections into planning and decision making for projects in California. The executive order calls for, among other things, the completion of a Sea Level Rise Assessment Report, the consideration of sea level rise scenarios for the years 2050 and 2100, and the development of a Climate Adaptation Strategy (Office of Governor 2008).

In October 2010, the Sea Level Rise Task Force of the Coastal and Ocean Working Group of the California Climate Action Team prepared the State of California Sea Level Rise Interim Guidance Document. The intent of this interim guidance document is to inform and assist state agencies as they develop approaches for incorporating sea level rise into planning decisions. Specifically, it provides information and recommendations that would enhance consistency across agencies in their development of approaches to sea level rise. Using year 2000 as the baseline, the State of California Sea-Level Interim Guidance Document projects that sea level rise is predicted to be greater with higher concentrations of GHGs, as shown in Table 4.9-1 (CO-CAT 2010). As shown in Table 4.9-1, a 7-inch rise in sea level could occur by 2030.

Table 4.9-1
Sea Level Rise

Year	Level of GHG Emissions	Average of Models (in inches)	Range of Models (in inches)
2030		7	5 -8
2050		14	10 -17
2070	Low	23	17-27
	Medium	24	18 -29
	High	27	20-32
2100	Low	40	31-50
	Medium	55	37-60
	High	57	43-69

Source: CO-CAT 2010

By nature, the infrastructure and operations of ports would be vulnerable to sea level rise due to its geographic location. Wharves and piers may be damaged in strong storms, waves, or surges resulting from a rise in sea level.

The elevation of the project site is 12 feet above mean sea level. The forecasted average rise in sea level through 2050 is 14 inches, as shown in Table 4.9-1. As such, the proposed project would not be at risk of forecasted sea level rise. Future scenarios for sea level rise out to 2100 show a medium average rise of 55 inches. While this rate is widely reported and has been accepted by some institutions the supportive data and disclaimers for forecasts beyond 2050, including the 2100 forecast, express many assumptions and such forecasts are considered speculative at this time. The rise of 55 inches would not result in a significant risk to the project although if facilities remained as they are, or as proposed, there would be some operational challenges associated with the higher sea level. However, the general built lifetime of project components is not beyond 50 years and the proposed facilities would not be as proposed by the time effects of the potential 2100 sea level rise would occur. In addition, the proposed project would not construct any new structures including habitable structures. Furthermore, LAHD and the Rand Corporation have initiated a study evaluating the impacts of sea level rise on Port facilities. The draft study is anticipated to be released in 2012 (Port of Los Angeles 2011b). The study would identify Port facilities that are vulnerable to sea level rise, analyzes various strategies for managing sea level rise, and assess sea level rise considerations for incorporation into design guidelines. Therefore, impacts associated with sea level rise would be less than significant. No mitigation is required.

k) Inundation by seiche, tsunami, or mudflow?

Less than Significant Impact. Seiches are oscillations generated in enclosed bodies of water usually as a result of earthquake related ground shaking. A seiche wave has the potential to

overflow the sides of a containing basin to inundate adjacent or downstream areas. However, this water feature is not of the nature that would result in a seiche.

Tsunamis are large ocean waves caused by the sudden water displacement that results from an underwater earthquake, landslide, or volcanic eruption, and affect low-lying areas along the coastline. The Port is open to the ocean and not entirely closed, allowing entry of seismically induced waves, therefore reducing the potential for inundation resulting from a seiche.

According to the City of Los Angeles General Plan Safety Element, the project site is located within an area susceptible to impacts from a tsunami and subject to possible inundation as a result (City of Los Angeles 1996). However, in the period since publication of the Safety Element, a detailed study of tsunami hazardous was conducted (Moffatt & Nichols 2007). Conclusions of the study indicate that under various tsunami scenarios, the project site would not experience significant impacts from inundations or flooding. The proposed project would not construct any habitable structures. Further, the proposed project would comply with the City of Los Angeles Municipal Code, and all other applicable federal, state, and local regulations prior to project approval. As such, the impacts would be less than significant. No mitigation is required.

4.10 LAND USE AND PLANNING

This section contains a description and analysis of the land use and planning considerations that would result from project implementation.

Would the Project:

a) Physically divide an established community?

No Impact. The proposed project would not result in temporary or permanent closure of any streets or sidewalks that would separate uses or disrupt access. Therefore, implementation of the proposed project would not divide the established community. No impacts would occur. No mitigation is required.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed project would not conflict with a specific plan, general plan, or zoning ordinance. The project site is zoned for industrial uses ([Q]M3-1) (City of Los Angeles 2011). The proposed project would be consistent with the land use. The project site is in Area 5: Wilmington District, per the Port Master Plan (Port of Los Angeles 1980). The Wilmington District surrounds the northerly terminus of the Main Channel and is composed of Berths 133-200, and an area of land known as the Consolidated Slip, which is northeast of Berth 200. Wilmington District is the oldest part of the harbor and is approximately 622 acres. Per the Port Master Plan, the project site is designated as "General Cargo" and "Other." General Cargo areas are those that include container, unit, break-bulk, neo-bulk, and passenger facilities. Other uses include some vacant land; proposed acquisitions; rights-of-way for rail, utilities, and roads; and areas not designated for a specific short-term use. The Port Master Plan called for "backland modification and restoration" for Berths 195-199, which included the demolition of the passenger-access facility and the removal of various concrete walks and islands to modify the backland for neo-bulk cargo handling and storage. The proposed project is consistent with the Port Master Plan as it would result in modifications to backland area, thus improving operational efficiency with the construction of additional rail tracks. The proposed project would not alter the land use of the project site or surrounding area, and would not conflict with any applicable land use plans. Therefore, no impact would occur. No mitigation is required.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The only designated SEA in Los Angeles Harbor is Pier 400, Terminal Island for the California least tern (*Sternula antillarum browni*) nesting site. The project site is approximately 1 mile north of the current nesting site at Pier 400 and does not involve any construction or operational components within the vicinity of Pier 400 and would not impact the least terns. There are no HCPS currently in place at the project location. The nearest NCCP to the project site, the Palos Verdes Peninsula Sub-Regional Plan, is located 4.5 miles southwest. The proposed project would not conflict with the provisions of an adopted HCP, or other approved local, regional, or state HCP. Neither the project site nor any adjacent areas are included as part of an NCCP. Therefore, no impact would occur. No mitigation is required

4.11 MINERAL RESOURCES

The purpose of this section is to identify and evaluate key mineral resources in the project area and to determine the degree of impacts that would be attributable to the proposed project.

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?

No Impact. Per the Safety Element of the City of Los Angeles General Plan, the project site is situated in the Wilmington Oil Field, which is the third largest oil field in the United States, based on cumulative production (City of Los Angeles 1996). The Wilmington Oil Field extends from Torrance to Harbor District of the City of Long Beach, a distance of approximately 13 miles. While the project site has no active production wells and has four abandoned wells on-site, numerous active oil wells are within a 1-mile radius of the site. Although located within the Wilmington Oil field, the proposed project would not lead to a loss of availability to or of this resource. Construction and operation would not directly impact the existing oil or diminish the ability to extract oil. No impacts to known mineral resources of value to the region or state would occur. No mitigation is required.

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?

No Impact. As discussed in Question 4.11(a), the project site is in an area that is located within or in proximity to a formerly active oil drilling area and is subject to developmental regulations relating to guidelines to mitigate oil drilling area hazards (City of Los Angeles 1996). Although located within the Wilmington Oil field, the proposed project would not lead to loss of access to mineral resources. The proposed project would not prevent extraction from the Wilmington Oil Field. As such, no loss of availability of locally important mineral resources would occur. No mitigation is required.

4.12 NOISE

The purpose of this chapter is to identify sensitive receptors in the project area and to determine the degree of noise impacts that would be attributable to the proposed project.

Would the Project Result In:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact After Mitigation Incorporated.

Construction

The overall character of the surrounding area is primarily industrial. The project site is zoned for heavy industrial uses ([Q] M3-1). The overall character of the surrounding area is primarily manufacturing. The properties to the north and west of the project site are zoned Light Industrial (M-2) according to the Los Angeles City Zoning Ordinance. Properties zoned [Q]C2 ("Commercial") and ZI-1192 ("2000 ft. Buffer Zone for Border Zone Property Site") are found directly north and east of the project site. PF ("Public Facilities") zones, also found west of the project site.

The nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. These include properties zoned One-Family (R-1) and Restricted Density Multiple Dwelling (RD). The permitted uses include one- and two-family dwellings, multiple dwellings, apartments, and park playgrounds or community centers (City of Los Angeles 2011). However, liveaboard boat tenants were identified to be located approximately 425 feet east of the proposed project, across the East Basin (Figure 4.12-1).

Construction would occur along Berths 196-199 and would involve removal of asphalt concrete, removal and replacement of timber pile, timber repair, joist repair, concrete wharf repair, and construction of new asphalt concrete pavement. Wharf construction would involve the use of one tugboat within East Marina. The primary use of the tugboat would be to position a barge used to transfer and store construction equipment and materials. Anticipated construction equipment includes diesel pile hammer, derrick barge, tug, truck, backhoe, pickup trucks, chainsaws, compressors, and electric hand tools.

Construction would occur weekdays between 7:00 a.m. and 4:00 p.m. Noise levels generated by construction equipment (or by any stationary source) decrease at a rate of approximately 6 dBA per doubling of distance from the source. Therefore, if a particular construction activity generated average noise levels of 89 dBA at 50 feet, the L_{eq}would be 83 dBA at 100 feet, 77 dBA at 200

feet, 71 dBA at 400 feet, and so on. Construction generally occurs in several discrete phases. Each phase requires a specific complement of equipment with varying equipment type, quantity, and intensity. These variations in the operational characteristics of the equipment change the effect they have on the noise environment in the project vicinity. The effect of construction noise largely depends on the construction activities being performed on a given day, noise levels generated by those activities, distances to noise-sensitive receptors, and the existing ambient noise environment at the receptors.

Construction noise would be generated by diesel engine-driven construction equipment used for site preparation, removal of existing pavement, loading, unloading, and placing construction materials, and construction of the improvements. Diesel engine-driven trucks also would bring materials to the site and remove the spoils from excavation. Under load conditions, diesel engines can generate maximum noise levels up to 90 dBA Lmax at a distance of 50 feet from the equipment (FTA 2006). However, the average hourly level would be lower and for purposes of this analysis, typical construction activity is anticipated to generate noise levels on the order of 82 dBA L_{eq} at 50 feet.

In addition to typical construction activities, the project proposes pile driving as part of the berth rehabilitation. Unlike normal construction activities, impact pile-driving noise is primarily generated by the impact of the hammer with the pile. Pile driving would generate noise levels of 95 dBA at 50 feet from the equipment (FTA 2006).

As stated in the project description, the nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. There are intervening structures (e.g., block wall, commercial/industrial buildings) between the project site and the nearest noise-sensitive receptor. Construction noise for the proposed project would fall within the typical range for daytime existing ambient noise. As such, these sensitive receptors are not anticipated to experience any noise impacts due to construction activities.

However, liveaboard boat tenants were identified to be east of the proposed project, across the East Basin, to which there are no intervening structures (Figure 4.12-1). The nearest liveaboards are approximately 425 feet east of the project site. Based on noise levels measured for Wilmington Youth Sailing & Aquatic Center Noise Measurement Data Summary (Illingworth & Rodkin, Inc. 2011), noise ambient noise levels in the vicinity of the liveaboard boat tenants averaged 60 to 65 dBA L_{eq} during normal port operations with a cargo ship unloading at Berths 195 and 196. Therefore, 60 dBA L_{eq} is used as the baseline ambient noise level at these noise-sensitive uses, which sets the threshold at 65 dBA L_{eq}.

Typical construction would include all activities other than pile driving, i.e. site preparation, pavement/concrete removal, joist repair and/or replacement, and paving. As indicated, typical construction would generate noise levels of approximately 82 dBA L_{eq} at 50 feet. At 425 feet,

noise levels would attenuate to approximately 63 dBA L_{eq}. Thus, the typical construction is anticipated to exceed the ambient daytime noise levels by approximately 3 dBA. This would be below the 5-dBA threshold; therefore, no mitigation would be required for typical construction activities.

Pile driving would be required during rehabilitation of the berths where new support piles are required. It is important to note that no pile driving or pavement breaking is proposed during nighttime hours. As indicated, pile-driving activities would generate maximum noise levels of 95 dBA Lmax at 50 feet each time the hammerhead strikes the pile. It is estimated that the actual strike of an impact pile driver accounts for 20 percent of an hour, which results in an average hourly noise level of 88 dBA L_{eq} at 50 feet from the pile. Liveaboard boat tenants are located directly across the channel from the berths at a distance of approximately 425 feet from pile driving activities. At this distance, pile driving noise levels would average 69 dBA L_{eq} and maximum noise levels would be about 77 dBA Lmax. While these noise levels would be temporary and would cease at the end of construction on the bridge, these levels would exceed the applicable threshold of significance and would require mitigation. As such, mitigation measure NOI-1 is provided requiring the use of acoustically absorptive blankets capable of reducing noise by at least 5 dBA at all times during pile driving operations. Alternatively, the use of pile driving systems capable of limiting maximum noise levels would be required. Figure 4.12-1 displays the noise impacts without mitigation. Implementation of NOI-1 would reduce impacts to less than significant levels.

NOI-1 Pile drivers shall be shrouded with acoustically absorptive blankets (also known as acoustic wraps, noise covers, etc.) capable of reducing noise by at least 5 dBA at all times during pile driving operations. Further, the acoustically absorptive blankets should be large enough to completely block the line of sight between receivers and the pile driver and should be lowered as the pile is driving down. The sound blankets will have a minimum sound transmission classification of 32 and noise reduction coefficient of 0.85. The sound blankets will be of sufficient length to extend from above the hammer resting position and drape on the ground/water. The sound enclosure is anticipated to achieve a 5 to 10-dBA insertion loss (noise reduction) depending on the height of the receiver relative to the top of the pile.

Alternatively, project construction would require pile driving systems such as a Bruce Hammer (with silencing kit), an IHC Hydrohammer SC series (with sound insulation system), or equivalent silenced hammer, which would achieve noise reductions equivalent to pile drivers shrouded with acoustically absorptive blankets.

Path: Y:\01Projects\POLA WWL\GIS\MXD\Unmitigated.mxd, 1/23/2012, MadduxB

Source: ESRI 2011

400 0 0 2 0 400 Feet

Scale: 1:24,000; 1 inch = 2,000 feet

Figure 4.12-1
Unmitigated Pile Driving Noise Contours

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Operation

Operational noise would result from the on-dock rail yard, inland distribution, dispatching, and terminal handling activities associated with the proposed project. Onsite operations noise would be similar to existing conditions. The proposed project would not generate substantial additional traffic volumes that would increase ambient noise levels in the project vicinity. The project would require an additional 40 employees and generate an additional 10 truck trips in and out each day. For noise analysis purposes, it is assumed this would result in a maximum of 50 additional average daily traffic (ADT) on local and regional roadways. An increase in daily traffic volumes of this amount would result in a less than 1 dBA increase in ambient noise levels on local roads and would result in a less than measureable increase on regional roads and freeways (FTA 2006).

In addition to offsite traffic noise, the project would result in an increase in the number of annual train cars. There would not be an increase in the number of rail trips per day, however there would be an increase in the number of peak days, where two pickups and two drop-offs would occur. With the completion of additional loading tracks, the maximum number of railcars per train would increase by 11 railcars (from 39 railcars currently to the maximum 50 railcars). The increase in railcars would increase noise exposure time as pass-by rail duration for each train would increase. However, because the increase would be small, approximately 24 seconds for each train, the increase in ambient noise would be approximately 1 dBA CNEL (FRA 2006). Thus, the increase in train length would not result in a substantial noise level increase over the existing CNEL. The City of Los Angeles CEQA guidelines indicate a project would potentially have a significant impact if it resulted in the location of noise sensitive land uses being located within 3,000 feet of a rail line, or if the project would increase the maximum train length or maximum number of trains operating on an existing line. The project would not alter the location of existing rail lines or sensitive land uses and would not result in a substantial increase in the ambient noise levels along the existing rail line. Impacts would be less than significant.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact.

Construction

Construction operations would result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, with low rumbling sounds; detectable at moderate levels; and damaging to nearby structures at the highest levels. While ground vibrations from typical construction activities very

rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive or historic land uses are near the construction site.

Vibration-sensitive land uses include fragile/historic buildings, commercial buildings where low ambient vibration is essential for operations within the buildings (e.g., computer chip manufacturers and hospitals), and buildings where people sleep. Vibration-sensitive receptors near the project site are identical to the noise-sensitive receptors.

The construction activity that typically generates the highest levels of vibration is pile driving, which is required for this project. The nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. These include properties zoned One-Family (R-1) and Restricted Density Multiple Dwelling (RD). The permitted uses include one- and two-family dwellings, multiple dwellings, apartments, and park playgrounds or community centers (City of Los Angeles 2011). Liveaboard boat tenants, identified to be located approximately 425 feet east of the proposed project, would not be impacted as they are across the East Basin. As such, there are not any sensitive or historical land uses near the site with vibration-sensitive structures. Vibration resulting from construction activities is short term and would cease. As such, vibration impacts would be less than significant.

Operation

Ground vibration may result from rail activities. The project would increase the duration of rail pass-by by approximately 24 seconds for each train trip, to the maximum railcar length of 50. The number of railcars delivered to the rail yards would increase as a result of the increased throughput and the number of peak train days in a year would increase though the daily peak would not change. Because the project would not increase the maximum number of daily rail traffic, or substantially increase the duration of a train pass, vibration levels after implementation of the project would be similar to the vibration resulting from current rail activities. Impacts would be less than significant.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. As discussed in Question 4.12(a), operational noise would result from the on-dock rail yard, inland distribution, dispatching, and terminal handling activities associated with the proposed project. Onsite operations noise would be similar to existing conditions. The proposed project would not generate substantial additional traffic volumes that would increase ambient noise levels in the project vicinity. The project would require an additional 40 employees and generate an additional 10 truck trips in and out each day. For noise analysis purposes, the values are rounded up and this would result in a maximum of 50 additional ADT on local and regional roadways. An increase in daily traffic volumes of this amount would

result in a less than 1 dBA increase in ambient noise levels on local roads and would result in a less than measureable increase on regional roads and freeways.

In addition to offsite traffic noise, the project would result in a slight increase in the number of annual train cars. Train operations currently consist of two pickups of full railcars and two drop-offs of empty railcars up to 39 railcars in length. With the completion of additional loading tracks, the number of railcars on peak days is proposed to increase by 11 railcars (from 39 railcars currently to the maximum 50 railcars). The increase in railcars would increase noise exposure time as pass-by rail duration increases. However, because the increase would be small, approximately 24 seconds per train, the increase in ambient noise would be approximately 1 dBA CNEL. Thus, the increase in train length would result in a less than significant increase in ambient noise levels along the affected rail line. The City CEQA guidelines indicate a project would potentially have a significant impact if it resulted in the location of noise sensitive land uses being located within 3,000 feet of a rail line, or if the project would increase the train length or number of trains operating on an existing line. The project would not alter the location of existing rail lines or sensitive land uses and would not result a substantial increase in the ambient noise levels along the existing rail line. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels. Operational noise impacts would be less than significant.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact After Mitigation Incorporated. As discussed in Question 4.12(a), the overall character of the surrounding area is primarily manufacturing. Construction activities would take place entirely within the LAHD property being leased by the WWL Vehicle Cargo Terminal. Construction activities would be limited to 7:00 a.m. to 4:00 p.m. on weekdays, and no construction would occur on weekends in accordance with the City of Los Angeles Municipal Code requirements. As discussed in Question 4.12(a), typical construction noise for the proposed project would fall within the acceptable range for daytime existing ambient noise per the City of Los Angeles Municipal Code (City of Los Angeles Municipal Code 2011). However, unmitigated pile driving would generate noise levels approximately 7 dBA L_{eq} over the existing ambient levels, which would be considered a substantial temporary increase in ambient levels per the City of Los Angeles Municipal Code.

The nearest sensitive receptors are residential areas within the community of Wilmington, approximately 0.5 miles to the northwest. These include properties zoned One-Family (R-1) and Restricted Density Multiple Dwelling (RD). The permitted uses include one- and two-family dwellings, multiple dwellings, apartments, and park playgrounds or community centers (City of Los Angeles 2011). However, liveaboard boat tenants were identified to be located approximately 425 feet east of the proposed project, across the East Basin, to which there are no intervening

structures. At this distance, pile driving noise levels would average 69 dBA L_{eq} and maximum noise levels would be about 77 dBA L_{max}. While these noise levels would be temporary and would cease at the end of construction, these levels would exceed the applicable threshold of significance and would require mitigation. As such, mitigation measure NOI-1 is provided, requiring the use of acoustically absorptive blankets (also known as acoustic wraps, noise covers, etc.) capable of reducing noise by at least 5 dBA at all times during pile driving operations, or alternatively requires the use of pile driving systems capable of limiting maximum noise levels. Implementation of NOI-1 would reduce impacts to less than significant levels.

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 pubic use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is not located within 2 miles of a public airport, nor is it located within an airport land use plan. The nearest airport facilities are helicopter-landing pads at Berth 95 (2.8 miles southwest of the project site) and at 1175 Queens Highway, in Long Beach (over 3.4 miles to the southeast, northeast of the site). Only small helicopters operate from these locations and transit primarily via the Main Channel of the Port. Given the distance of the heliport, persons at the project site would not be exposed to excessive noise associated with aircraft. No impact would occur. No mitigation is required.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. As discussed in Question 4.8(f), the project site is not located within 2 miles of a public airport, nor is it located within an airport land use plan. Further, the project site is not located in the vicinity of a private airstrip. The nearest airport facilities are helicopter-landing pads at Berth 95 (2.8 miles southwest of the project site) and at 1175 Queens Highway, in Long Beach (over 3.4 miles to the southeast, northeast of the site). Only small helicopters operate from these locations and transit primarily via the Main Channel of the Port. Given the distance of the heliport, persons at the project site would not be exposed to excessive noise associated with aircraft. No impact would occur. No mitigation is required.

4.13 POPULATION AND HOUSING

This section describes potential impacts to population and housing associated with the proposed project.

Would the Project:

a) Induce substantial 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 involve construction and rehabilitation at four berths: Berths 196-199. In general, construction would involve removal and replacement of timber pile, removal of asphalt concrete, and construction of new asphalt concrete pavement. In addition, the proposed project would result in the construction of two additional railroad-loading tracks on the southern portion of the project site. The proposed project does not include any residential land uses and, therefore, would not result in a direct population increase from construction of new homes or businesses. The worker population served by the existing WWL facility presently exists in the region and the proposed project would neither require construction of new businesses or homes nor expand infrastructure in a manner that induces growth. Thus, the proposed project would not result in indirect population growth. No impacts on population growth would occur. No mitigation is required.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project site is zoned for industrial uses ([Q]M3-1) area and is located completely within LAHD property being leased by the WWL Vehicle Cargo Terminal. The proposed project would not alter the use or capacity of the facility. The proposed project would not displace existing housing, interfere with potential or planned future development of housing, or necessitate new housing development. Additionally, the proposed project does not require the removal of housing. As such, no housing or people would be displaced by development of the proposed project. No impacts would occur. No mitigation is required.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As discussed in the response to Question 4.13(b) above, the proposed project would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere as there is no housing on the project site. As such, no persons would be displaced as a result of implementation of the proposed project. No impacts would occur. No mitigation is required.

4.14 PUBLIC SERVICES

This section evaluates public services impacts associated with the implementation of the proposed project in terms of fire protection, police protection, schools, parks, and other public services.

Would the Project:

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

i) Fire Protection?

Less than Significant Impact. LAFD provides fire protection and emergency services for the proposed project site. Fire protection capabilities are based on the distance from the emergency to the nearest fire station and the number of simultaneous emergency or fire-related calls.

LAFD facilities in the vicinity of the proposed project site include land-based fire stations and fireboat companies. In the harbor area, Battalion 6 is responsible for all of Wilmington and its waterfronts, Terminal Island and all of the surrounding water, San Pedro, Harbor City, and Harbor Gateway. There are 10 fire stations within these geographical areas, which consists of fire boats, hazardous material squads, paramedic and rescue vehicles, three truck companies, an urban search and rescue unit, and a foam tender apparatus. The 10 fire stations within the Port area include:

- Station 38 - Located at 124 East I Street, Wilmington, Station 38 is a taskforce station with a staff of nine that maintains a truck and engine company and paramedic ambulance. This station is approximately is 1.0 mile to the west of the project site. This would be the primary fire station responding to the proposed project.

- Station 49 – Located at 400 Yacht Street, Berth 194 in Wilmington, Station 49 has a single engine company, two boats, a rescue ambulance, and is Battalion 6 Headquarters. There are 13 staff members at this station. This is located approximately 1.2 miles to the northeast of the project site. This would be the secondary fire station responding to the project site.

- Station 110 – Located at 2945 Miner Street in San Pedro, Station 110 has one fireboat and a staff of three.

- Station 111 - Located at 1444 S. Seaside Avenue on Terminal Island, Station 111 has one fireboat and three staff members.

- Station 40 – Located at 330 Ferry Street on Terminal Island, Station 40 is equipped with a fire engine and two ambulances and has four firefighters and two paramedics on staff.

- Station 112 – Located at 444 S. Harbor Boulevard on Berth 86 in San Pedro, Station 112 has a staff of 15, including an emergency medical services supervisor. It is a single engine company with a paramedic rescue ambulance and one fireboat.

- Station 36 – This is located at 1005 N. Gaffey Street in San Pedro. Station 36 has one standard engine company and one paramedic rescue ambulance.

- Station 48 – Located at 1601 S. Grand Avenue in San Pedro, Station 48 is a task force house with a staff of 16. It maintains a truck and engine company and a hazardous materials unit.

- Station 101 – Located at 1414 25th Street in San Pedro, Station 101 is staffed by six firefighters and two paramedics. This station has an engine company and paramedic ambulance.

The proposed project would be reviewed by the LAFD prior to commencement of construction activities. Further, the proposed project would comply with the City of Los Angles Municipal Code requirements and any LAFD requirements. The proposed project would not increase the demand for fire services and would neither require the expansion of existing facilities nor the construction of new fire facilities as the on-site use would remain the same. The impact would be less than significant and no mitigation is required.

ii) Police protection?

Less than Significant Impact. The proposed project would be within the jurisdiction of the Los Angeles Port Police (Port Police). The Port Police are responsible for patrol and surveillance of Port property including 12 square miles of landside property and 43 miles of waterfront. Port Police offices are located in the Harbor Administration Building at 425 South Palos Verdes Street in San Pedro. The Port Police Headquarters and office building is located at 330 S. Centre Street in San Pedro directly west of the Harbor Administration Building. Dive Unit facility boats and offices/lockers are located on 954 South Seaside Avenue on Terminal Island. Marine Unit boats and a small office are located at Berth 84, with additional offices in the Crowley Building nearby a Port Police

training facility located at 300 Ferry Street. The Port Police have two beat/patrol areas in Wilmington. An Interagency Task Force Unit is located at 239 North Avalon Boulevard in Wilmington. In addition, there is a Wilmington substation at 300 Water Street near Berth 195, 1.5 miles southwest of the project site.

Port Police are authorized for a total of 227 positions in fiscal year 2010–2011. The amount of total sworn staff is 127. The Port Police do not estimate the number of employed officers based on proposed development or anticipated population for a given area. Their staff/sworn officer totals are based on current Homeland Security data and levels of security at other ports of corresponding size and activity. Port Police are not a police agency driven by calls for service. Therefore, response times are not used by the Port Police as a metric or measure of services.

The proposed project would operate similar to the existing WWL facility. The Port Police service levels are considered adequate in the project site. The proposed project would be reviewed by the Port Police prior to commencement of construction activities. Further, the proposed project would comply with the City of Los Angeles Municipal Code requirements and any Port Police requirements (City of Los Angeles Municipal Code 2011). The impacts would be less than significant. No mitigation is required.

iii) Schools?

No Impact. The proposed project would not result in any increase in residential population. Additionally, no housing or employment opportunities would be provided by the proposed project. Therefore, no new students would be generated and no increase in demand on local schools would result from implementation of the proposed project. No impacts to schools would occur. No mitigation is required.

iv) Parks?

No Impact. The proposed project is located completely within LAHD property being leased by WWL and would not result in direct impacts to parks. There is no parkland within the project site. Further, the proposed project does not include development of any residential uses and would not generate any new permanent residents that would increase the demand on local parks. Therefore, no impacts related to parks would occur. No mitigation is required.

v) Other public facilities?

No Impact. The proposed project is located completely within LAHD property being leased by WWL and would not result in direct impacts to other public facilities. Further, the proposed project does not include development of any residential uses and would not generate any new permanent residents that would increase the demand on other public facilities. Therefore, no impacts related to parks would occur. No mitigation is required.

4.15 RECREATION

This section evaluates recreation impacts associated with the implementation of the proposed project. The analysis addresses construction-related and operational impacts and the associated potential impact to the surrounding local parks or other recreation facilities that would occur as a result of the proposed project.

Would the Project:

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

No Impact. The proposed project is located completely within LAHD property and ensures improved infrastructure for continued operation of the existing uses of the berths and boundary adjustments to the leased area. The proposed project would not result in direct impacts to parks or recreational facilities as none exist on or immediately adjacent the project site. Further, the proposed project does not include development of any residential uses or emplacement opportunities and would not generate any new permanent residents that would increase the demand on local parks or recreation facilities. Therefore, no impacts related to parks would occur. No mitigation is required.

b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include any recreational facilities. The proposed project does not include development of any residential uses or employment opportunities and, thus, would not generate new permanent residents that would increase the demand on local recreational facilities. Further, the proposed project would not promote or indirectly induce new development that would require the construction or expansion of recreational facilities. Therefore, no impact would occur. No mitigation is required.

4.16 TRANSPORTATION AND TRAFFIC

This section provides a summary of the existing and future traffic conditions analysis conducted.

Would the Project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less than Significant Impact.

Construction

Construction would occur along Berths 196-199 and would involve removal of asphalt concrete, removal, and replacement of timber pile, timber repair, joist repair, concrete wharf repair, and construction of new asphalt concrete pavement. Equipment and wharf construction would utilize a combination of trucks, barge, and one tugboat. The primary use of the tugboat would be to position a barge used to transfer and store construction equipment and materials.

Trip generation would not be substantial since equipment and material deliveries by truck would be supplemented by barge delivery. Further, since asphalt and concrete demolition debris would be recycled onsite by LAHD's Construction and Maintenance Division, additional worker trips are not anticipated to be substantial.

The proposed project would not result in significant impacts to the County-designated disaster route. The proposed project is not anticipated to result in roadway closures, and operation of nearby roadways (i.e., Alameda Street, Avalon Boulevard, and Harry Bridges Boulevard) would be preserved. To ensure minimal construction impacts and coordination of construction and other event activities, LAHD would be required to prepare a construction traffic control plan with input from the City of Los Angeles and other applicable regulatory agencies. This plan would provide a framework for the implementation of traffic control strategies and timely distribution of traffic-related information to emergency services, local citizens, and affected businesses. This would address such issues as access for local businesses and residents, truck routing, dust control, construction worker parking, hours of operation, potential temporary street closures, detouring, and materials storage. The impacts would be less than significant. No mitigation is required.

Existing transit service is provided north of the project via Metro Local Bus 202, with a stop located on Avalon Boulevard at D Street. Pedestrian sidewalks are provided on the east and west

sides of Avalon Boulevard and the south side of Alameda Street, with no pedestrian facilities on Harry Bridges Boulevard. No bicycle lanes or associated facilities are present within the study area. During both construction and operation of the proposed project, existing bus stops, bicycle facilities, and pedestrian facilities would not be disrupted by either construction or operation, as the proposed project does not anticipate any roadway closures or detours. The impacts to all alternative modes of transportation and relevant components of the circulation system would be less than significant. No mitigation is required.

Operation

It is anticipated that the increase if operational throughput at the facility that would occur under post-project conditions would increase truck traffic by approximately 200 trucks per month, which equates to an additional 10 round truck trips per workday, or 20 one-way trips per day. Based on operational information provided by the Port, these trips would occur during the day shift (Monday through Thursday from 5:00 a.m. to 4:00 p.m.), resulting in an average of 2 one-way trips per hour. In order to account for the effects of trucks' larger sizes and slower movements on traffic operations, a passenger car equivalence (PCE) factor of 2.0, consistent with previously applied factors used in Port studies, would be considered. Thus, both container and chassis trucks were counted as the equivalent of two automobiles, resulting in an average of 4 one-way passenger car equivalent trips during any given hour of the day shift.

The increased throughput that would occur under post- proposed project conditions is anticipated to add approximately 40 workers per day to the evening shift (Monday through Thursday from 4:30 p.m. to 1:00 a.m). Although the number of employees fluctuates from month to month, this increase in worker trips reflects the peak month of activity to provide a conservative approach. For purposes of this analysis, it is assumed that all 40 worker trips would arrive during the p.m. peak hour (4:30 p.m.) and depart during an off-peak hour (1:00 a.m.).

Analysis of traffic impacts are identified during the highest single hour of traffic on the adjacent street traffic, which typically occurs within the a.m. (7:00 – 9:00) and p.m. (4:00 – 6:00) peak periods. Based on previous studies at the Port, such as the POLA Baseline Transportation Study (Meyer, Mohaddes Associates), the a.m. peak hour typically occurs from 8:00 a.m. to 9:00 p.m. and the p.m. peak hour was observed to occur from 4:00 p.m. to 5:00 p.m. As previously stated the increased truck activity of 4 one-way passenger car equivalent trips per hour would occur during the a.m. and p.m. peak hour analysis periods. In summary, operation of the proposed project would add 4 one-way trips occurring during the a.m. peak hour (4 one-way passenger car equivalent trips) and 44 one-way trips during the p.m. peak hour (40 one-way worker trips and 4 one-way passenger car equivalent trips).

Per the screening criteria identified in the City of Los Angeles CEQA Thresholds Guide (Los Angeles 2006) for Transportation (2006) a project may cause an impact if it would generate or

cause diversion of 500 more daily trips or 43 or more p.m. peak hour trips. The post project conditions would result in an addition of one p.m. trip more than this screening criterion. Because the 44 trips during the p.m. does not account for any car pooling, transit opportunities, or that trucking would likely decrease during shift changes, combined with the fact that the project would not generate 500 ADT, additional numeric modeling of traffic conditions was not warranted. Consideration for estimating trips and routes has been undertaken as part of this analysis. The trips to and from the project site would utilize multiple routes such as the I-110 freeway, Avalon Boulevard, Harry Bridges Boulevard, or Alameda Street. As such, it is anticipated that the 4 a.m. and 44 p.m. peak hour trips would be spread out between those routes.

Typically, any increase in traffic in the study area is subject to Los Angeles County Congestion Management Program (CMP) thresholds and guidelines for impact analysis. Pursuant to CMP, administered by the Los Angeles County Metropolitan Transportation Authority (Metro), a traffic impact analysis is required at the following:

- CMP arterial monitoring intersections, including freeway on- or off-ramps, where the proposed project would add 50 or more trips during either the a.m. (8:00 – 9:00) or p.m. (4:00 - 5:00) weekday peak hours.
- CMP freeway monitoring locations where the proposed project would add 150 or more trips during either the a.m. (8:00 – 9:00) or p.m. (4:00 - 5:00) weekday peak hours.

Three CMP arterial monitoring stations are located either within or close to the proposed project study area. However, none are projected to experience 50 or more project-related trips during the AM or PM peak period the post -project conditions would add a maximum of 44 trips during the p.m. peak hour. Furthermore, these 44 trips would be spread out to various routes leading to and from Berths 196 to 199. The three CMP arterial monitoring stations are provided below:

- PCH/Santa Fe Avenue (not a study intersection – less than 50 peak hour trips added by the proposed Project)
- Alameda Street/ PCH (not a study intersection – less than 50 peak hour trips added by the proposed Project)
- PCH/Figueroa Street (not a study intersection - less than 50 peak hour trips added by the proposed Project)

Four CMP freeway monitoring stations are located within or close to the proposed project study area. The project would add less than 150 daily trips at these two freeway-monitoring locations. The four CMP freeway monitoring stations are provided below:

1. I-405 between I-110 and I-710 (CMP freeway monitoring station – at Santa Fe Avenue)
2. I-710 north of I-405 (CMP freeway monitoring station – north of Jct. 405, south of Del Amo Boulevard)

3. I-710 north of PCH (CMP freeway monitoring station – north of Jct Rte 1 (PCH), Willow Street)
4. I-110 south of C Street (CMP freeway monitoring station – south of "C" Street).

As a result of increased throughput through the facility, there is anticipated to be an increase of annual rail trips, as outlined in Table 2-4. There would not be an increase in the number of rail trips on peak days, only an increase in the frequency of peak days. Implementation of the proposed project would result in the construction of two additional railroad-loading tracks on the southern portion of the project site. The new tracks would increase the maximum number of railcars per train from 39 to 50. Empty railcars would be stored at Berth 200 and transported to WWL as needed, with no impact to at grade crossings. The increase in railcars associated would potentially lengthen each train by approximately 825 feet (an average of 75 feet per railcar including hookups), which could affect existing at-grade crossings. Using the Southern California Regional Rail Authority (SCRRA) and the California Public Utility Commission (CPUC) calculation for gate blockage time at grade crossings, the increase in the number of PHL railcars could increase total train blockage time by approximately 24 seconds, or about 2 seconds per railcar (Powell 1982). This blockage would occur at most, for two train trips per day.

The PHL delivers to four rail yards within the POLA: Intermodal Container Transfer Facility (ICTF), Mead Yard, Manual Yard, and the BNSF Watson Yard. The increase in railcars would have a potential to affect approximately six at-grade crossings along the delivery routes. All affected at-grade crossings intersect minor streets (L Street, Denni Street, Grant Street, Anaheim Street, G Street, and H Street). All grade crossings at major arterials (i.e., Willow Street, PCH, and Alameda Street are grade-separated. The increase in the number of railcars associated with each pick up would extend existing grade crossing events by approximately 24 seconds, which over the course of an hour would be minimal. The first pickup would occur during evening hours (after 6:00 PM) and on peak days, the second pickup would occur during the late morning hours (after 9:00 AM). Therefore, traffic impacts would be less than significant as the increase in railcars would occur during off-peak hours, where traffic is minimal in comparison to the peak hours. No mitigation measures are required.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less than Significant Impact. As discussed previously, traffic associated (80 daily, 4 a.m. peak hour, and 44 p.m. peak hour trips) proposed project would not trigger any thresholds set forth by the Los Angeles County CMP. The maximum of 44 p.m. peak hour trips would be under the CMP threshold of 50 peak hour trips at arterial intersections and 150 peak hour trips on freeway segments. As a result, traffic impacts would be less than significant and no mitigation measures are required.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The project site is not located within 2 miles of a public airport, nor is it located within an airport land use plan. Further, the project site is not located near a private airstrip. The nearest airport facilities are helicopter-landing pads at Berth 95 (2.8 miles southwest of the project site) and at 1175 Queens Highway, in Long Beach (over 3.4 miles to the southeast northeast of the site). Only small helicopters operate from these locations and transit primarily via the Main Channel of the Port. Given the distance of the heliport, the proposed project would not result in a change in air traffic patterns, including increased air traffic levels or a change in location that results in substantial safety risks. The project would not result in permanent aerial structures. No change to air traffic patterns would occur. As such, no impacts would occur. No mitigation measures are required.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project does not include any alterations to access points or routes to the site or interfere with any existing accesses. Therefore, the proposed project would not substantially increase hazards due to a design feature. As such, no impacts would occur. No mitigation measures are required.

e) Result in inadequate emergency access?

Less than Significant Impact. As stated above, the proposed project would not alter any access points or routes and would not result in any closures of roadways. Traffic associated with the construction of the proposed project would not trigger any thresholds related to arterial/freeway CMP facilities or emergency access routes. Operation of the proposed project would not generate additional traffic or the number of vehicle trips per day. Furthermore, the proposed project would not increase traffic congestion at intersections by a substantial amount as the trip generation is less than the thresholds set forth by the CMP. Therefore, the proposed project would not result in inadequate emergency access.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. Implementation of the proposed project would allow for the continued use of the property for processing and operations of vehicle cargo with modified lease boundaries. Per the Port Master Plan, the project site is in Area 5: Wilmington District. Per the Port Master Plan, the project site is designated as “General Cargo” and “Other” (Port of Los Angeles 1980). General Cargo areas are those that include container, unit, break-bulk, neo-bulk, and passenger facilities.

Other uses include some vacant land; proposed acquisitions; rights-of-way for rail, utilities, and roads; and areas not designated for a specific short-term use. The Port Master Plan called for "backland modification and restoration" for Berths 195-199, which included the demolition of the passenger-access facility and the removal of various concrete walks and islands to modify the backland for neo-bulk cargo handling and storage.

The proposed project is consistent with the Port Master Plan as it would result in modifications to the backland area, with the construction of additional rail tracks. In addition, the proposed project would not result in the construction or removal of alternative transportation facilities such as bus stops or bicycle and pedestrian facilities. The proposed project does not involve the disturbance or modification of areas outside the lease boundaries and would not interfere with and planned or proposed modification to maintain or incorporate bike lanes, roadways or transit facilities. As such, the proposed project would not conflict with policies, plans, or programs supporting alternative transportation, e.g., bicycles, buses, carpools, vanpools, ridesharing, walking, etc. No impacts would occur. No mitigation measures are required.

4.17 UTILITIES AND SERVICE SYSTEMS

This section evaluates impacts related to utilities and service systems associated with the implementation of the proposed project in terms of water service, wastewater, solid waste, and stormwater.

Would the Project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less than Significant Impact. The project site is serviced by the City of Los Angeles Bureau of Sanitation's Terminal Island Water Reclamation Plant (TIWRP). The proposed project does not involve any industrial process that might require an Industrial Waste permit from the Bureau of Sanitation. The proposed project would not alter the current discharge from TIWRP and would not exceed wastewater treatment requirements. No population increase would result from the construction and operation of the proposed project. It would not provide new housing or a large number of employment opportunities. The proposed project would not exceed wastewater treatment requirements of the Los Angeles RWQCB. The impact would be less than significant. No mitigation measures are required.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact. As discussed in Question 4.17(a), the project site is serviced by the City of Los Angeles Bureau of Sanitation's TIWRP. TIWRP has an average dry weather flow capacity of 30 million gallons per day (MGD) (City of Los Angeles, Bureau of Sanitation 2005, DWP 2005). TIWRP currently operates at approximately 58 percent capacity, treating 17.5 MGD in 2008/09.

In the 2005 Urban Water Management Plan, Los Angeles Department of Water and Power (LADWP) forecasted that the City of Los Angeles would grow 0.4 percent annually over the next 25 years, or by approximately 368,000 persons over the next 25 years. Total citywide demand for water is predicted to be 755,000 acre-feet in 2025 and 766,000 acre-feet in 2030. According to the 2005 Urban Water Management Plan, under wet, average, and dry years throughout the 25-year projection period, LADWP's supply portfolio is expected to be reliable, with adequate supplies available to meet projected demands through 2030 (DWP 2005).

No population increase on or in the vicinity of the proposed project site would result from the construction and operation of the proposed project. In addition, it would not provide new housing or a large number of employment opportunities. Construction of the proposed project would not

require new water or wastewater facilities or the expansion of existing facilities. Operation of the proposed project would require similar amounts of water as currently supplied to the existing WWL. Implementation of the proposed project would not require new water or wastewater facilities or the expansion of existing facilities. Impacts would be less than significant. No mitigation measures are required.

c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact. The existing storm drainage system at the project site allows for discharge of untreated runoff. The parcel is entirely asphalt paved and fenced. Surface runoff water and drainage are directed generally toward Alameda Street to municipal storm drains and sewer. The existing WWL facility is approximately 89 acres. The proposed project includes an adjustment in the existing leased boundary area. The Berth 200A Rail Yard Project would result in relocation of perimeter fences in two locations to allow adequate clearance for a proposed roadway on the northwestern portion of the project boundary that would connect to Avalon Boulevard. As a result, the new WWL lease area would be approximately 91 acres for the remaining term of the lease. As such, there would not be a substantial amount of impervious surface created with implementation of the proposed project that would generate increased volumes of runoff or stormwater. Thus, impacts would be less than significant. No mitigation measures are required.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. Operation of the proposed project would require similar amounts of water as currently supplied to the existing WWL. In the 2005 Urban Water Management Plan, LADWP forecasted that the City of Los Angeles would grow 0.4 percent annually over the next 25 years, or by approximately 368,000 persons over the next 25 years. Total citywide demand for water is predicted to be 755,000 acre-feet in 2025 and 766,000 acre-feet in 2030. According to the 2005 Urban Water Management Plan, under wet, average, and dry years throughout the 25-year projection period, LADWP's supply portfolio is expected to be reliable, with adequate supplies available to meet projected demands through 2030 (DWP 2005). As such, the proposed project would have adequate water supply and facilities to service the site. No impacts would occur and no mitigation measures are required.

e) 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?

Less than Significant Impact. As discussed in Question 4.17(a), the project site is serviced by the City of Los Angeles Bureau of Sanitation's TIWRP. Implementation of the proposed project would allow for the continued use of the property for processing and operations of vehicle cargo with modified lease boundaries. Implementation of the proposed project would result in the construction of two additional railroad-loading tracks on the southern portion of the project site. Construction and operation of the proposed project is not anticipated to generate any population increase. The project would not result in different levels of wastewater generated than are generated by existing operations on the site. The proposed project would not provide new housing or a large number of employment opportunities. Construction of the proposed project would not require new water or wastewater facilities or the expansion of existing facilities. Operation of the proposed project would require similar amounts of water as currently supplied. Impacts would be less than significant. No mitigation measures are required.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than Significant Impact. Solid waste would be generated during construction of the proposed project. Construction and demolition activities would generate debris that would include asphalt, concrete, and solids. The LAHD's Construction and Maintenance Division recycles asphalt and concrete demolition debris by crushing and stockpiling the crushed material to use on Port of Los Angeles projects; thus, minimizing the amount of solid waste requiring disposal. Although hazardous materials could be encountered and require disposal during construction activities, several contaminated soil treatment and disposal options and Class I landfills are available for off-site disposal that have adequate capacity. Construction and operation of the proposed project are not anticipated to generate any population increase. Further, the proposed project would not provide new housing or a large number of employment opportunities. As such, the impact would be less than significant. No mitigation measures are required.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Less than Significant Impact. The proposed project would be a continuation of the existing use and would not conflict with any statutes or regulations related to solid waste. As such, the impacts would be less than significant. No mitigation measures are required.

4.18 MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to 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, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact After Mitigation Incorporated. As described in Question 4.4(d) in Section 4.4, Biological Resources, the installation of piles may disturb marine species during construction, particularly marine mammals, in the vicinity. While the project site is not a suitable resting site and it is not suitable foraging area, due to the industrial infrastructure and activities that are ongoing, marine mammals travel and have been seen throughout the waters of the LAHD. As such, to ensure that potential impacts from pile driving activities result in less than significant impacts, mitigation measures BIO-1 and BIO-2 would be implemented, as is standard for pile driving operations within LAHD. As such, to ensure that potential impacts from pile driving activities result in less than significant impacts, mitigation measures BIO-1 and BIO-2 would be implemented for pile driving operations within LAHD.

Historic spur rail lines may be encountered during construction. Historic maps and photos suggest that a rail spur crossed the center of the proposed project from the 1920s to the 1980s. Modern aerial images indicate that historic rail lines, which have been removed from service on the proposed project area, may be present under the pavement extending across the center of the project area from the northeast to the southwest, or along the wharf on the eastern portion of the site. The existing rail lines within the project site is identified to be modern. However, ground disturbance resulting from the construction of two additional railroad-loading tracks on the southern portion of the project site has the potential to encounter buried historic spur rail lines. In the event that such resources are discovered as part of implementation of the project, mitigation measure CUL-1 is provided to avoid potential impacts to buried resources. With the implementation of mitigation measure CUL-1, the proposed project would have a less than significant impact on archaeological resources.

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

Less than Significant Impact After Mitigation Incorporated. The proposed project would result in no impacts to agricultural resources, land use and planning, mineral resources, population and housing, and recreation. The proposed project would have less-than-significant impacts to aesthetics, geology and soils, GHG emissions, hazards and hazardous materials,

hydrology and water quality, public services, transportation and traffic, and utilities and service systems.

With regard to air quality, SCAQMD has established incremental emissions thresholds to determine whether a project would contribute to significant impacts. As evaluated in Question 3(b), construction of the proposed project would result in NO_X emissions that would exceed the daily emission thresholds. In addition, the proposed project would result in NO_X, PM_{10}, and $PM_{2.5}$ emissions that would exceed localized emission thresholds established by SCAQMD (see Table 4.3-2). However, with implementation of mitigation measures AQ-1 through AQ-5, construction-generated emissions of VOCs, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ would not exceed applicable mass emission thresholds established by SCAQMD (see Table 4.3-3). As such, regional emissions would be less than the applicable SCAQMD thresholds, which are designed to assist the region in attaining the applicable state and national ambient air quality standards. Further, upon lease approval, LAHD is requiring four lease requirements in an effort to minimize air quality impacts during both construction operation activities. The first lease requirement requires the tenant to implement CAAP measure CHE-1, which requires all cargo-handling equipment (such as forklifts) to meet 2007 on-road or Tier 4 off-road requirements (discussed in Question 4.3[b]). The second lease requirement requires compliance with OGV1, which is a voluntary vessel speed reduction program. The third lease requirement requires compliance with OGV3, which sets fuel standards for auxiliary engines. The fourth lease requirement requires compliance with OGV4, which sets fuel standards for main engines. With Implementation of the lease requirements and mitigation measures AQ-1 through AQ-5, the proposed project would not contribute to cumulatively considerable air quality impacts.

As described in Question 4.4(d) in Section 4.4, Biological Resources, the installation of piles may disturb marine species during construction, particularly marine mammals, in the vicinity. While the project site is not a suitable resting site and it is not suitable foraging area, due to the industrial infrastructure and activities that are ongoing, marine mammals travel and have been seen throughout the waters of the LAHD. As such, to ensure that potential impacts from pile driving activities result in less than significant impacts, mitigation measures BIO-1 and BIO-2 would be implemented, as is standard for pile driving operations within LAHD. As such, to ensure that potential impacts from pile driving activities result in less than significant impacts, mitigation measures BIO-1 and BIO-2 would be implemented, as is standard for pile driving operations within LAHD.

To avoid the potential for unforeseen impacts to cultural resources, mitigation measure CUL-1 is provided. With the implementation of the above mitigation measure CUL-1, the proposed project would have a less than significant impact on archaeological resources.

Mitigation is provided in order to reduce noise impacts to liveaboard boat tenants located directly across the channel from the berths at a distance of approximately 425 feet across the East

Channel. NOI-1 requires the use of acoustically absorptive blankets (also known as acoustic wraps, noise covers, etc.) capable of reducing noise by at least 5 dBA at all times during pile driving operations, or, alternatively, requires the use of pile driving systems capable of limiting maximum noise levels. Implementation of NOI-1 would reduce impacts to less than significant levels.

The proposed project would not result in significant impacts that cannot be mitigated to a less than significant level, as described within sections 4.3, 4.4, and 4.5, and 4.12. 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. The analysis has determined that the proposed project would not have any individually limited but cumulatively considerable impacts. No additional mitigation would be required.

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

Less than Significant Impact After Mitigation Incorporated. The proposed project could result in potentially significant direct or indirect impacts to humans due to environmental effects to resources, such as air quality and noise. Mitigation measures are provided to reduce the project's potential effects on air quality and noise to below the level of significance, as detailed within sections 4.3 and 4.12, respectively. No additional mitigation measures are required. Adverse effects on human beings resulting from implementation of the proposed project would be less than significant after mitigation is incorporated.

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5.0 MITIGATION MONITORING AND REPORTING PLAN

CEQA requires public agencies to adopt a reporting or monitoring program for the changes to the project that have been adopted to mitigate or avoid significant effects on the environment (PRC Section 21081.6). The purpose of this program is to ensure that when an MND identifies measures to reduce potential environmental impacts to less than significant levels, that those measures are implemented as detailed in the environmental document. As lead agency, the LAHD is responsible for implementation of this Mitigation Monitoring and Reporting Plan (MMRP). Once the Board of Harbor Commissioners adopts the MMRP, the applicable LAHD division(s) would incorporate the mitigation monitoring/reporting requirements in the appropriate permits (i.e., engineering specifications, engineering construction permits, and/or real estate entitlements). Therefore, in accordance with the aforementioned requirements, this MMRP lists each mitigation measure, describes the methods for implementation and verification, and identifies the responsible party or parties as detailed below.

Mitigation Measure	Timing and Methods	Responsible Party
AQ-1: **Harbor Craft Used during Construction** • All harbor craft used during the construction phase of the project will be, at a minimum, repowered to meet the cleanest existing marine engine emission standards or USEPA Tier 2	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.
AQ-2: Construction Equipment • From January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp and less than 750 hp, except marine vessels and harbor craft, will meet Tier-4 off-road emission standards at a minimum. • From January 1, 2015 on: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, will meet Tier-4 off-road emission	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
standards at a minimum. In lieu of Tier 4 off-road construction equipment, an "emissions calculator[1]" will be permitted as an emissions control strategy. Development of an "emissions calculator" would occur prior to the bid solicitation package going public and would incorporate the project's emissions limitations, control strategies applicable to construction equipment, and other limitations/specifications developed under the CEQA analysis (*San Pedro Bay Ports Clean Air Action Plan. Section 5.6, Construction Activity.* Approved by the Ports of Los Angeles and Long Beach on November 20, 2006).		
AQ-3: Additional Fugitive Dust Reductions Increase the frequency of grading site watering from three times per day to once every two hours to achieve a 75 percent reduction of fugitive dust PM_{10} from uncontrolled levels. The construction contractor will designate personnel to monitor the dust control program and to order increased watering, as necessary, to ensure a 75 percent control level.	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.
AQ-4: All construction operations within the Port will comply with LAHD Sustainable Construction Guidelines. General Construction BMPs include: • Use diesel oxidation catalysts and catalyzed diesel particulate traps. • Maintain equipment according to manufacturers' specifications. • Restrict idling of construction	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use. • Install high-pressure fuel injectors on construction equipment vehicles. • Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors. • Improve traffic flow by signal synchronization. • Enforce truck parking restrictions. • Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc. • Reroute construction trucks away from congested streets or sensitive receptor areas. • Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site. • Use electric power in favor of diesel power where available.		
AQ-5: Fleet Modernization for On-Road Trucks Used During Construction 1. Trucks hauling material, such as debris or any fill material will be fully covered while operating off Port Property. 2. Idling will be restricted to a maximum of 5 minutes when not in use. 3. USEPA Standards:* a. For on-road trucks with a gross vehicle weight rating of at least 19, 500 pounds (except for Import Haulers and Earth Movers): Comply	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
with USEPA 2007 on-road emission standards for PM_{10} and NO_x (0.01 grams per brake horsepower-hour [g/bhp-hr] and 1.2 g/bhp-hr or better, respectively). b. For Import Haulers with a gross vehicle weight rating of at least 19, 500 pounds used to move dirt and debris to and from the construction site via public roadways: Comply with USEPA 2004 on-road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).\ c. For Earth Movers with a gross vehicle weight rating of at least 19, 500 pounds used to move dirt and debris to and from the construction site: Comply with USEPA 2004 on-road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively). *****The USEPA standards apply to new equipment; however, a typical fleet would be comprised of both new equipment meeting USEPA standards and older equipment. This mitigation measure requires that all equipment used at the site meet USEPA standards for new equipment, thereby reducing emissions from a typical fleet that includes older equipment. For comparison, the California Air Resources Board's in Use Heavy-Duty Diesel Fuel Vehicles Regulation (California Code of Regulations, Title 13, Section 2025) does not require in-use vehicle with a gross vehicle weight rating greater than 26,000 pounds to meet 2010 engine emission standards until 2015 at the earliest.		

Mitigation Measure	Timing and Methods	Responsible Party
BIO-1: Avoid 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 wharf extension shall include establishment of a safety zone, and the area surrounding the operations will be monitored by a qualified marine biologist for pinnipeds. A 100-meter-radius safety zone will be established around the pile-driving site and monitored for marine mammals. As the pile-driving site will move with each new pile, the 100-meter safety zone shall move accordingly. Prior to commencement of pile-driving, observers on shore or by boat will survey the safety zone to ensure that no marine mammals are seen within the zone before pile-driving of a pile segment begins. If a marine mammal is observed within 10 meter of pile-driving operations, pile-driving shall be delayed until the marine mammal moves out of the area. If a marine mammal in the 100-meter safety zone is observed, but more than 10 meters away, the contractor shall wait at least 15 minutes to commence pile-driving. If the marine mammal has not left the 100-meter safety zone after 15 minutes, pile-driving can commence with a "soft start". This 15-minute criterion is based on a study indicating that pinnipeds dive for a mean time of 0.50 minutes to 3.33 minutes; the 15-minute delay will	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications and in the lease. A qualified biologist shall be retained by the LAHD Environmental Management Division or by the construction contractor with the LAHD Environmental Management Division approval.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
allow a more than sufficient period of observation to be reasonably sure the animal has left the proposed Project vicinity. If marine mammals enter the safety zone after pile-driving of a segment has begun, pile-driving shall continue. If the animal appears distressed, and if it is operationally safe to do so, pile-driving shall cease until the animal leaves the area.		

Mitigation Measure	Timing and Methods	Responsible Party
BIO-2: During construction, a biological monitor shall be present to monitor and record any marine mammals observed, and make note of their behavior patterns. Prior to the initiation of each new pile-driving episode, the area shall, again, be thoroughly surveyed by the biologist to monitor and record any marine mammals observed.	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications and in the lease. A qualified biologist shall be retained by the LAHD Environmental Management Division or by the construction contractor with the LAHD Environmental Management Division approval.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
CUL-1: Prior to the start of any ground disturbing activities a qualified archaeologist should be retained to respond on an as-needed basis in the event archaeological discoveries occur. In the event any cultural resources are encountered during earthmoving activities, including the potential for buried historic rail spur lines during the construction of railroad tracks on the southern portion of the project site, the construction contractor shall cease activity in the affected area until the discovery can be evaluated and recorded by the cultural resources specialist in accordance with the provisions of CEQA §15064.5. The archaeologist shall complete any requirements for treatment measures and data recovery.	**Timing**: Pre-construction. **Method**: The mitigation measure must be performed prior to any ground disturbing activities. A qualified archaeologist shall be retained by the LAHD Environmental Management Division or by the construction contractor with the LAHD Environmental Management Division approval. All construction equipment operators shall attend a preconstruction meeting presented by a professional archaeologist retained by the LAHD Environmental Management Division or the construction contractor that shall review types of cultural resources and artifacts that would be considered potentially significant, and to ensure operator recognition of these materials during construction. If materials are found, the construction contractor shall contact the LAHD Environmental Management Division, the LAHD Inspector, and/or the County Coroner, if necessary.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.
NOI-1: Pile drivers shall be shrouded with acoustically absorptive blankets (also known as acoustic wraps, noise covers, etc.) capable of reducing noise by at least 5 dBA at all times during pile driving operations. Further, the acoustically absorptive blankets should be large enough to completely block the line of sight between receivers and the	**Timing**: During project construction. **Method**: The mitigation measure must be included in the construction specifications.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
pile driver and should be lowered as the pile is driving down. The sound blankets will have a minimum sound transmission classification of 32 and noise reduction coefficient of 0.85. The sound blankets will be of sufficient length to extend from above the hammer resting position and drape on the ground/water. The sound enclosure is anticipated to achieve a 5 to 10-dBA insertion loss (noise reduction) depending on the height of the receiver relative to the top of the pile. Alternatively, project construction would require pile driving systems, such as a Bruce Hammer (with silencing kit), an IHC Hydrohammer SC series (with sound insulation system), or equivalent silenced hammer, which would achieve noise reductions equivalent to pile drivers shrouded with acoustically absorptive blankets.		
POLA Lease Requirements: Although not required as CEQA mitigation, the following lease measures are included for tracking purposes.		
San Pedro Bay Ports CAAP Measure CHE-1. The Port shall require the tenant to implement CAAP measure CHE-1, which includes the following requirements: • Beginning 2007, all CHE purchases will meet one of the following performance standards: o Cleanest available on-road or off-road NOx standard alternative-fueled engine, meeting 0.01 g/bhp-hr DPM, available at time of purchase, or	**Timing**: Upon lease renewal. **Method**: The requirements must be included in the lease.	**Implementation**: Tenant LAHD Real Estate Division for lease requirements. **Monitoring and Reporting**: Tenant and LAHD Environmental Management Division

Mitigation Measure	Timing and Methods	Responsible Party
o Cleanest available on-road or off-road NOx standard diesel-fueled engine, meeting 0.01 g/bhp-hr DPM, available at time of purchase. o If there are no engines available that meet 0.01 g/bhp-hr DPM, then must purchase cleanest available engine (either fuel type) and install cleanest CARB verified diesel emission control strategy available. • By 2010, all yard tractors operating at the ports will meet USEPA 2007 or Tier 4 off-road emission engine standards. • By the end of 2012, all pre-2007 on-road or pre Tier 4 off-road top picks, forklifts, reach stackers, RTGs, and straddle carriers <=750 hp will meet, at a minimum, the USEPA 2007 on-road engine standards or Tier 4 off-road engine standards. • By end of 2014, all CHE with engines >750 hp will meet at a minimum the USEPA Tier 4 off-road engine standards. Starting 2007 (until equipment is replaced with Tier 4), all CHE with engines >750 hp will be equipped with the cleanest available California Air Resources Board verified diesel emission control strategy. LAHD will require tenants to comply with CHE-1 upon lease approval.		
OGV1 - Vessel Speed Reduction Program. Under this voluntary program, participant vessels are required to reduce their speeds to 12 knots or less within 40 nautical miles of the Point Fermin Lighthouse. This	**Timing**: Upon lease renewal. **Method**: The requirements must be included in the lease.	**Implementation**: Tenant LAHD Real Estate Division for lease requirements.

Mitigation Measure	Timing and Methods	Responsible Party
reduction of 3 to 10 knots per ship (depending on the ship's cruising speed) can substantially reduce emissions from the main propulsion engines of the ships. LAHD will require tenants to comply with OGV1 upon lease approval.		**Monitoring and Reporting**: Tenant and LAHD Environmental Management Division.
OGV3 – OGV Low Sulfur Fuel for Auxiliary Engines and Auxiliary Boilers. This measure reduces emissions from the auxiliary engines and auxiliary boilers of OGVs during their approach and departure from the ports, by switching to ≤0.2 percent sulfur distillate fuels (marine gas oil or marine diesel oil) within 40 nautical miles of the Point Fermin Lighthouse or while at berth. As of January 2014, the California Air Resources Board requires a rule limit of ≤0.1 percent sulfur distillate fuel for marine gas oil or marine diesel oil within 24 nm of the California Baseline. LAHD will require tenants to comply with OGV3 upon lease approval.	**Timing**: Upon lease renewal. **Method**: The requirements must be included in the lease.	**Implementation**: Tenant LAHD Real Estate Division for lease requirements. **Monitoring and Reporting**: Tenant and LAHD Environmental Management Division.
OGV4 – OGV Low Sulfur Fuel for Main Engines. This measure reduces emissions from the main propulsion engines of OGVs during their approach and departure from the ports, by switching to ≤0.2 percent sulfur distillate fuels (marine gas oil or marine diesel oil) within 40 nautical miles of the Point Fermin Lighthouse. As of January 2014, the California Air Resources Board requires a rule limit of ≤0.1 percent sulfur distillate fuel for marine gas oil or marine diesel oil within 24 nm of the California Baseline. LAHD will require tenants to comply	**Timing**: Upon lease renewal. **Method**: The requirements must be included in the lease.	**Implementation**: Tenant LAHD Real Estate Division for lease requirements. **Monitoring and Reporting**: Tenant and LAHD Environmental Management Division

Mitigation Measure	Timing and Methods	Responsible Party
with OGV4 upon lease approval.		
Site Remediation Lease Requirement. Unless otherwise authorized by the lead regulatory agency for any given site, the Applicant shall address all contaminated soils within proposed project boundaries discovered during demolition, excavation, and grading activities. Contamination existing at the time of discovery shall be the responsibility of the past and/or current property owner. Contamination as a result of the construction process shall be the responsibility of the Applicant and/or the Applicant's contractors. Remediation shall occur in compliance with local, state, and federal regulations and as directed by the lead regulatory agency for the site. Soil removal shall be completed such that remaining contamination levels are below risk-based health screening levels for industrial sites established by the Office of Environmental Health Hazard Assessment and/or applicable action levels (e.g., Environmental Screening Levels, Preliminary Remediation Goals) established by the lead regulatory agency with jurisdiction over the site. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) and/or risk-based soil assessments for industrial sites, but are subject to the review of the lead regulatory agency. Excavated contaminated soil shall be properly disposed of off-site unless	**Timing**: During project construction and operation. **Method**: The requirements must be included in the construction specifications and in the lease.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. LAHD Real Estate Division for lease requirements. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
use of such material on site is beneficial to construction and approved by the agency overseeing environmental concerns. All imported soil to be used as backfill in excavated areas shall be sampled to ensure that it is suitable for use as backfill at an industrial site. LAHD will require tenants to comply upon lease approval.		
Contamination Contingency Plan Lease Requirement. The following contingency plan shall be implemented to address contamination discovered during demolition, excavation, grading, and construction. (a) All trench excavation and filling operations shall be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination shall be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor shall notify the Applicant and the LAHD's environmental representative. The LAHD shall confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site shall require the approval of the LAHD Project Engineer. (b) Excavation of VOC-impacted soil may require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit. (c) The remedial option(s) selected shall be dependent upon a	**Timing**: During project construction. **Method**: The requirements must be included in the construction specifications and in the lease.	**Implementation**: LAHD Environmental Management Division, LAHD Construction Management Division, and Construction Contractor. LAHD Real Estate Division for lease requirements. **Monitoring and Reporting**: LAHD Environmental Management Division and Construction Contractor.

Mitigation Measure	Timing and Methods	Responsible Party
suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis. Both off-site and on-site remedial options may be evaluated. (d) The extent of removal actions shall be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area shall be remediated to the satisfaction of the applicant, LAHD, and the lead regulatory agency for the site. The Port Project Manager overseeing removal actions shall inform the contractor when the removal action is complete. (e) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Port Project Manager within 60 days of project completion. (f) In the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material must be trained in accordance with EPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the work place. (g) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related		

Mitigation Measure	Timing and Methods	Responsible Party
emissions adjacent to the excavation. (h) All excavations shall be backfilled with structurally suitable fill material that is free from contamination. LAHD will require tenants to comply upon lease approval.		

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6.0 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 with the incorporation of described revisions to the project and mitigation measures, the proposed project would not have a significant effect on the environment.

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8.0 ACRONYMS AND ABBREVIATIONS

[Q] M3-1	Heavy Industrial Uses
[Q]C2	Commercial
AB	Assembly Bill
ADT	Average Daily Traffic
AMP	Alternative Maritime Power
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BMPs	best management practices
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAAP	Clean Air Action Plan
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CCAR	California Climate Action Registry
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Places
CH_4	methane
CHE	Cargo-handling Equipment
CHL	California Historical Landmarks
CNEL	community noise equivalent level
CMP	Congestion Management Program
CO	carbon monoxide
CO_2e	CO_2-equivalents
CPUC	California Public Utility Commission
CUP	Conditional Use Permit
CWA	Clean Water Act
dBA	A-weighted sound level
D/C	demand-to-capacity
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
FTA	Federal Transit Administration
FRA	Federal Railroad Administration
g/bhp-hr	grams per brake horsepower-hour
GHG	greenhouse gas
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
HRI	Historic Resources Inventory
HSC	Health and Safety Code

ILWU	International Longshore and Warehouse Union
IPCC	International Panel on Climate Change
IS/MND	Initial Study/Mitigated Negative Declaration
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAHD	Los Angeles Harbor Department
LAPD	Los Angeles Police Department
L_{eq}	equivalent sound level
L_{max}	maximum noise level
LST	Localized Significance Threshold
M-2	Light Industrial
Metro	Los Angeles County Metropolitan Transportation Authority
MMRP	Mitigation Monitoring and Reporting Program
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NO_X	nitrogen oxides
NCCP	Natural Community Conservation Plan
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
OGV	Ocean-going Vessels
PCE	Passenger Car Equivalent
PF	Public Facilities
POLA	Port of Los Angeles
PM_{10}	diesel-emitted particulate matter less than 10 microns
$PM_{2.5}$	directly emitted particulate matter less than 2.5 microns
R-1	One Family Dwelling
RD	Restricted Density Multiple Dwelling
ROG	reactive organic gas
RTG	rubber-tired gantry crane
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SCCIC	South Central Coastal Information Center
SCRRA	Southern California Regional Rail Authority
SEA	Significant Ecological Area
SO_X	sulfur oxides

SVOCs	semi-volatile organic compounds
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TCR	The Climate Registry
TIWRP	Terminal Island Water Reclamation Plant
TPH	total petroleum hydrocarbon
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
WWL	WWL Vehicle Services Americas, Inc.
ZI-1192	2000 ft. Buffer Zone for Border Zone Property Site

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APPENDIX A

AIR QUALITY CALCULATIONS – DAILY EMISSIONS

WWL Screening Assessment

Construction Emissions Summary

Unmitigated

Construction Year 2013

	Peak Day Emissions (lb/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM
Onsite Sources	17	113	202	0	48	16	9
Offsite Sources	1	7	10	0	1	1	1
Total 2013	**18**	**120**	**212**	**0**	**49**	**17**	**10**
Threshold	75	550	100	150	150	55	na
Significance Determination	No	No	Yes	No	No	No	na

Construction Year 2014

	Peak Day Emissions (lb/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM
Onsite Sources	12	86	149	0	18	9	6
Offsite Sources	0	3	7	0	0	0	0
Total 2014	**13**	**89**	**156**	**0**	**19**	**9**	**7**
Threshold	75	550	100	150	150	55	na
Significance Determination	No	No	Yes	No	No	No	na

Mitigated 75% Tier 4 offroad engines and 25% Tier 3 engines, Tier 2 tugboats, 75% dust reduction from unpaved onsite roads and construction dust.

Construction Year 2013

	Peak Day Emissions (lb/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM
Onsite Sources	11	129	58	0	8	4	3
Offsite Sources	1	6	5	0	1	0	1
Total 2013	**12**	**135**	**63**	**0**	**9**	**4**	**4**
Threshold	75	550	100	150	150	55	na
Significance Determination	No	No	No	No	No	No	na

Construction Year 2014

	Peak Day Emissions (lb/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM
Onsite Sources	8	93	44	0	3	2	2
Offsite Sources	0	3	2	0	0	0	0
Total 2014	**8**	**95**	**46**	**0**	**4**	**2**	**2**
Threshold	75	550	100	150	150	55	na
Significance Determination	No	No	No	No	No	No	na

Localized Significance Determination				
Unmitigated	1-acre, 50 m			
	SRA No.4			
Construction Year 2013	Peak Day Emissions (lb/day)			
	CO	NOx	PM10	PM2.5
Onsite Sources	113	202	48	16
LST Threshold	789	58	13	5
Significance Determination	No	Yes	Yes	Yes

Localized Significance Determination				
Mitigated	1-acre site, 50 m distance to receptor			
	SRA No.4			
Construction Year 2013	Peak Day Emissions (lb/day)			
	CO	NOx	PM10	PM2.5
Onsite Sources	129	58	8	4
LST Threshold	789	58	13	5
Significance Determination	No	No	No	No

Construction Year 2014				
	Peak Day Emissions (lb/day)			
	CO	NOx	PM10	PM2.5
Onsite Sources	86	149	18	9
LST Threshold	789	58	13	5
Significance Determination	No	Yes	Yes	Yes

Construction Year 2014				
	Peak Day Emissions (lb/day)			
	CO	NOx	PM10	PM2.5
Onsite Sources	93	44	3	2
LST Threshold	789	58	13	5
Significance Determination	No	No	No	No

Operational Emissions Summary

Unmitigated = Mitigated

Baseline 2011		Peak Day Emissions (lb/day)							Annual Emissions (lb/yr)						
Source	**Location**	VOC	CO	NOx	SOx	PM10	PM2.5	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	DPM
OGV	Fairway	57	143	1,626	203	39	31	39	2,745	6,855	78,027	9,740	1,890	1,512	1,890
	Precautionary Zone	11	27	273	34	7	5	7	519	1,289	13,112	1,617	328	256	328
	Harbor	7	13	88	12	3	2	3	314	604	4,209	563	134	93	129
	Berth	30	61	585	127	20	15	18	1,432	2,921	28,085	6,087	974	729	849
	Sub Total	104	243	2,572	375	69	54	67	5,010	11,670	123,433	18,007	3,326	2,590	3,196
Tugboat	Harbor	1	5	16	0	1	1	1	61	240	791	2	41	33	41
Autocarriers		3	12	60	0	3	2	2.4	679	3,058	15,055	19	692	510	593
Automobiles		0	1	0	0	0	0	0	4	56	19	0	1	1	1
Worker Vehicles		9	74	20	0	6	3	3	40,297	223,604	14,504	41	636	394	435
PHL		0	1	5	0	0	0	0	286	1,239	4,426	4	108	99	108
Total Baseline		**117**	**336**	**2,673**	**375**	**79**	**60**	**73**	**46,337**	**239,866**	**158,228**	**18,072**	**4,803**	**3,626**	**4,374**

Project 2014						Peak Day Emissions (lb/day)							Annual Emissions (lb/yr)						
Source	**Location**	VOC	CO	NOx	SOx	PM10	PM2.5	DPM	VOC	CO	NOx	SOx	PM10	PM2.5	DPM
OGV	Fairway	57	143	1,626	45	27	21	27	2,745	6,855	78,027	2,164	1,285	1,028	1,285
	Precautionary Zone	11	27	273	7	5	4	5	519	1,289	13,112	359	223	174	223
	Harbor	7	13	88	3	2	1	2	314	604	4,209	125	91	63	88
	Berth	30	61	585	28	14	10	12	1,432	2,921	28,085	1,353	663	496	578
	Sub Total	104	243	2,572	83	47	37	45	5,010	11,670	123,433	4,001	2,262	1,761	2,173
Tugboat	Harbor	1	5	17	0	1	1	1	64	248	811	2	43	35	43
Autocarriers		2	11	72	0	3	2	2	600	2,685	18,125	27	660	420	514
Automobiles		0	1	0	0	0	0	0	6	83	28	0	2	2	2
Worker Vehicles		7	64	17	0	6	3	3	38,602	203,922	13,166	48	661	377	416
PHL		0	1	3	0	0	0	0	221	1,830	4,402	7	26	24	26
Total Project		**116**	**326**	**2,682**	**84**	**57**	**42**	**51**	**44,503**	**220,437**	**159,966**	**4,086**	**3,653**	**2,618**	**3,174**
Thresholds		55	550	55	150	150	55	na	na	na	na	na	na	na	na
CEQA Increment		-1	-10	9	-292	-22	-18	-22	-1,834	-19,429	1,737	-13,987	-1,150	-1,008	-1,199
Significance Determination		No	No	No	No	No	No	na	na	na	na	na	na	na	na

GHG Emissions Summary

Unmitigated and Mitigated

	Annual GHG Emissions (mton/yr)			
	CO2	CH4	N2O	CO2e
Construction - Amortized over 30 years				
Berth 196-197	39	0.0	0.0	40
Berth 198-199	39	0.0	0.0	40
Rail Tracks	6	0.0	0.0	6
Construction Total	85	0.0	0.0	85
Project Operation 2014				
OGV	2,623	0.1	0.1	2,665
Tugboat	22	0.0	0.0	22
Autocarriers	1,287	0.0	0.0	1,287
Automobiles	60	0.0	0.0	60
Worker Vehicles	1,869	0.0	0.0	1,869
PHL	319	0.0	0.0	322
Total Operation	6,180	0.1	0.1	6,225
Total Construction and Operation	**6,264**	**0.1**	**0.1**	**6,310**
Baseline 2011				
OGV	2,623	0.1	0.1	2,665
Tugboat	22	0.0	0.0	22
Autocarriers	879	0.0	0.0	879
Automobiles	50	0.0	0.0	50
Worker Vehicles	1,653	0.0	0.0	1,653
PHL	216	0.0	0.0	218
Total Baseline	**5,443**	**0.1**	**0.1**	**5,487**
Threshold				10,000
CEQA Increment				824
Significance Determination				No

Threshold and amortization, per SCAQMD Policy on GHG thresholds, December 5, 2008, Agenda No. 31.

Mitigation measures would not affect GHG emissions, therefore unmitigated GHG emissions assumed to equal mitigated GHG emissions.

Construction Equipment

(Onroad Emission Factors, pp. 59-86)

Construction Equipment

General Construction Equipment

Peak Day

Phase No.	Phase	Equipment[1]	Source Type	Emissions Location	Fuel	CARB 2011 Assumed Minimum Power (hp)[2]	CARB 2011 Assumed Maximum Power (hp)[2]	CARB 2007 Assumed Maximum Power (hp)	Power (hp)[4]	Power (kW)	Load Factor[2]	Number Active[3]		Units		Units
	1 Berth 196-197	chainsaw	offroad	onsite	gasoline	0	50	50	4		0.5	2	8	Hr/Day		
	2013	compressor	offroad	onsite	dsl	50	120	120	106		0.48	1	8	Hr/Day		
		concrete truck	offroad	onsite	dsl	250	500	500	285		0.43	1	8	Hr/Day		
		diesel hammer	offroad	onsite	dsl	175	250	500	190		0.35	1	8	Hr/Day		
		diesel pile hammer	offroad	onsite	dsl	175	250	500	190		0.35	1	8	Hr/Day		
		excavators	offroad	onsite	dsl	120	175	175	168		0.57	1	8	Hr/Day		
		graders	offroad	onsite	dsl	175	250	250	180		0.61	1	8	Hr/Day		
		paving equipment	offroad	onsite	dsl	175	250	250	200		0.62	1	8	Hr/Day		
		rollers	offroad	onsite	dsl	120	175	175	165		0.56	1	8	Hr/Day		
		rubber tired dozers	offroad	onsite	dsl	250	500	500	357		0.59	1	8	Hr/Day		
		scrapers	offroad	onsite	dsl	250	500	500	313		0.72	1	8	Hr/Day		
		tractors/loaders/backhoes	offroad	onsite	dsl	50	120	120	108		0.55	2	8	Hr/Day		
		water truck	offroad	onsite	dsl	120	175	175	189		0.5	1	8	Hr/Day		
		derrick barge	offroad	onsite	dsl	250	500	500	380		0.43	1	8	Hr/Day		
		tugboat main engine	marine	onsite	dsl				678		0.31	2	2	Hr/Day	420	Daily hp-hr
		tugboat auxiliary engine	marine	onsite	dsl				47		0.43	2	2	Hr/Day	40	Daily hp-hr
		workboat main engine	marine	onsite	dsl				484		0.38	2	2	Hr/Day	368	Daily hp-hr
		workboat auxiliary engine	marine	onsite	dsl				68		0.32	2	2	Hr/Day	44	Daily hp-hr
		Equipment			Fuel	Truck Capacity (cu.yd)			Volume of Soil Hauled (cu.ft)	Miles Traveled (mi/trip)						
		haul trucks offsite exhaust	onroad	offsite	dsl	12	T6 instate construction		30,058	30			10	Trips/Day	300	Miles/Day
		haul trucks onsite exhaust	onroad	onsite	dsl		T6 instate construction		heavy	0.5			10	Trips/Day	5.0	Miles/Day
		haul trucks onsite idling exhaust	onroad	onsite_idlir	dsl		T6 instate construction		heavy			10	0.25	Hr/Day		
		delivery trucks offsite exhaust	onroad	offsite	dsl		T6 instate construction		heavy	30			2	Trips/Day	60	Miles/Day
		delivery trucks onsite exhaust	onroad	onsite	dsl		T6 instate construction		heavy	0.5			2	Trips/Day	1.0	Miles/Day
		delivery trucks onsite idling exhaust	onroad	onsite_idlir	dsl		T6 instate construction		heavy			2	0.25	Hr/Day		
		pick-up truck exhaust	offroad	onsite	gas		LDT2					2			2	Miles/Day
		worker vehicles exhaust	onroad	offsite	gas&dsl		worker_vehicle_exhaust			30.0		10	2	Trips/Day	60	Miles/Day
		pick-up truck onsite unpaved road dust	fugitive	onsite			LDT2					2.0			2.0	Miles/Day
		haul trucks onsite unpaved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			10	Trips/Day	5.0	Miles/Day
		delivery trucks onsite unpaved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			2	Trips/Day	1.0	Miles/Day
		haul trucks offsite paved road dust	fugitive	offsite			T6 instate construction		heavy	30.0			10	Trips/Day	300	Miles/Day
		haul trucks onsite paved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			10	Trips/Day	5.0	Miles/Day
		delivery trucks offsite paved road dust	fugitive	offsite			T6 instate construction		heavy	30.0			2	Trips/Day	60	Miles/Day
		delivery trucks onsite paved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			2	Trips/Day	1.0	Miles/Day
		worker vehicles offsite paved road dust	fugitive	offsite			LDA			30.0		10	2	Trips/Day	60	Miles/Day
		fugitive construction dust	fugitive	onsite											0.46	Acres/day
		asphalt off-gas	fugitive	onsite											0.46	Acres/day

Construction Equipment

General Construction Equipment Total

Phase No.	Phase	Equipment[1]	Units		Units		Units	
1	Berth 196-197	chainsaw	180	Total Operating Days				
	2013	compressor	180	Total Operating Days				
		concrete truck	180	Total Operating Days				
		diesel hammer	180	Total Operating Days				
		diesel pile hammer	180	Total Operating Days				
		excavators	180	Total Operating Days				
		graders	180	Total Operating Days				
		paving equipment	180	Total Operating Days				
		rollers	180	Total Operating Days				
		rubber tired dozers	180	Total Operating Days				
		scrapers	180	Total Operating Days				
		tractors/loaders/backhoes	180	Total Operating Days				
		water truck	180	Total Operating Days				
		derrick barge	180	Total Operating Days				
		tugboat main engine	180	Total Operating Days	75,665	Total hp-hr		
		tugboat auxiliary engine	180	Total Operating Days	7,276	Total hp-hr		
		workboat main engine	180	Total Operating Days	66,211	Total hp-hr		
		workboat auxiliary engine	180	Total Operating Days	7,834	Total hp-hr		
		Equipment						
		haul trucks offsite exhaust	180	Total Operating Days	186	Total Trips	5,566	Total Miles
		haul trucks onsite exhaust	180	Total Operating Days	186	Total Trips	93	Total Miles
		haul trucks onsite idling exhaust	180	Total Operating Days				
		delivery trucks offsite exhaust	180	Total Operating Days	20	Total Trips	600	Total Miles
		delivery trucks onsite exhaust	180	Total Operating Days	20	Total Trips	10	Total Miles
		delivery trucks onsite idling exhaust	180	Total Operating Days				
		pick-up truck exhaust	180	Total Operating Days			360	Total Miles
		worker vehicles exhaust	180	Total Operating Days	360	Total Trips	10,800	Total Miles
		pick-up truck onsite unpaved road dust	180	Total Operating Days			360	Total Miles
		haul trucks onsite unpaved road dust	180	Total Operating Days	186	Total Trips	93	Total Miles
		delivery trucks onsite unpaved road dust	180	Total Operating Days	20	Total Trips	10	Total Miles
		haul trucks offsite paved road dust	180	Total Operating Days	186	Total Trips	5,566	Total Miles
		haul trucks onsite paved road dust	180	Total Operating Days	186	Total Trips	93	Total Miles
		delivery trucks offsite paved road dust	180	Total Operating Days	20	Total Trips	600	Total Miles
		delivery trucks onsite paved road dust	180	Total Operating Days	20	Total Trips	10	Total Miles
		worker vehicles offsite paved road dust	180	Total Operating Days	360	Total Trips	10,800	Total Miles
		fugitive construction dust					1.8	Total Acres
		asphalt off-gas					1.8	Total Acres

Construction Equipment

General Construction Equipment

Peak Day

Phase No.	Phase	Equipment[1]	Source Type	Emissions Location	Fuel	CARB 2011 Assumed Minimum Power (hp)[2]	CARB 2011 Assumed Maximum Power (hp)[2]	CARB 2007 Assumed Maximum Power (hp)	Power (hp)[4]	Power (kW)	Load Factor[2]	Number Active[3]		Units		Units
	2 Berth 198-199	chainsaw	offroad	onsite	gasoline	0	50	50	4		0.5	2	8	Hr/Day		
	2014	compressor	offroad	onsite	dsl	50	120	120	106		0.48	1	8	Hr/Day		
		concrete truck	offroad	onsite	dsl	250	500	500	285		0.43	1	8	Hr/Day		
		diesel hammer	offroad	onsite	dsl	175	250	500	190		0.35	1	8	Hr/Day		
		diesel pile hammer	offroad	onsite	dsl	175	250	500	190		0.35	1	8	Hr/Day		
		excavators	offroad	onsite	dsl	120	175	175	168		0.57	1	8	Hr/Day		
		graders	offroad	onsite	dsl	175	250	250	180		0.61	1	8	Hr/Day		
		paving equipment	offroad	onsite	dsl	175	250	250	200		0.62	1	8	Hr/Day		
		rollers	offroad	onsite	dsl	120	175	175	165		0.56	1	8	Hr/Day		
		rubber tired dozers	offroad	onsite	dsl	250	500	500	357		0.59	1	8	Hr/Day		
		scrapers	offroad	onsite	dsl	250	500	500	313		0.72	1	8	Hr/Day		
		tractors/loaders/backhoes	offroad	onsite	dsl	50	120	120	108		0.55	2	8	Hr/Day		
		water truck	offroad	onsite	dsl	120	175	175	189		0.5	1	8	Hr/Day		
		derrick barge	offroad	onsite	dsl	250	500	500	380		0.43	1	8	Hr/Day		
		tugboat main engine	marine	onsite	dsl				678		0.31	2	2	Hr/Day	420	Daily hp-hr
		tugboat auxiliary engine	marine	onsite	dsl				47		0.43	2	2	Hr/Day	40	Daily hp-hr
		workboat main engine	marine	onsite	dsl				484		0.38	2	2	Hr/Day	368	Daily hp-hr
		workboat auxiliary engine	marine	onsite	dsl				68		0.32	2	2	Hr/Day	44	Daily hp-hr
		Equipment	Type		Fuel	Truck Capacity (cu.yd)			Volume of Soil Hauled (cu.ft)	Miles Traveled (mi/trip)						
		haul trucks offsite exhaust	onroad	offsite	dsl	12	T6 instate construction		30,058	30			10	Trips/Day	300	Miles/Day
		haul trucks onsite exhaust	onroad	onsite	dsl		T6 instate construction		heavy	0.5			10	Trips/Day	5.0	Miles/Day
		haul trucks onsite idling exhaust	onroad	onsite_idlir	dsl		T6 instate construction		heavy			10	0.25	Hr/Day		
		delivery trucks offsite exhaust	onroad	offsite	dsl		T6 instate construction		heavy	30			2	Trips/Day	60	Miles/Day
		delivery trucks onsite exhaust	onroad	onsite	dsl		T6 instate construction		heavy	0.5			2	Trips/Day	1.0	Miles/Day
		delivery trucks onsite idling exhaust	onroad	onsite_idlir	dsl		T6 instate construction		heavy			2	0.25	Hr/Day		
		pick-up truck exhaust	onroad	onsite	gas		LDT2					2			2	Miles/Day
		worker vehicles exhaust	onroad	offsite	gas&dsl		worker_vehicle_exhaust			30.0		10	2	Trips/Day	60	Miles/Day
		pick-up truck onsite unpaved road dust	fugitive	onsite			LDT2					2.0			2	Miles/Day
		haul trucks onsite unpaved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			10	Trips/Day	5	Miles/Day
		delivery trucks onsite unpaved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			2	Trips/Day	1	Miles/Day
		haul trucks offsite paved road dust	fugitive	offsite			T6 instate construction		heavy	30.0			10	Trips/Day	300	Miles/Day
		haul trucks onsite paved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			10	Trips/Day	5.0	Miles/Day
		delivery trucks offsite paved road dust	fugitive	offsite			T6 instate construction		heavy	30.0			2	Trips/Day	60	Miles/Day
		delivery trucks onsite paved road dust	fugitive	onsite			T6 instate construction		heavy	0.5			2	Trips/Day	1.0	Miles/Day
		worker vehicles offsite paved road dust	fugitive	offsite			LDA			30.0		10.0	2	Trips/Day	60.0	Miles/Day
		fugitive construction dust	fugitive	onsite											0.23	Acres/day
		asphalt off-gas	fugitive	onsite											0.23	Acres/day

Construction Equipment

General Construction Equipment Total

Phase No.	Phase	Equipment[1]	Units		Units		Units	
	2 Berth 198-199	chainsaw	180	Total Operating Days				
	2014	compressor	180	Total Operating Days				
		concrete truck	180	Total Operating Days				
		diesel hammer	180	Total Operating Days				
		diesel pile hammer	180	Total Operating Days				
		excavators	180	Total Operating Days				
		graders	180	Total Operating Days				
		paving equipment	180	Total Operating Days				
		rollers	180	Total Operating Days				
		rubber tired dozers	180	Total Operating Days				
		scrapers	180	Total Operating Days				
		tractors/loaders/backhoes	180	Total Operating Days				
		water truck	180	Total Operating Days				
		derrick barge	180	Total Operating Days				
		tugboat main engine	180	Total Operating Days	75,665	Total hp-hr		
		tugboat auxiliary engine	180	Total Operating Days	7,276	Total hp-hr		
		workboat main engine	180	Total Operating Days	66,211	Total hp-hr		
		workboat auxiliary engine	180	Total Operating Days	7,834	Total hp-hr		
		Equipment						
		haul trucks offsite exhaust	180	Total Operating Days	186	Total Trips	5,566	Total Miles
		haul trucks onsite exhaust	180	Total Operating Days	186	Total Trips	93	Total Miles
		haul trucks onsite idling exhaust	180	Total Operating Days				
		delivery trucks offsite exhaust	180	Total Operating Days	20	Total Trips	600	Total Miles
		delivery trucks onsite exhaust	180	Total Operating Days	20	Total Trips	10	Total Miles
		delivery trucks onsite idling exhaust	180	Total Operating Days				
		pick-up truck exhaust	180	Total Operating Days			360	Total Miles
		worker vehicles exhaust	180	Total Operating Days	360	Total Trips	10,800	Total Miles
		pick-up truck onsite unpaved road dust	180	Total Operating Days			360	Total Miles
		haul trucks onsite unpaved road dust	180	Total Operating Days	186	Total Trips	93	Total Miles
		delivery trucks onsite unpaved road dust	180	Total Operating Days	20	Total Trips	10	Total Miles
		haul trucks offsite paved road dust	180	Total Operating Days	186	Total Trips	5,566	Total Miles
		haul trucks onsite paved road dust	180	Total Operating Days	186	Total Trips	93	Total Miles
		delivery trucks offsite paved road dust	180	Total Operating Days	20	Total Trips	600	Total Miles
		delivery trucks onsite paved road dust	180	Total Operating Days	20	Total Trips	10	Total Miles
		worker vehicles offsite paved road dust	180	Total Operating Days	360	Total Trips	10,800	Total Miles
		fugitive construction dust					0.9	Total Acres
		asphalt off-gas					0.9	Total Acres

Construction Equipment

General Construction Equipment

Peak Day

Phase No.	Phase	Equipment[1]	Source Type	Emissions Location	Fuel	CARB 2011 Assumed Minimum Power (hp)[2]	CARB 2011 Assumed Maximum Power (hp)[2]	CARB 2007 Assumed Maximum Power (hp)	Power (hp)[4]	Power (kW)	Load Factor[2]	Number Active[3]		Units		Units
3	Rail Tracks	compaction unit	offroad	onsite	dsl	0	50	50	8		0.43	1	8	Hr/Day		
2013		concrete/asphalt saw cutter	offroad	onsite	dsl	0	50	50	35		0.43	1	8	Hr/Day		
		cranes	offroad	onsite	dsl	250	500	500	500		0.5	1	8	Hr/Day		
		dump truck	offroad	onsite	dsl	250	500	500	310		0.57	2	8	Hr/Day		
		excavators	offroad	onsite	dsl	120	175	175	168		0.57	1	8	Hr/Day		
		Equipment	Type		Fuel	Truck Capacity (cu.yd)			Volume of Soil Hauled (cu.ft)	Miles Traveled (mi/trip)						
		haul trucks offsite exhaust	onroad	offsite	dsl	12	T6 instate construction		168,000	30			48	Trips/Day	1,447	Miles/Day
		haul trucks onsite exhaust	onroad	onsite	dsl		T6 instate construction	heavy		0.5			48	Trips/Day	24.1	Miles/Day
		haul trucks onsite idling exhaust	onroad	onsite_idlir	dsl		T6 instate construction	heavy				48	0.25	Hr/Day		
		delivery trucks offsite exhaust	onroad	offsite	dsl		T6 instate construction	heavy		30			2	Trips/Day	60	Miles/Day
		delivery trucks onsite exhaust	onroad	onsite	dsl		T6 instate construction	heavy		0.5			2	Trips/Day	1.0	Miles/Day
		delivery trucks onsite idling exhaust	onroad	onsite_idlir	dsl		T6 instate construction	heavy				2	0.25	Hr/Day		
		worker vehicles exhaust	onroad	offsite	gas&dsl		worker_vehicle_exhaust			30.0		10	2	Trips/Day	60	Miles/Day
		haul trucks onsite unpaved road dust	fugitive	onsite			T6 instate construction	heavy		0.5			48.2	Trips/Day	24.1	Miles/Day
		delivery trucks onsite unpaved road dust	fugitive	onsite			T6 instate construction	heavy		0.5			2.0	Trips/Day	1.0	Miles/Day
		haul trucks offsite paved road dust	fugitive	offsite			T6 instate construction	heavy		30.0			48.2	Trips/Day	1447.0	Miles/Day
		haul trucks onsite paved road dust	fugitive	onsite			T6 instate construction	heavy		0.5			48.2	Trips/Day	24.1	Miles/Day
		delivery trucks offsite paved road dust	fugitive	offsite			T6 instate construction	heavy		30.0			2.0	Trips/Day	60.0	Miles/Day
		delivery trucks onsite paved road dust	fugitive	onsite			T6 instate construction	heavy		0.5			2.0	Trips/Day	1.0	Miles/Day
		worker vehicles offsite paved road dust	fugitive	offsite			LDA			30.0		10	2.0	Trips/Day	60.0	Miles/Day
		fugitive construction dust	fugitive	onsite											0.13	Acres/day

[1] Source of equipment categories: POLA staff, URBEMIS defaults, and equipment used in the San Pedro Waterfront analysis.
[2] CARB Air Quality, Emissions Inventory, Mobile Source Emission Inventory -- Categories. http://www.arb.ca.gov/msei/categories.htm#inuse_or_category. Last viewed October 2011.
[3]
[4] URBEMIS defaults and equipment specifications used in the San Pedro Waterfront analysis.

Construction Equipment

General Construction Equipment Total

Phase No.	Phase	Equipment[1]	Units	Units	Units
3	Rail Tracks	compaction unit	64.5 Total Operating Days		
2013		concrete/asphalt saw cutter	64.5 Total Operating Days		
		cranes	64.5 Total Operating Days		
		dump truck	64.5 Total Operating Days		
		excavators	64.5 Total Operating Days		
		Equipment			
		haul trucks offsite exhaust	64.5 Total Operating Days	1,037 Total Trips	31,111 Total Miles
		haul trucks onsite exhaust	64.5 Total Operating Days	1,037 Total Trips	519 Total Miles
		haul trucks onsite idling exhaust	64.5 Total Operating Days		
		delivery trucks offsite exhaust	64.5 Total Operating Days	10 Total Trips	300 Total Miles
		delivery trucks onsite exhaust	64.5 Total Operating Days	10 Total Trips	5 Total Miles
		delivery trucks onsite idling exhaust	64.5 Total Operating Days		
		worker vehicles exhaust	64.5 Total Operating Days	129 Total Trips	3,870 Total Miles
		haul trucks onsite unpaved road dust	64.5 Total Operating Days	1037.0 Total Trips	518.5 Total Miles
		delivery trucks onsite unpaved road dust	64.5 Total Operating Days	10.0 Total Trips	5.0 Total Miles
		haul trucks offsite paved road dust	64.5 Total Operating Days	1037.0 Total Trips	31111.1 Total Miles
		haul trucks onsite paved road dust	64.5 Total Operating Days	1037.0 Total Trips	518.5 Total Miles
		delivery trucks offsite paved road dust	64.5 Total Operating Days	10.0 Total Trips	300.0 Total Miles
		delivery trucks onsite paved road dust	64.5 Total Operating Days	10.0 Total Trips	5.0 Total Miles
		worker vehicles offsite paved road dust	64.5 Total Operating Days	129.0 Total Trips	3870.0 Total Miles
		fugitive construction dust			0.5 Total Acres

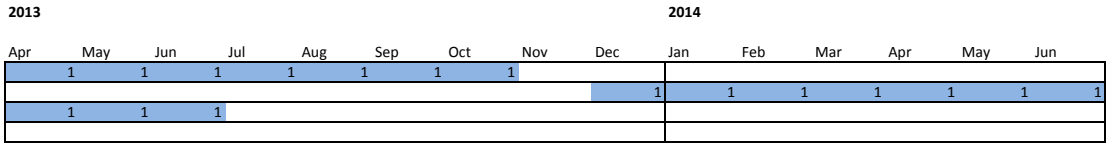
[1] Source of equipment categories: POLA staff, URBEMIS defaults, and equ
[2] CARB Air Quality, Emissions Inventory, Mobile Source Emission Inventory
[3]
[4] URBEMIS defaults and equipment specifications used in the San Pedro W

Offroad Construction Equipment

Tier 2		**per CAAP - before 12/31/2011**						
hp range	max hp	Tier	HC	CO	NOx	PM	NMHC+NO (g/hp-hr)	Compliance Year
hp<11	11_2005_Tier 2	Tier 2	0.56	6	5.04	0.6	5.6	2005
11<hp<25	25_2005_Tier 2	Tier 2	0.56	4.9	5.04	0.6	5.6	2005
25<hp<50	50_2004_Tier 2	Tier 2	0.56	4.1	5.04	0.45	5.6	2004
Tier 3		**per CAAP - 1/1/2012 - 12/31/2014**						
50<hp<100	100_2008_Tier 3	Tier 3	0.35	3.7	3.15	0.3	3.5	2008
100<hp<175	175_2007_Tier 3	Tier 3	0.3	3.7	2.7	0.22	3	2007
175<hp<300	300_2006_Tier 3	Tier 3	0.3	2.6	2.7	0.15	3	2006
300<hp<600	600_2006_Tier 3	Tier 3	0.3	2.6	2.7	0.15	3	2006
600<hp<750	750_2006_Tier 3	Tier 3	0.3	2.6	2.7	0.15	3	2006
Tier 4		**not required per CAAP**						
hp<11	11_2008_Tier 4	Tier 4	0.56	6	5.04	0.3	5.6	2008
11<hp<25	25_2008_Tier 4	Tier 4	0.56	4.9	5.04	0.3	5.6	2008
25<hp<50	50_2008_Tier 4	Tier 4	0.56	4.1	5.04	0.22	5.6	2008
25<hp<50	50_2013_Tier 4	Tier 4	0.35	4.1	3.15	0.022	3.5	2013
50<hp<75	75_2008_Tier 4	Tier 4	0.35	3.7	3.15	0.22	3.5	2008
50<hp<75	75_2013_Tier 4	Tier 4	0.35	3.7	3.15	0.022	3.5	2013
75<hp<175	175_2012-2014_Tier 4	Tier 4	0.14	3.7	0.3	0.015		2012-2014
175<hp<750	750_2011-2014_Tier 4	Tier 4	0.14	2.6	0.3	0.015		2011-2014

Construction Schedule

	Phase	Start Date	End Date	Duration (days)
1	Berth 196-197	4/25/2013	10/21/2013	180
2	Berth 198-199	12/21/2013	6/18/2014	180
3	Rail Tracks	4/25/2013	6/23/2013	60



CARB Offroad 2011 module output

						Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2013	SC	Construction and Mining	11	Bore/Drill Rigs	50	97776.37546	1.386687624	0.101402942	0.180291409	97776.37546	1.386687624	0.101402942	0.180291409	11709.9768	11709.9768	37.0769116	0.24	0.02	0.03	0.02	8.35
2013	SC	Construction and Mining	11	Bore/Drill Rigs	120	589644.6529	8.300718872	0.511390518	0.531689783	589644.6529	8.300718872	0.511390518	0.531689783	40220.64092	40220.64092	113.5724345	0.41	0.03	0.03	0.02	14.66
2013	SC	Construction and Mining	11	Bore/Drill Rigs	175	696371.2358	8.883768679	0.41195933	0.546122785	696381.239	8.858932334	0.409296349	0.544057641	25024.8203	25024.8203	88.98458783	0.71	0.03	0.04	0.03	27.83
2013	SC	Construction and Mining	11	Bore/Drill Rigs	250	986286.586	12.01659804	0.371685851	0.597235299	986335.7627	11.93738879	0.3671202	0.590402033	25815.39014	25815.39014	88.59430455	0.93	0.03	0.05	0.03	38.21
2013	SC	Construction and Mining	11	Bore/Drill Rigs	500	1092628.4	11.75156932	0.386700769	0.609038725	1092497.066	11.72770439	0.385662852	0.60718193	17349.34342	17349.34342	62.05504151	1.35	0.04	0.07	0.04	62.97
2013	SC	Construction and Mining	11	Bore/Drill Rigs	750	1505711.326	11.46495242	0.390570935	0.595340668	1505711.326	11.46465768	0.390565259	0.595106584	13127.72103	13127.72103	30.83237912	1.75	0.06	0.09	0.05	114.70
2013	SC	Construction and Mining	11	Bore/Drill Rigs	1000	118645.7359	1.233946597	0.029177166	0.039637597	118645.7359	1.233946597	0.029177166	0.039637597	699.2608041	699.2608041	1.17084984	3.53	0.08	0.11	0.08	169.67
2013	SC	Construction and Mining	11	Bore/Drill Rigs	9999	401506.0286	5.093595867	0.12202526	0.162526996	401506.0286	5.093595867	0.12202526	0.162526996	816.434236	816.434236	1.17084984	12.48	0.30	0.40	0.28	491.78
2013	SC	Construction and Mining	12	Cranes	50	31651.45844	0.529097726	0.052863314	0.153133112	31651.45844	0.529097726	0.052863314	0.153133112	6713.232288	6713.232288	17.1741803	0.16	0.02	0.05	0.01	4.71
2013	SC	Construction and Mining	12	Cranes	120	754953.999	24.01895114	1.77908347	2.403679916	754953.999	23.84921161	1.766244898	2.383615132	80675.42955	80675.42955	207.0715453	0.60	0.04	0.06	0.04	9.36
2013	SC	Construction and Mining	12	Cranes	175	1993066.095	52.56472904	2.83621195	4.061304636	1993066.095	52.56143447	2.834813448	4.06091836	126714.5386	126714.5386	310.607318	0.83	0.04	0.06	0.04	15.73
2013	SC	Construction and Mining	12	Cranes	250	3365657.315	82.30691242	3.7810723	5.698091904	3365667.54	82.27317073	3.778435307	5.696072811	146384.8027	146384.8027	348.8812055	1.12	0.05	0.08	0.05	22.99
2013	SC	Construction and Mining	12	Cranes	500	5154393.237	101.2049253	4.197411659	6.397420471	5153898.443	100.8944924	4.181110132	6.375837271	145072.8149	145072.8149	334.6511704	1.40	0.06	0.09	0.05	35.53
2013	SC	Construction and Mining	12	Cranes	750	1359068.198	17.85907341	0.614430884	0.930372637	1359068.198	17.85907341	0.614430884	0.930372637	22701.83365	22701.83365	49.06908657	1.57	0.05	0.08	0.05	59.87
2013	SC	Construction and Mining	12	Cranes	1000	318035.8379	11.14988589	0.552359862	0.825608134	318035.8379	11.14988589	0.552359862	0.825608134	3227.194996	3227.194996	7.360362986	6.91	0.34	0.51	0.31	98.55
2013	SC	Construction and Mining	12	Cranes	9999	24495.578	0.480108528	0.011682539	0.020565149	24495.578	0.480108528	0.011682539	0.020565149	224.9267687	224.9267687	0.490690866	4.27	0.10	0.18	0.10	108.90
2013	SC	Construction and Mining	13	Crawler Tractors	50	96440.85594	1.70448262	0.199503065	0.563536784	96440.85594	1.70448262	0.199503065	0.563536784	13194.11018	13194.11018	43.55136322	0.26	0.03	0.09	0.03	7.31
2013	SC	Construction and Mining	13	Crawler Tractors	120	4274885.726	97.29261601	8.090939294	9.432705946	4273761.672	97.16538151	8.080488456	9.418363477	309489.4314	309489.4314	749.518961	0.63	0.05	0.06	0.05	13.81
2013	SC	Construction and Mining	13	Crawler Tractors	175	4649591.393	98.5460112	5.329908884	7.400267455	4650077.203	98.13412931	5.304796037	7.362062991	197666.1113	197666.1113	490.3883498	1.00	0.05	0.07	0.05	23.52
2013	SC	Construction and Mining	13	Crawler Tractors	250	4691481.944	89.7876157	3.487979374	5.373037213	4691454.823	89.47602025	3.468603471	5.34782969	146554.2833	146554.2833	358.4277193	1.23	0.05	0.07	0.04	32.01
2013	SC	Construction and Mining	13	Crawler Tractors	500	12583505.15	219.9432289	8.496644857	13.16392063	12584734.47	218.4614056	8.421448891	13.04847871	232798.33	232798.33	576.1845354	1.89	0.07	0.11	0.07	54.06
2013	SC	Construction and Mining	13	Crawler Tractors	750	4894939.662	74.96647233	2.693667756	4.274587481	4894939.662	74.77531708	2.682514079	4.257824642	54421.53432	54421.53432	118.0241943	2.76	0.10	0.16	0.09	89.94
2013	SC	Construction and Mining	13	Crawler Tractors	1000	647496.51	14.27422923	0.41803947	0.752727334	647496.51	14.27422923	0.41803947	0.752727334	4936.905469	4936.905469	10.45232717	5.78	0.17	0.30	0.16	131.15
2013	SC	Construction and Mining	13	Crawler Tractors	9999	342295.0763	6.415783547	0.167269563	0.29353541	342295.0763	6.415783547	0.167269563	0.29353541	1482.813744	1482.813744	2.613081793	8.65	0.23	0.40	0.21	230.84
2013	SC	Construction and Mining	14	Excavators	50	3861749.515	52.65531438	4.09943687	7.213719476	3861776.678	52.6283387	4.09443779	7.200145542	692341.899	692341.899	1066.674552	0.15	0.01	0.02	0.01	5.58
2013	SC	Construction and Mining	14	Excavators	120	5013497.832	81.81142874	6.160193679	6.762833948	5013472.435	81.73796461	6.153603637	6.754155384	442119.6098	442119.6098	771.5161412	0.37	0.03	0.03	0.03	11.34
2013	SC	Construction and Mining	14	Excavators	175	10562051.54	161.7309314	8.059426379	11.12736954	10562535.28	161.4058612	8.036528415	11.0972629	515802.0051	515802.0051	980.222828	0.63	0.03	0.04	0.03	20.48
2013	SC	Construction and Mining	14	Excavators	250	13437819.47	201.2667017	6.470373912	10.92529803	13436373.16	199.0300308	6.335823548	10.74296845	438284.5472	438284.5472	842.6859947	0.92	0.03	0.05	0.03	30.66
2013	SC	Construction and Mining	14	Excavators	500	22292126.48	253.2026377	8.237522623	13.95921724	22294006.92	250.8221755	8.11140971	13.77993768	485386.4443	485386.4443	857.0946153	1.04	0.03	0.06	0.03	45.93
2013	SC	Construction and Mining	14	Excavators	750	2015476.986	24.79046275	0.816054223	1.345540047	2015472.688	24.01883113	0.771612799	1.281367492	25127.08348	25127.08348	43.66248677	1.97	0.06	0.11	0.06	80.21
2013	SC	Construction and Mining	14	Excavators	1000	226215.8002	4.674818614	0.151033298	0.247728766	226215.8002	3.989118577	0.109001076	0.185627632	1921.732227	1921.732227	3.492998942	4.87	0.16	0.26	0.14	117.71
2013	SC	Construction and Mining	14	Excavators	9999	441078.4946	5.376496555	0.148552442	0.24652683	441078.4946	5.376496555	0.148552442	0.24652683	2024.944117	2024.944117	3.056374074	5.31	0.15	0.24	0.13	217.82
2013	SC	Construction and Mining	15	Graders	50	25502.44457	0.482411964	0.064190518	0.189784614	25502.44457	0.482411964	0.064190518	0.189784614	4160.802449	4160.802449	13.60433316	0.23	0.03	0.09	0.03	6.13

CARB Offroad 2011 module output

						Ton/year			lb/yr					hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	Horsepower Bin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2013	SC	Construction and Mining	15	Graders	120	689382.1445	21.23722515	1.761135916	2.230083649	689382.1445	21.23678529	1.761108359	2.229863865	50576.90606	50576.90606	144.8203208	0.84	0.07	0.09	0.06	13.63
2013	SC	Construction and Mining	15	Graders	175	6403368.107	166.2571888	9.318907057	13.33375892	6403207.158	166.1475809	9.312078321	13.32271486	282183.4329	282183.4329	677.5835614	1.18	0.07	0.09	0.06	22.69
2013	SC	Construction and Mining	15	Graders	250	11110877.37	189.6641157	6.104921547	10.4491685	11110825.22	189.6376823	6.102905416	10.4474578	358497.4625	358497.4625	538.0294341	1.06	0.03	0.06	0.03	30.99
2013	SC	Construction and Mining	15	Graders	500	3168373.521	35.27416432	1.343050072	2.373025379	3168373.521	35.27416432	1.343050072	2.373025379	71942.13474	71942.13474	100.4965256	0.98	0.04	0.07	0.03	44.04
2013	SC	Construction and Mining	15	Graders	1000	30633.07515	0.854971881	0.029754871	0.053950945	30633.07515	0.854971881	0.029754871	0.053950945	256.5705627	256.5705627	0.438849457	6.66	0.23	0.42	0.21	119.39
2013	SC	Construction and Mining	15	Graders	9999	431530.7502	8.478341241	0.254462754	0.460645957	431530.7502	8.478341241	0.254462754	0.460645957	1446.332337	1446.332337	2.194247284	11.72	0.35	0.64	0.32	298.36
2013	SC	Construction and Mining	16	Off-Highway Tractors	50	1595475.719	24.9980833	2.539479748	6.163215701	1594923.556	24.88912599	2.50869275	6.060924159	238998.4159	238998.4159	408.5812906	0.21	0.02	0.05	0.02	6.67
2013	SC	Construction and Mining	16	Off-Highway Tractors	120	2042433.662	41.8811703	3.481937099	3.931387439	2043109.628	41.31498372	3.428677113	3.863493828	169917.0449	169917.0449	297.0717498	0.49	0.04	0.05	0.04	12.02
2013	SC	Construction and Mining	16	Off-Highway Tractors	175	1739825.107	28.25549286	1.46420776	1.970241833	1739825.107	28.25549286	1.46420776	1.970241833	68683.53354	68683.53354	112.8011572	0.82	0.04	0.06	0.04	25.33
2013	SC	Construction and Mining	16	Off-Highway Tractors	250	1457870.992	26.9032958	0.964291398	1.554455709	1457860.676	26.86123789	0.960994394	1.552219774	42794.74479	42794.74479	73.62212929	1.26	0.05	0.07	0.04	34.07
2013	SC	Construction and Mining	16	Off-Highway Tractors	500	4118229.175	54.92975054	1.971759185	3.134877366	4115956.41	54.50695926	1.937973678	3.110458113	77048.16646	77048.16646	126.5783977	1.43	0.05	0.08	0.05	53.42
2013	SC	Construction and Mining	16	Off-Highway Tractors	750	1037495.486	14.08072206	0.497882065	0.787356247	1034449.834	13.43001488	0.463054043	0.738473979	11276.92125	11276.92125	18.51316701	2.50	0.09	0.14	0.08	91.73
2013	SC	Construction and Mining	16	Off-Highway Tractors	1000	29314.89395	1.080567204	0.054976653	0.075542181	29314.89395	1.080567204	0.054976653	0.075542181	183.4146848	183.4146848	0.430538768	11.78	0.60	0.82	0.55	159.83
2013	SC	Construction and Mining	16	Off-Highway Tractors	9999	228592.6433	6.851895061	0.257710105	0.452234774	236276.1537	5.197782173	0.169278578	0.297884863	851.6207935	851.6207935	1.722155071	16.09	0.61	1.06	0.56	277.44
2013	SC	Construction and Mining	17	Off-Highway Trucks	50	152668.534	2.45922272	0.255509649	0.577027231	152668.534	2.45922272	0.255509649	0.577027231	34721.01683	34721.01683	24.31627099	0.14	0.01	0.03	0.01	4.40
2013	SC	Construction and Mining	17	Off-Highway Trucks	120	187482.9154	4.125287753	0.33226931	0.415454982	187482.9154	4.125287753	0.33226931	0.415454982	15583.75946	15583.75946	13.65123986	0.53	0.04	0.05	0.04	12.03
2013	SC	Construction and Mining	17	Off-Highway Trucks	175	3627283.882	63.27825447	3.612790661	5.104972086	3627283.882	63.27825447	3.612790661	5.104972086	163589.8052	163589.8052	130.5399811	0.77	0.04	0.06	0.04	22.17
2013	SC	Construction and Mining	17	Off-Highway Trucks	250	7440567.9	138.3680828	6.034592769	9.915878653	7439471.065	136.2705026	5.912421439	9.740841394	253217.1025	253217.1025	223.5390526	1.09	0.05	0.08	0.04	29.38
2013	SC	Construction and Mining	17	Off-Highway Trucks	500	31619311.85	480.8214744	18.74959884	33.16471731	31623095.91	476.9006129	18.51382133	32.8720164	600881.2511	600881.2511	496.5638497	1.60	0.06	0.11	0.06	52.63
2013	SC	Construction and Mining	17	Off-Highway Trucks	750	11361326.8	215.4447551	9.240988711	15.32463141	11361827.02	212.8918278	9.057223106	15.12702407	122213.7392	122213.7392	113.4759313	3.53	0.15	0.25	0.14	92.97
2013	SC	Construction and Mining	17	Off-Highway Trucks	1000	7862013.918	162.3516994	4.834174879	8.88317705	7862013.918	162.3516994	4.834174879	8.88317705	62359.92441	62359.92441	52.04535195	5.21	0.16	0.28	0.14	126.07
2013	SC	Construction and Mining	17	Off-Highway Trucks	9999	11321558.27	212.0639058	6.802241198	12.54164507	11363559.73	217.6294893	7.002482652	12.9044247	45300.19167	45300.19167	33.70149839	9.36	0.30	0.55	0.28	250.85
2013	SC	Construction and Mining	18	Other Construction Equipment	50	864816.9289	12.98992069	1.1798499	2.530425346	864816.9289	12.98992069	1.1798499	2.530425346	133200.8755	133200.8755	315.5233638	0.20	0.02	0.04	0.02	6.49
2013	SC	Construction and Mining	18	Other Construction Equipment	120	2701456.329	55.72801065	4.337919906	5.063493815	2701369.665	55.58465158	4.326508793	5.046617894	217950.7876	217950.7876	556.7309959	0.51	0.04	0.05	0.04	12.39
2013	SC	Construction and Mining	18	Other Construction Equipment	175	1473432.522	29.77118911	1.56937144	2.188969248	1473470.81	29.74255056	1.560183213	2.185694206	63660.98907	63660.98907	173.2618202	0.94	0.05	0.07	0.05	23.15
2013	SC	Construction and Mining	18	Other Construction Equipment	250	1892906.623	35.59616373	1.359735544	2.089847955	1892833.253	35.22520649	1.334048595	2.06292747	56773.6967	56773.6967	155.4260446	1.25	0.05	0.07	0.04	33.34
2013	SC	Construction and Mining	18	Other Construction Equipment	500	6477013.218	100.0095385	3.800766419	5.956644651	6476449.912	98.93316277	3.735817174	5.878852468	117717.1281	117717.1281	301.9342014	1.70	0.06	0.10	0.06	55.02
2013	SC	Construction and Mining	18	Other Construction Equipment	750	2515137.641	33.40403454	1.129472517	1.788366129	2515137.641	32.04083974	1.062514448	1.68177877	27561.64854	27561.64854	62.42521464	2.42	0.08	0.13	0.08	91.25
2013	SC	Construction and Mining	18	Other Construction Equipment	1000	293451.4069	4.379493876	0.11965739	0.19273343	293451.4069	4.379493876	0.11965739	0.19273343	2322.279377	2322.279377	5.520597213	3.77	0.10	0.17	0.09	126.36

CARB Offroad 2011 module output

						Ton/year			lb/yr					hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2013	SC	Construction and Mining	18	Other Construction Equipment	9999	182159.4229	3.715154477	0.12296535	0.202790407	182159.4229	3.715154477	0.12296535	0.202790407	1088.159375	1088.159375	2.547967945	6.83	0.23	0.37	0.21	167.40
2013	SC	Construction and Mining	19	Pavers	50	105966.6876	1.663927223	0.172366444	0.450155031	105966.6876	1.663927223	0.172366444	0.450155031	16105.28721	16105.28721	51.14114777	0.21	0.02	0.06	0.02	6.58
2013	SC	Construction and Mining	19	Pavers	120	1024410.267	19.95311914	1.552808994	1.822115603	1024403.255	19.90476632	1.549168915	1.816364891	84868.48413	84868.48413	248.4607429	0.47	0.04	0.04	0.03	12.07
2013	SC	Construction and Mining	19	Pavers	175	1392206.139	25.43574923	1.276454586	1.838847786	1392176.832	25.31594776	1.269802266	1.828262209	57700.83401	57700.83401	167.9134352	0.88	0.04	0.06	0.04	24.13
2013	SC	Construction and Mining	19	Pavers	250	940128.6191	11.90264569	0.299059512	0.480117231	940128.6191	11.89349803	0.298317256	0.479767737	28797.04612	28797.04612	72.44995934	0.83	0.02	0.03	0.02	32.65
2013	SC	Construction and Mining	19	Pavers	500	354285.5748	3.647471621	0.126258032	0.181270685	354285.5748	3.647471621	0.126258032	0.181270685	7167.931068	7167.931068	17.89940172	1.02	0.04	0.05	0.03	49.43
2013	SC	Construction and Mining	19	Pavers	750	40940.17936	0.297756274	0.012611069	0.016110322	40940.17936	0.297756274	0.012611069	0.016110322	358.0600939	358.0600939	0.852352463	1.66	0.07	0.09	0.06	114.34
2013	SC	Construction and Mining	20	Paving Equipment	50	131732.1891	1.909629027	0.166926663	0.339343584	131732.1891	1.901637495	0.164573994	0.330854005	26333.77499	26333.77499	62.97264929	0.15	0.01	0.03	0.01	5.00
2013	SC	Construction and Mining	20	Paving Equipment	120	598555.6204	11.98616013	0.913487456	1.058917009	598378.7438	11.93306974	0.909088734	1.052343128	51683.18147	51683.18147	128.4982438	0.46	0.04	0.04	0.03	11.58
2013	SC	Construction and Mining	20	Paving Equipment	175	563840.7769	9.519591811	0.460084795	0.627834145	563837.364	9.518902025	0.46003967	0.627638333	29243.22106	29243.22106	70.20599414	0.65	0.03	0.04	0.03	19.28
2013	SC	Construction and Mining	20	Paving Equipment	250	295756.6726	5.081977807	0.188143976	0.289196628	295774.2021	4.663475651	0.160168345	0.251216931	10518.21135	10518.21135	25.52945241	0.97	0.04	0.05	0.03	28.12
2013	SC	Construction and Mining	20	Paving Equipment	500	417090.8825	6.050919099	0.216082129	0.33446231	417044.7164	6.024899748	0.214088546	0.333421356	9508.591066	9508.591066	22.97650717	1.27	0.05	0.07	0.04	43.86
2013	SC	Construction and Mining	20	Paving Equipment	750	197780.9047	2.327609351	0.052964411	0.103485541	197780.9047	2.327609351	0.052964411	0.103485541	2507.659613	2507.659613	5.531381357	1.86	0.04	0.08	0.04	78.87
2013	SC	Construction and Mining	20	Paving Equipment	1000	38677.42344	0.868259731	0.025108546	0.047054303	38677.42344	0.868259731	0.025108546	0.047054303	352.0490424	352.0490424	0.850981747	4.93	0.14	0.27	0.13	109.86
2013	SC	Construction and Mining	21	Rollers	50	2174062.167	32.24246046	2.93336553	6.517190751	2174167.077	32.22765122	2.928661263	6.500988019	396974.2624	396974.2624	1292.038367	0.16	0.01	0.03	0.01	5.48
2013	SC	Construction and Mining	21	Rollers	120	3397932.767	69.13409424	5.16708224	6.231912045	3398348.365	68.55735741	5.118267941	6.162218061	282733.5396	282733.5396	963.5540363	0.49	0.04	0.04	0.03	12.02
2013	SC	Construction and Mining	21	Rollers	175	3509806.175	54.40565648	2.538071637	3.473527108	3509805.34	53.92450939	2.507029691	3.429653683	177344.7168	177344.7168	557.1094246	0.61	0.03	0.04	0.03	19.79
2013	SC	Construction and Mining	21	Rollers	250	554048.6168	9.866999829	0.353226046	0.571163483	554048.6168	9.866999829	0.353226046	0.571163483	18826.54203	18826.54203	68.32474075	1.05	0.04	0.06	0.03	29.43
2013	SC	Construction and Mining	21	Rollers	500	349125.8096	6.215762864	0.255980252	0.386611716	349125.8096	5.642056446	0.22127694	0.33886624	7491.866456	7491.866456	28.03066287	1.66	0.07	0.10	0.06	46.60
2013	SC	Construction and Mining	21	Rollers	750	17056.16266	0.438349678	0.016237822	0.025826656	17056.16266	0.438349678	0.016237822	0.025826656	237.618662	237.618662	0.875958215	3.69	0.14	0.22	0.13	71.78
2013	SC	Construction and Mining	22	Rough Terrain Forklifts	50	110705.0264	1.594582368	0.13544397	0.295939156	110705.0264	1.594582368	0.13544397	0.295939156	14250.21338	14250.21338	58.6837897	0.22	0.02	0.04	0.02	7.77
2013	SC	Construction and Mining	22	Rough Terrain Forklifts	120	8904048.328	131.9695897	8.019298075	8.767459526	8903605.528	131.5002675	7.977501377	8.715470044	625725.945	625725.945	2514.296852	0.42	0.03	0.03	0.02	14.23
2013	SC	Construction and Mining	22	Rough Terrain Forklifts	175	1637109.831	19.62518454	0.776323584	1.004370775	1637109.831	19.2309349	0.753187539	0.970346429	85719.0386	85719.0386	336.4200013	0.46	0.02	0.02	0.02	19.10
2013	SC	Construction and Mining	22	Rough Terrain Forklifts	250	134744.7867	2.562838699	0.113067884	0.172189058	134977.3849	1.936976018	0.074060805	0.117291172	4371.980743	4371.980743	19.72989481	1.17	0.05	0.08	0.05	30.87
2013	SC	Construction and Mining	22	Rough Terrain Forklifts	500	57059.72357	0.799484876	0.024329984	0.040236814	57059.72357	0.799484876	0.024329984	0.040236814	1044.429082	1044.429082	4.553052649	1.53	0.05	0.08	0.04	54.63
2013	SC	Construction and Mining	22	Rough Terrain Forklifts	750	8927.918458	0.403262178	0.021354832	0.032221847	8927.918458	0.034945431	0.000235644	0.001647388	96.82289868	96.82289868	0.505894739	8.33	0.44	0.67	0.41	92.21
2013	SC	Construction and Mining	23	Rubber Tired Dozers	50	95276.2989	1.730347471	0.226764212	0.633520506	95276.2989	1.730347471	0.226764212	0.633520506	14412.9667	14412.9667	17.09996773	0.24	0.03	0.09	0.03	6.61
2013	SC	Construction and Mining	23	Rubber Tired Dozers	120	454627.693	12.92098889	1.151199664	1.368668877	454627.693	12.92098889	1.151199664	1.368668877	38086.77618	38086.77618	50.88283082	0.68	0.06	0.07	0.06	11.94
2013	SC	Construction and Mining	23	Rubber Tired Dozers	175	380787.8193	11.19801878	0.639588813	0.901421856	380787.8193	11.19801878	0.639588813	0.901421856	17477.52073	17477.52073	26.27556018	1.28	0.07	0.10	0.07	21.79

CARB Offroad 2011 module output

					Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2013	SC	Construction and Mining	23	Rubber Tired Dozers	250	397207.7026	9.609285066	0.468144388	0.707882089	397207.7026	9.609285066	0.468144388	0.707882089	12893.23408	12893.23408	20.4365468	1.49	0.07	0.11	0.07	30.81
2013	SC	Construction and Mining	23	Rubber Tired Dozers	500	4553619.623	112.1523491	5.24436532	8.071927465	4553619.623	112.1523491	5.24436532	8.071927465	87201.19176	87201.19176	136.3826695	2.57	0.12	0.19	0.11	52.22
2013	SC	Construction and Mining	23	Rubber Tired Dozers	750	534904.1199	12.00870018	0.440403252	0.714332054	534904.1199	12.00870018	0.440403252	0.714332054	6298.269836	6298.269836	8.341447675	3.81	0.14	0.23	0.13	84.93
2013	SC	Construction and Mining	24	Rubber Tired Loaders	50	301889.0159	5.062818635	0.568577712	1.477139706	301889.0159	5.046826443	0.567306356	1.476798866	49070.00759	49070.00759	64.33793734	0.21	0.02	0.06	0.02	6.15
2013	SC	Construction and Mining	24	Rubber Tired Loaders	120	7363535.799	167.8110627	14.67525547	16.96373401	7363116.933	167.0710346	14.61206281	16.87608206	650370.252	650370.252	799.8770588	0.52	0.05	0.05	0.04	11.32
2013	SC	Construction and Mining	24	Rubber Tired Loaders	175	17441417.11	347.4429849	19.40095046	27.43224531	17440849.99	346.6583027	19.33935563	27.35594561	877178.2909	877178.2909	1048.099777	0.79	0.04	0.06	0.04	19.88
2013	SC	Construction and Mining	24	Rubber Tired Loaders	250	24040563.41	417.4745559	14.24910039	25.02884005	24040563.41	417.2422037	14.23387949	25.00725697	883199.9471	883199.9471	931.5959441	0.95	0.03	0.06	0.03	27.22
2013	SC	Construction and Mining	24	Rubber Tired Loaders	500	31398601.04	523.1542022	19.91477056	34.38096909	31401370.94	519.5878065	19.71335076	34.10808542	744506.8111	744506.8111	865.5191436	1.41	0.05	0.09	0.05	42.18
2013	SC	Construction and Mining	24	Rubber Tired Loaders	750	5536630.651	85.91151991	3.425136402	5.862435875	5536630.651	85.71372569	3.409589582	5.848879179	71705.59425	71705.59425	76.50997954	2.40	0.10	0.16	0.09	77.21
2013	SC	Construction and Mining	24	Rubber Tired Loaders	1000	1612385.069	32.37276234	0.937047236	1.633852203	1612385.069	32.37026138	0.936859928	1.63269353	14547.97256	14547.97256	13.91090537	4.45	0.13	0.22	0.12	110.83
2013	SC	Construction and Mining	24	Rubber Tired Loaders	9999	641093.061	12.2508533	0.349546365	0.64748273	641093.061	12.2508533	0.349546365	0.64748273	3195.538622	3195.538622	3.04301055	7.67	0.22	0.41	0.20	200.62
2013	SC	Construction and Mining	25	Scrapers	50	6915.123919	0.125532976	0.016607717	0.048712762	6915.123919	0.125532976	0.016607717	0.048712762	976.2408187	976.2408187	3.007546068	0.26	0.03	0.10	0.03	7.08
2013	SC	Construction and Mining	25	Scrapers	120	315671.5915	6.554401758	0.484037132	0.546393266	315671.5915	6.554401758	0.484037132	0.546393266	20622.05286	20622.05286	43.39459327	0.64	0.05	0.05	0.04	15.31
2013	SC	Construction and Mining	25	Scrapers	175	3334611.76	82.35741895	4.333367235	6.150397269	3334360.864	82.19049531	4.323944219	6.136125289	111663.725	111663.725	278.8424855	1.48	0.08	0.11	0.07	29.86
2013	SC	Construction and Mining	25	Scrapers	250	3829867.451	106.5879062	4.899637194	7.424698586	3829867.451	106.5879062	4.899637194	7.424698586	96809.59231	96809.59231	270.6791462	2.20	0.10	0.15	0.09	39.56
2013	SC	Construction and Mining	25	Scrapers	500	33545116.95	658.7678638	26.68109736	41.49496405	33548024.06	655.6489847	26.51348271	41.26393585	496110.4579	496110.4579	1189.699295	2.66	0.11	0.17	0.10	67.62
2013	SC	Construction and Mining	25	Scrapers	750	15355587.48	247.1253418	9.455354887	14.86739632	15355351.87	245.8774261	9.373327284	14.78803187	153275.0301	153275.0301	338.9934069	3.22	0.12	0.19	0.11	100.18
2013	SC	Construction and Mining	25	Scrapers	1000	240039.7711	9.655323831	0.450166496	0.699336143	240039.7711	9.655323831	0.450166496	0.699336143	1427.204595	1427.204595	5.585442698	13.53	0.63	0.98	0.58	168.19
2013	SC	Construction and Mining	25	Scrapers	9999	872489.0405	18.5785022	0.690455628	1.054378654	872489.0405	18.5785022	0.690455628	1.054378654	2507.518929	2507.518929	5.585442698	14.82	0.55	0.84	0.51	347.95
2013	SC	Construction and Mining	26	Skid Steer Loaders	50	1642847.978	21.43217818	1.494941489	2.796293601	1642859.41	21.40196304	1.490848793	2.787408375	250186.0607	250186.0607	895.0994737	0.17	0.01	0.02	0.01	6.57
2013	SC	Construction and Mining	26	Skid Steer Loaders	120	8730087.481	116.559392	7.115758522	7.386879854	8729666.808	116.3950003	7.1017162	7.367926174	914471.492	914471.492	2888.548574	0.25	0.02	0.02	0.01	9.55
2013	SC	Construction and Mining	26	Skid Steer Loaders	175	59039.87679	0.774126287	0.035045229	0.046785081	59039.87679	0.774126287	0.035045229	0.046785081	2874.073547	2874.073547	11.98199593	0.54	0.02	0.03	0.02	20.54
2013	SC	Construction and Mining	26	Skid Steer Loaders	250	45360.60272	0.628428318	0.024888562	0.036754534	45348.6293	0.610349282	0.023628184	0.035831719	1699.186743	1699.186743	6.656664405	0.74	0.03	0.04	0.03	26.69
2013	SC	Construction and Mining	26	Skid Steer Loaders	500	12454.6044	0.117810509	0.004132758	0.007026125	12454.6044	0.117810509	0.004132758	0.007026125	341.8189076	341.8189076	1.331332881	0.69	0.02	0.04	0.02	36.44
2013	SC	Construction and Mining	26	Skid Steer Loaders	750	13137.96623	0.094323815	0.003866099	0.004436634	13137.96623	0.094323815	0.003866099	0.004436634	183.2941968	183.2941968	0.443777627	1.03	0.04	0.05	0.04	71.68
2013	SC	Construction and Mining	26	Skid Steer Loaders	1000	21438.80263	0.531048786	0.01904057	0.033868124	21438.80263	0.241937779	0.007514858	0.011127884	158.5247108	158.5247108	0.887555254	6.70	0.24	0.43	0.22	135.24
2013	SC	Construction and Mining	27	Surfacing Equipment	50	15130.91238	0.223127736	0.01841726	0.040721802	15130.91238	0.223127736	0.01841726	0.040721802	3398.94804	3398.94804	15.7013237	0.13	0.01	0.02	0.01	4.45
2013	SC	Construction and Mining	27	Surfacing Equipment	120	118870.7473	2.078682986	0.14830268	0.173604316	118870.7473	2.078682986	0.14830268	0.173604316	12126.18653	12126.18653	50.32475546	0.34	0.02	0.03	0.02	9.80
2013	SC	Construction and Mining	27	Surfacing Equipment	175	61600.84261	1.102819585	0.053616087	0.075960828	61610.41454	1.101121021	0.053047449	0.075801763	3693.60387	3693.60387	16.90911783	0.60	0.03	0.04	0.03	16.68
2013	SC	Construction and Mining	27	Surfacing Equipment	250	130775.636	2.300938417	0.073751529	0.119826292	130767.2605	2.286744967	0.072699038	0.119156519	5414.75326	5414.75326	25.36367675	0.85	0.03	0.04	0.03	24.15
2013	SC	Construction and Mining	27	Surfacing Equipment	500	413121.8587	5.108661294	0.163983353	0.25052066	413121.8587	5.108661294	0.163983353	0.25052066	10365.72257	10365.72257	41.87019654	0.99	0.03	0.05	0.03	39.85
2013	SC	Construction and Mining	27	Surfacing Equipment	750	382209.0908	3.98018861	0.125934205	0.171973068	382209.0908	3.98018861	0.125934205	0.171973068	5625.360669	5625.360669	20.93509827	1.42	0.04	0.06	0.04	67.94
2013	SC	Construction and Mining	27	Surfacing Equipment	1000	62334.70836	1.066732554	0.025916815	0.04545705	62334.70836	1.066732554	0.025916815	0.04545705	689.3779667	689.3779667	2.818186306	3.09	0.08	0.13	0.07	90.42

CARB Offroad 2011 module output

						Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	Horsepower Bin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2013	SC	Construction and Mining	27	Surfacing Equipment	9999	21849.30455	0.254633787	0.005696876	0.008813351	21849.30455	0.254633787	0.005696876	0.008813351	175.8275917	175.8275917	0.805196087	2.90	0.06	0.10	0.06	124.27
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	50	3244567.065	49.34677347	4.677590951	10.71309749	3247333.288	49.24110633	4.646405455	10.61932757	574670.8121	574670.8121	1252.624006	0.17	0.02	0.04	0.01	5.65
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	120	52619865.1	918.1092284	73.16541456	79.93931284	52618358.93	916.4157262	72.98929909	79.72613517	4640848.112	4640848.112	8505.186065	0.40	0.03	0.03	0.03	11.34
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	175	9079950.831	146.0601603	7.393401671	10.26559151	9079858.294	145.9727298	7.384375013	10.25654199	468723.738	468723.738	951.4704994	0.62	0.03	0.04	0.03	19.37
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	250	5260790.051	82.91329323	2.675011404	4.460779772	5260772.484	82.7064744	2.661665181	4.445955253	190947.6544	190947.6544	380.5881998	0.87	0.03	0.05	0.03	27.55
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	500	7091781.651	101.6057347	3.454383135	5.712684695	7089868.252	101.3801757	3.443396569	5.696898616	163318.8487	163318.8487	343.4895794	1.24	0.04	0.07	0.04	43.41
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	750	997636.1246	13.11880777	0.471078289	0.754050097	997636.1246	13.11880777	0.471078289	0.754050097	13022.45185	13022.45185	24.00498966	2.01	0.07	0.12	0.07	76.61
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	1000	169119.8667	2.197551248	0.041164224	0.084800626	169119.8667	2.197551248	0.041164224	0.084800626	1420.195492	1420.195492	2.182271788	3.09	0.06	0.12	0.05	119.08
2013	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	9999	2371925.483	41.44425102	1.290518055	2.070588652	2371925.483	40.78007193	1.271187559	2.055276859	8731.696424	8731.696424	16.14881123	9.49	0.30	0.47	0.27	271.65
2013	SC	Construction and Mining	29	Trenchers	50	1152400.619	17.05267857	1.576000103	3.305690968	1152408.205	17.05247694	1.575989357	3.305560823	140459.2853	140459.2853	410.7784947	0.24	0.02	0.05	0.02	8.20
2013	SC	Construction and Mining	29	Trenchers	120	834948.6257	18.54041911	1.449951959	1.74697922	834942.075	18.53532878	1.448849383	1.746574735	54736.05204	54736.05204	190.4518475	0.68	0.05	0.06	0.05	15.25
2013	SC	Construction and Mining	29	Trenchers	175	170241.6234	4.383352683	0.22749474	0.328395304	170241.6234	4.383352683	0.22749474	0.328395304	6475.397867	6475.397867	25.20686217	1.35	0.07	0.10	0.06	26.29
2013	SC	Construction and Mining	29	Trenchers	250	333740.927	7.062079316	0.277710679	0.436300953	333684.8594	7.039421106	0.276076681	0.43537549	8265.285158	8265.285158	29.87479961	1.71	0.07	0.11	0.06	40.37
2013	SC	Construction and Mining	29	Trenchers	500	563622.2363	7.794315497	0.287731144	0.442559892	563622.2363	7.794315497	0.287731144	0.442559892	8528.201601	8528.201601	27.07403715	1.83	0.07	0.10	0.06	66.09
2013	SC	Construction and Mining	29	Trenchers	750	254160.3949	1.560164542	0.053440665	0.076068041	254160.3949	1.560164542	0.053440665	0.076068041	2212.702501	2212.702501	5.601524928	1.41	0.05	0.07	0.04	114.86
2013	SC	Construction and Mining	29	Trenchers	1000	15011.43428	0.589720816	0.026618812	0.041928362	15011.43428	0.589720816	0.026618812	0.041928362	94.65021561	94.65021561	0.466793744	12.46	0.56	0.89	0.52	158.60
2013	SC	Construction and Mining	36	Sweepers/Scrubbers	50	1001759.047	15.67966632	1.650743731	4.010842865	1001759.047	15.64857525	1.643797826	3.988368603	151285.5927	151285.5927	241.1137887	0.21	0.02	0.05	0.02	6.62
2013	SC	Construction and Mining	36	Sweepers/Scrubbers	120	1548251.828	33.09628814	2.897515324	3.279124465	1548251.828	33.09450851	2.89737466	3.278215425	118919.1404	118919.1404	196.3050315	0.56	0.05	0.06	0.04	13.02
2013	SC	Construction and Mining	36	Sweepers/Scrubbers	175	386195.8507	11.29980852	0.632727116	0.9017991	386195.8507	11.29980852	0.632727116	0.9017991	14450.84264	14450.84264	22.61775363	1.56	0.09	0.12	0.08	26.72
2013	SC	Construction and Mining	36	Sweepers/Scrubbers	250	205826.8226	4.136298953	0.163242909	0.25469607	205826.8226	4.136298953	0.163242909	0.25469607	6046.855929	6046.855929	9.388501508	1.37	0.05	0.08	0.05	34.04
2013	SC	Construction and Mining	36	Sweepers/Scrubbers	500	57422.9915	1.034340138	0.044448612	0.063919177	57422.9915	1.034340138	0.044448612	0.063919177	1135.300045	1135.300045	1.707000274	1.82	0.08	0.11	0.07	50.58
2013	SC	Construction and Mining	36	Sweepers/Scrubbers	1000	40243.55107	0.483459377	0.012045228	0.014412189	40243.55107	0.483459377	0.012045228	0.014412189	283.8250112	283.8250112	0.426750069	3.41	0.08	0.10	0.08	141.79
2013	SC	Industrial	30	Aerial Lifts	50	2288427.919	26.80449065	1.214449668	1.57604654	2288427.919	26.76910423	1.209947026	1.566798785	394463.0301	394463.0301	1469.070133	0.14	0.01	0.01	0.01	5.80
2013	SC	Industrial	30	Aerial Lifts	120	3993036.044	47.2458892	2.431648975	2.419811951	3993036.044	47.11445624	2.418605112	2.403697313	476876.4915	476876.4915	1779.661648	0.20	0.01	0.01	0.01	8.37
2013	SC	Industrial	30	Aerial Lifts	175	244038.3076	2.76439048	0.114982273	0.133575956	244038.3076	2.76439048	0.114982273	0.133575956	16537.53419	16537.53419	61.70233218	0.33	0.01	0.02	0.01	14.76
2013	SC	Industrial	30	Aerial Lifts	250	8876.72345	0.314360082	0.016324884	0.024087555	8876.72345	0.314360082	0.016324884	0.024087555	373.7099805	373.7099805	1.386569262	1.68	0.09	0.13	0.08	23.75
2013	SC	Industrial	30	Aerial Lifts	500	16062.64243	0.221224473	0.004829457	0.009350926	16062.64243	0.22114888	0.004828001	0.00929089	373.7099805	373.7099805	1.386569262	1.18	0.03	0.05	0.02	42.98
2013	SC	Industrial	31	Forklifts	50	1540203.913	25.62040549	2.876635327	7.71025431	1540203.913	25.54717875	2.861959135	7.665046504	442264.3106	442264.3106	680.9046968	0.12	0.01	0.03	0.01	3.48
2013	SC	Industrial	31	Forklifts	120	18555431.09	404.6843279	33.82947542	38.87318223	18555431.09	402.5841877	33.66008377	38.62390357	3057267.194	3057267.194	4546.304996	0.26	0.02	0.03	0.02	6.07
2013	SC	Industrial	31	Forklifts	175	5859059.7	122.6187005	6.662620503	9.192001597	5859059.7	121.454047	6.593234543	9.088652231	562114.3594	562114.3594	843.5340004	0.44	0.02	0.03	0.02	10.42
2013	SC	Industrial	31	Forklifts	250	1237852.161	28.86035229	1.339466237	2.026999507	1237852.161	28.82364954	1.336399544	2.025218064	80399.85403	80399.85403	120.9871982	0.72	0.03	0.05	0.03	15.40
2013	SC	Industrial	31	Forklifts	500	361915.2939	7.893592497	0.365302764	0.550101042	361915.2939	7.487473124	0.340057674	0.516700062	14226.86625	14226.86625	21.94651502	1.11	0.05	0.08	0.05	25.44
2013	SC	Industrial	31	Forklifts	1000	25540.24155	1.198262628	0.06691985	0.098689657	25540.24155	1.198262628	0.06691985	0.098689657	393.4415357	393.4415357	0.562731154	6.09	0.34	0.50	0.31	64.91

CARB Offroad 2011 module output

						Ton/year			lb/yr					hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2013	SC	Industrial	32	Other General Industrial Equipment	50	3312331.392	50.41043155	4.96522673	11.47523435	3312331.392	50.38776053	4.96014543	11.45898656	675076.4365	675076.4365	908.3584393	0.15	0.01	0.03	0.01	4.91
2013	SC	Industrial	32	Other General Industrial Equipment	120	2678902.465	56.8489822	4.826951344	5.513217537	2678902.465	56.83679838	4.82314009	5.512273619	293140.0979	293140.0979	398.682252	0.39	0.03	0.04	0.03	9.14
2013	SC	Industrial	32	Other General Industrial Equipment	175	1234921.731	23.10344923	1.253537922	1.718896323	1234921.731	22.35074496	1.203509791	1.650009432	66051.58673	66051.58673	87.60059469	0.70	0.04	0.05	0.03	18.70
2013	SC	Industrial	32	Other General Industrial Equipment	250	1126674.356	22.31724085	0.940737742	1.455600859	1126674.356	22.00807885	0.92151103	1.428952294	42869.1695	42869.1695	59.22994755	1.04	0.04	0.07	0.04	26.28
2013	SC	Industrial	32	Other General Industrial Equipment	500	3482229.473	50.71644276	1.928941563	3.18387735	3482229.473	50.32722068	1.907099186	3.151472711	78138.89369	78138.89369	103.5279755	1.30	0.05	0.08	0.05	44.56
2013	SC	Industrial	32	Other General Industrial Equipment	750	1259577.084	15.54364322	0.525120474	0.903697759	1259577.084	15.54267126	0.525101755	0.902925818	16929.04383	16929.04383	22.89560998	1.84	0.06	0.11	0.06	74.40
2013	SC	Industrial	32	Other General Industrial Equipment	1000	128736.6053	2.439764578	0.062689775	0.107758855	128736.6053	2.439764578	0.062689775	0.107758855	1159.972623	1159.972623	1.493191955	4.21	0.11	0.19	0.10	110.98
2013	SC	Industrial	32	Other General Industrial Equipment	9999	96976.72718	1.258356605	0.031835195	0.047920789	96976.72718	1.258356605	0.031835195	0.047920789	386.6575409	386.6575409	0.497730652	6.51	0.16	0.25	0.15	250.81
2013	SC	Industrial	33	Other Material Handling Equipment	50	154901.8779	2.455711569	0.249932727	0.613311514	154901.8779	2.455711569	0.249932727	0.613311514	26923.58214	26923.58214	40.3251793	0.18	0.02	0.05	0.02	5.75
2013	SC	Industrial	33	Other Material Handling Equipment	120	1868189.402	32.24569888	2.503864887	2.813800315	1868189.402	32.23158189	2.499866313	2.812403688	137777.4531	137777.4531	202.761817	0.47	0.04	0.04	0.03	13.56
2013	SC	Industrial	33	Other Material Handling Equipment	175	1037979.693	19.18414187	1.040890139	1.442425955	1037979.693	19.17794124	1.037317947	1.441399399	49473.39299	49473.39299	74.97075588	0.78	0.04	0.06	0.04	20.98
2013	SC	Industrial	33	Other Material Handling Equipment	250	1234842.102	25.33251839	1.04400251	1.636402968	1234842.102	25.33251839	1.04400251	1.636402968	39040.94185	39040.94185	59.63582854	1.30	0.05	0.08	0.05	31.63
2013	SC	Industrial	33	Other Material Handling Equipment	500	2933770.18	45.46397541	1.861677639	2.888773406	2933770.18	43.0825724	1.722530313	2.690703701	61255.28849	61255.28849	89.73772294	1.48	0.06	0.09	0.06	47.89
2013	SC	Industrial	33	Other Material Handling Equipment	750	401100.1092	4.120195906	0.137225396	0.215616077	401100.1092	4.120195906	0.137225396	0.215616077	4897.019667	4897.019667	6.815523261	1.68	0.06	0.09	0.05	81.91
2013	SC	Industrial	33	Other Material Handling Equipment	1000	54644.33961	0.750510612	0.018371136	0.029558793	54644.33961	0.750510612	0.018371136	0.029558793	408.0849722	408.0849722	0.567960272	3.68	0.09	0.14	0.08	133.90
2013	SC	Industrial	33	Other Material Handling Equipment	9999	124326.2331	1.656846871	0.041007053	0.063248447	124326.2331	1.656846871	0.041007053	0.063248447	816.1699444	816.1699444	1.135920544	4.06	0.10	0.15	0.09	152.33
2014	SC	Construction and Mining	11	Bore/Drill Rigs	50	102029.835	1.427443691	0.102210108	0.184513466	102029.835	1.427443691	0.102210108	0.184513466	12305.44448	12305.44448	38.38212172	0.23	0.02	0.03	0.02	8.29

CARB Offroad 2011 module output

					Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	Horsepower Bin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2014	SC	Construction and Mining	11	Bore/Drill Rigs	120	620294.49	8.1734223	0.487842171	0.517921021	622756.2827	8.086033248	0.480116968	0.507938339	42265.91326	42265.91326	117.5704992	0.39	0.02	0.02	0.02	14.73
2014	SC	Construction and Mining	11	Bore/Drill Rigs	175	730687.4414	8.798429537	0.403309101	0.550680106	730688.2127	8.796662316	0.402455583	0.550498518	26297.36524	26297.36524	92.11709213	0.67	0.03	0.04	0.03	27.79
2014	SC	Construction and Mining	11	Bore/Drill Rigs	250	1031635.218	11.28785915	0.338819899	0.576889207	1030716.458	11.00295679	0.327463048	0.560643158	27128.13659	27128.13659	91.7130698	0.83	0.02	0.04	0.02	37.99
2014	SC	Construction and Mining	11	Bore/Drill Rigs	500	1150822.912	11.57006724	0.37400483	0.611615391	1150204.943	11.23534397	0.355968229	0.588120997	18231.58029	18231.58029	64.23955109	1.27	0.04	0.07	0.04	63.09
2014	SC	Construction and Mining	11	Bore/Drill Rigs	750	1583340.066	11.27089569	0.383379188	0.617134005	1582810.27	11.09778774	0.376297393	0.606385611	13795.28286	13795.28286	31.91776438	1.63	0.06	0.09	0.05	114.74
2014	SC	Construction and Mining	11	Bore/Drill Rigs	1000	124527.8303	1.116314868	0.02180558	0.032459708	124527.8303	1.116314868	0.02180558	0.032459708	734.8191332	734.8191332	1.212067002	3.04	0.06	0.09	0.05	169.47
2014	SC	Construction and Mining	11	Bore/Drill Rigs	9999	421923.1367	5.379949523	0.130529436	0.179225459	421923.1367	5.379949523	0.130529436	0.179225459	857.9509877	857.9509877	1.212067002	12.54	0.30	0.42	0.28	491.78
2014	SC	Construction and Mining	12	Cranes	50	33259.476	0.554625655	0.055277153	0.159082201	33259.476	0.554625655	0.055277153	0.159082201	7054.608955	7054.608955	17.77875908	0.16	0.02	0.05	0.01	4.71
2014	SC	Construction and Mining	12	Cranes	120	793263.1161	25.07752683	1.863242548	2.51171	793263.1161	24.66958966	1.831737179	2.46365002	84777.88095	84777.88095	214.3610381	0.59	0.04	0.06	0.04	9.36
2014	SC	Construction and Mining	12	Cranes	175	2093787.492	53.21766994	2.876763187	4.121826546	2093675.461	52.97224649	2.858116534	4.100391461	133158.1391	133158.1391	321.5415571	0.80	0.04	0.06	0.04	15.72
2014	SC	Construction and Mining	12	Cranes	250	3536891.175	84.22960618	3.876943138	5.864098809	3536588.952	83.32619756	3.819180041	5.788725241	153828.6619	153828.6619	361.1627916	1.10	0.05	0.08	0.05	22.99
2014	SC	Construction and Mining	12	Cranes	500	5417872.123	103.2631608	4.29136255	6.589250037	5417071.855	101.9329847	4.224058665	6.493785635	152449.9579	152449.9579	346.4318198	1.35	0.06	0.09	0.05	35.53
2014	SC	Construction and Mining	12	Cranes	750	1427818.869	18.5952702	0.647707293	0.993995853	1427818.869	18.5952702	0.647707293	0.993995853	23856.25167	23856.25167	50.79645452	1.56	0.05	0.08	0.05	59.85
2014	SC	Construction and Mining	12	Cranes	1000	334209.7667	11.73157501	0.581463413	0.869539282	334209.7667	11.73157501	0.581463413	0.869539282	3391.302094	3391.302094	7.619468178	6.92	0.34	0.51	0.32	98.55
2014	SC	Construction and Mining	12	Cranes	9999	25741.21027	0.176337445	0.004204078	0.007693804	25741.21027	0.176337445	0.004204078	0.007693804	236.3645899	236.3645899	0.507964545	1.49	0.04	0.07	0.03	108.90
2014	SC	Construction and Mining	13	Crawler Tractors	50	101358.6259	1.786135039	0.208421493	0.585189501	101358.6259	1.781823814	0.207105005	0.580468305	13865.04799	13865.04799	45.084492	0.26	0.03	0.08	0.03	7.31
2014	SC	Construction and Mining	13	Crawler Tractors	120	4494533.828	100.9205533	8.43833356	9.807755662	4492586.371	100.4661626	8.391196586	9.750829876	325227.3749	325227.3749	775.9041073	0.62	0.05	0.06	0.05	13.81
2014	SC	Construction and Mining	13	Crawler Tractors	175	4885752.503	102.0759717	5.569431288	7.7334171	4886106.976	100.9486705	5.494997373	7.629789096	207717.6923	207717.6923	507.6513799	0.98	0.05	0.07	0.05	23.52
2014	SC	Construction and Mining	13	Crawler Tractors	250	4927913.681	93.25536682	3.625545859	5.634092017	4929475.33	92.1035021	3.559539061	5.540856999	154006.7608	154006.7608	371.0453691	1.21	0.05	0.07	0.04	32.01
2014	SC	Construction and Mining	13	Crawler Tractors	500	13228906.13	224.8090081	8.735093559	13.68111017	13214538.17	221.2435903	8.556535971	13.41791273	244636.4304	244636.4304	596.4678291	1.84	0.07	0.11	0.07	54.02
2014	SC	Construction and Mining	13	Crawler Tractors	750	5143069.01	75.63295441	2.763588784	4.434113086	5143069.01	75.43234242	2.751906775	4.416655321	57188.94072	57188.94072	122.1789733	2.65	0.10	0.16	0.09	89.93
2014	SC	Construction and Mining	13	Crawler Tractors	1000	680544.3282	15.08042703	0.443114079	0.797690718	680544.3282	15.08042703	0.443114079	0.797690718	5187.953588	5187.953588	10.82027808	5.81	0.17	0.31	0.16	131.18
2014	SC	Construction and Mining	13	Crawler Tractors	9999	359701.2299	6.778986168	0.178118845	0.313196194	359701.2299	6.778986168	0.178118845	0.313196194	1558.216768	1558.216768	2.70506952	8.70	0.23	0.40	0.21	230.84
2014	SC	Construction and Mining	14	Excavators	50	4057813.106	54.36927011	4.165084567	7.471357007	4057813.151	54.34620327	4.161736468	7.463680433	727548.3927	727548.3927	1104.224455	0.15	0.01	0.02	0.01	5.58
2014	SC	Construction and Mining	14	Excavators	120	5270203.475	82.45031205	6.159196387	6.829804431	5270148.028	82.07281084	6.115617941	6.780992623	464601.9718	464601.9718	798.6756493	0.35	0.03	0.03	0.02	11.34
2014	SC	Construction and Mining	14	Excavators	175	11100212.2	156.4700472	7.715888884	10.85535058	11100392.26	155.1877893	7.627791831	10.74148246	542031.2135	542031.2135	1014.72939	0.58	0.03	0.04	0.03	20.48
2014	SC	Construction and Mining	14	Excavators	250	14122820.1	189.209308	6.115174692	10.61995735	14121643.07	185.2721645	5.878019785	10.29966221	460571.8913	460571.8913	872.350879	0.82	0.03	0.05	0.02	30.66
2014	SC	Construction and Mining	14	Excavators	500	23425471.86	242.6312044	7.946568434	14.0101599	23429923.14	236.602282	7.624577794	13.56941322	510068.9817	510068.9817	887.266723	0.95	0.03	0.05	0.03	45.93
2014	SC	Construction and Mining	14	Excavators	750	2119364.654	22.60210077	0.722019811	1.252677029	2119432.036	22.74740457	0.73429335	1.267304576	26404.82863	26404.82863	45.19952741	1.71	0.05	0.09	0.05	80.27
2014	SC	Construction and Mining	14	Excavators	1000	237786.7272	4.677335989	0.14947515	0.247815138	237786.7272	3.957838633	0.105385778	0.183052463	2019.454831	2019.454831	3.615962193	4.63	0.15	0.25	0.14	117.75
2014	SC	Construction and Mining	14	Excavators	9999	463507.9145	5.051937369	0.130384177	0.234586811	463507.9145	5.051937369	0.130384177	0.234586811	2127.915181	2127.915181	3.163966918	4.75	0.12	0.22	0.11	217.82
2014	SC	Construction and Mining	15	Graders	50	26800.74842	0.505246729	0.066896322	0.197233937	26800.74842	0.505246729	0.066896322	0.197233937	4372.38471	4372.38471	14.08324342	0.23	0.03	0.09	0.03	6.13
2014	SC	Construction and Mining	15	Graders	120	724388.3148	22.08452607	1.839311461	2.323788001	723659.7017	21.7573755	1.812801469	2.285480423	53148.80807	53148.80807	149.9183977	0.83	0.07	0.09	0.06	13.62

CARB Offroad 2011 module output

						Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2014	SC	Construction and Mining	15	Graders	175	6725492.375	173.0358862	9.727853923	13.93364934	6722959.792	171.9925495	9.652684492	13.83350443	296532.8306	296532.8306	701.4363821	1.17	0.07	0.09	0.06	22.67
2014	SC	Construction and Mining	15	Graders	250	11674559.15	199.2184305	6.436077735	11.18267322	11674502.86	199.0801852	6.428016489	11.17246734	376727.5286	376727.5286	556.9695625	1.06	0.03	0.06	0.03	30.99
2014	SC	Construction and Mining	15	Graders	500	3329171.652	37.27581446	1.434680438	2.605993986	3329171.652	37.08188468	1.424788141	2.59180177	75600.48665	75600.48665	104.0342821	0.99	0.04	0.07	0.03	44.04
2014	SC	Construction and Mining	15	Graders	1000	32190.8072	0.898448322	0.031267945	0.056694421	32190.8072	0.898448322	0.031267945	0.056694421	269.6175123	269.6175123	0.454298175	6.66	0.23	0.42	0.21	119.39
2014	SC	Construction and Mining	15	Graders	9999	453474.6549	8.944684171	0.269765955	0.493014727	453474.6549	8.944684171	0.269765955	0.493014727	1519.880233	1519.880233	2.271490875	11.77	0.35	0.65	0.33	298.36
2014	SC	Construction and Mining	16	Off-Highway Tractors	50	1675474.253	26.13046716	2.643101812	6.426945231	1676157.198	25.58843275	2.525210693	6.088589321	251151.7988	251151.7988	422.9644853	0.21	0.02	0.05	0.02	6.67
2014	SC	Construction and Mining	16	Off-Highway Tractors	120	2145691.664	41.61594523	3.431148915	3.865967944	2144188.92	40.12417458	3.279424932	3.685810255	178557.5495	178557.5495	307.5294993	0.47	0.04	0.04	0.04	12.01
2014	SC	Construction and Mining	16	Off-Highway Tractors	175	1828750.28	27.81297928	1.431073708	1.94649767	1828926.517	27.52396183	1.411647861	1.919978282	72176.18131	72176.18131	116.7720708	0.77	0.04	0.05	0.04	25.34
2014	SC	Construction and Mining	16	Off-Highway Tractors	250	1530280.329	26.17323056	0.940788964	1.546507051	1530272.616	26.13390593	0.937741892	1.543846692	44970.9137	44970.9137	76.21383244	1.16	0.04	0.07	0.04	34.03
2014	SC	Construction and Mining	16	Off-Highway Tractors	500	4323096.921	52.49861624	1.883484348	3.098294613	4322851.965	51.22769927	1.806650373	3.009161095	80966.16678	80966.16678	131.0343084	1.30	0.05	0.08	0.04	53.39
2014	SC	Construction and Mining	16	Off-Highway Tractors	750	1087078.27	13.2010156	0.443677923	0.728040667	1086850.658	13.07224074	0.433807504	0.718696671	11850.36749	11850.36749	19.16488184	2.23	0.07	0.12	0.07	91.71
2014	SC	Construction and Mining	16	Off-Highway Tractors	1000	30805.59475	1.135515464	0.057772287	0.0793836	30805.59475	0.21090426	0.005021745	0.006468234	192.7415621	192.7415621	0.445694927	11.78	0.60	0.82	0.55	159.83
2014	SC	Construction and Mining	16	Off-Highway Tractors	9999	240377.1913	7.244848559	0.272434108	0.478446472	252423.628	4.309682899	0.137988127	0.241318807	894.9268278	894.9268278	1.782779706	16.19	0.61	1.07	0.56	282.06
2014	SC	Construction and Mining	17	Off-Highway Trucks	50	160512.3164	2.601876214	0.270729908	0.612379832	160512.3164	2.601876214	0.270729908	0.612379832	36486.62608	36486.62608	25.17227118	0.14	0.01	0.03	0.01	4.40
2014	SC	Construction and Mining	17	Off-Highway Trucks	120	197014.7903	3.576765029	0.29011071	0.353703385	197014.7903	3.39049968	0.274871802	0.3325696	16376.21407	16376.21407	14.13180136	0.44	0.04	0.04	0.03	12.03
2014	SC	Construction and Mining	17	Off-Highway Trucks	175	3809188.829	60.27963934	3.378792486	4.895490107	3809188.829	60.01368022	3.358981912	4.872492847	171908.5613	171908.5613	135.1353505	0.70	0.04	0.06	0.04	22.16
2014	SC	Construction and Mining	17	Off-Highway Trucks	250	7815225.356	136.0432896	6.010510819	10.02869198	7811856.382	128.6142586	5.566148825	9.434129362	266093.5242	266093.5242	231.4082473	1.02	0.05	0.08	0.04	29.36
2014	SC	Construction and Mining	17	Off-Highway Trucks	500	33225045.56	476.8699717	18.50955922	33.13392744	33241097.13	463.8670354	17.77333109	32.1881087	631436.8508	631436.8508	514.0442745	1.51	0.06	0.10	0.05	52.64
2014	SC	Construction and Mining	17	Off-Highway Trucks	750	11929520.87	217.393976	9.298051349	15.69993652	11911574.8	197.813377	8.182186103	14.20904177	128428.4681	128428.4681	117.4705988	3.39	0.14	0.24	0.13	92.75
2014	SC	Construction and Mining	17	Off-Highway Trucks	1000	8250388.373	159.7535159	4.709230256	8.642074831	8245540.692	157.5528119	4.634679206	8.47927957	65531.00835	65531.00835	53.87749269	4.88	0.14	0.26	0.13	125.83
2014	SC	Construction and Mining	17	Off-Highway Trucks	9999	11849348.47	209.2981793	6.558453171	12.36900431	11841368.71	207.6911379	6.497712392	12.22081151	47603.76583	47603.76583	34.88788461	8.79	0.28	0.52	0.25	248.75
2014	SC	Construction and Mining	18	Other Construction Equipment	50	908873.4301	13.55753426	1.223572985	2.618488301	908873.4301	13.55753426	1.223572985	2.618488301	139974.3147	139974.3147	326.6306613	0.19	0.02	0.04	0.02	6.49
2014	SC	Construction and Mining	18	Other Construction Equipment	120	2840536.086	56.95958168	4.448881699	5.175682446	2840418.803	56.73584559	4.42805302	5.149714526	229033.871	229033.871	576.3294711	0.50	0.04	0.05	0.04	12.40
2014	SC	Construction and Mining	18	Other Construction Equipment	175	1548571.841	30.39384043	1.608217058	2.245415378	1548931.915	29.76408835	1.556457919	2.187143246	66898.23386	66898.23386	179.3611169	0.91	0.05	0.07	0.04	23.15
2014	SC	Construction and Mining	18	Other Construction Equipment	250	1986659.227	34.68920899	1.285804847	2.017888086	1987041.454	34.19731848	1.25775903	1.985949938	59660.71364	59660.71364	160.8974725	1.16	0.04	0.07	0.04	33.31
2014	SC	Construction and Mining	18	Other Construction Equipment	500	6786901.075	95.84004098	3.605821484	5.782579626	6786087.394	92.1920751	3.396591758	5.505660448	123703.1985	123703.1985	312.5631228	1.55	0.06	0.09	0.05	54.86
2014	SC	Construction and Mining	18	Other Construction Equipment	750	2643740.937	33.77951992	1.147602654	1.84984481	2643840.595	30.66125578	0.981143443	1.605794257	28963.19451	28963.19451	64.62275534	2.33	0.08	0.13	0.07	91.28
2014	SC	Construction and Mining	18	Other Construction Equipment	1000	308351.4827	4.124496295	0.108384665	0.1696617	308351.4827	4.117627364	0.108061258	0.168641214	2440.370329	2440.370329	5.714937547	3.38	0.09	0.14	0.08	126.35
2014	SC	Construction and Mining	18	Other Construction Equipment	9999	191912.852	3.130953362	0.085997114	0.144716894	192033.223	2.898109549	0.079533397	0.137609667	1143.493707	1143.493707	2.637663483	5.48	0.15	0.25	0.14	167.94

CARB Offroad 2011 module output

						Ton/year			lb/yr					hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2014	SC	Construction and Mining	19	Pavers	50	111304.5094	1.711211605	0.17797693	0.469544558	111304.5094	1.711211605	0.17797693	0.469544558	16924.26219	16924.26219	52.94145801	0.20	0.02	0.06	0.02	6.58
2014	SC	Construction and Mining	19	Pavers	120	1077308.362	20.2396228	1.577590993	1.846050582	1077301.199	20.14566456	1.568768313	1.83483555	89184.15786	89184.15786	257.2072502	0.45	0.04	0.04	0.03	12.08
2014	SC	Construction and Mining	19	Pavers	175	1462117.844	25.31211107	1.266525486	1.834125963	1462086.306	25.18565761	1.259474118	1.823035248	60634.99709	60634.99709	173.8244538	0.83	0.04	0.06	0.04	24.11
2014	SC	Construction and Mining	19	Pavers	250	987602.3356	12.24187641	0.31122855	0.507952184	987602.3356	12.23221695	0.310433488	0.507569507	30261.41368	30261.41368	75.00039885	0.81	0.02	0.03	0.02	32.64
2014	SC	Construction and Mining	19	Pavers	500	372706.4994	3.440969843	0.114266752	0.168074481	372706.4994	3.440969843	0.114266752	0.168074481	7532.429764	7532.429764	18.52951031	0.91	0.03	0.04	0.03	49.48
2014	SC	Construction and Mining	19	Pavers	750	43022.04118	0.314334979	0.013464061	0.017787809	43022.04118	0.314334979	0.013464061	0.017787809	376.2679193	376.2679193	0.882357634	1.67	0.07	0.09	0.07	114.34
2014	SC	Construction and Mining	20	Paving Equipment	50	138405.4903	1.967924525	0.168473869	0.341800457	138408.8368	1.955060697	0.16475534	0.328306377	27672.88199	27672.88199	65.18946121	0.14	0.01	0.02	0.01	5.00
2014	SC	Construction and Mining	20	Paving Equipment	120	629020.0291	12.12466438	0.926012139	1.068887591	628846.9513	11.99727253	0.914995791	1.053526339	54311.33903	54311.33903	133.0217384	0.45	0.03	0.04	0.03	11.58
2014	SC	Construction and Mining	20	Paving Equipment	175	592496.4321	9.356903319	0.449699464	0.616103796	592495.571	9.310713789	0.444176101	0.612450111	30730.2772	30730.2772	72.67743986	0.61	0.03	0.04	0.03	19.28
2014	SC	Construction and Mining	20	Paving Equipment	250	310797.3278	4.978826679	0.180571363	0.282707596	310816.0468	4.462310328	0.147770591	0.239123875	11053.07619	11053.07619	26.42815995	0.90	0.03	0.05	0.03	28.12
2014	SC	Construction and Mining	20	Paving Equipment	500	438276.3265	6.144458674	0.220008665	0.344740767	438227.0231	6.116913781	0.217866448	0.343595364	9992.115393	9992.115393	23.78534395	1.23	0.04	0.07	0.04	43.86
2014	SC	Construction and Mining	20	Paving Equipment	750	207840.5829	2.459275403	0.056594975	0.112446718	207840.5829	2.459275403	0.056594975	0.112446718	2635.177393	2635.177393	5.726101322	1.87	0.04	0.09	0.04	78.87
2014	SC	Construction and Mining	20	Paving Equipment	1000	40644.22115	0.557528717	0.013486739	0.022009607	40644.22115	0.557528717	0.013486739	0.022009607	369.9511979	369.9511979	0.880938665	3.01	0.07	0.12	0.07	109.86
2014	SC	Construction and Mining	21	Rollers	50	2284238.567	33.30203375	2.996870195	6.711637103	2284141.805	33.19837428	2.976754015	6.654525919	417160.9243	417160.9243	1337.521701	0.16	0.01	0.03	0.01	5.48
2014	SC	Construction and Mining	21	Rollers	120	3568014.896	68.96216089	5.148884376	6.219880408	3568447.206	68.20869379	5.079375616	6.13049336	297110.9109	297110.9109	997.4738109	0.46	0.03	0.04	0.03	12.01
2014	SC	Construction and Mining	21	Rollers	175	3689552.867	53.21465536	2.485881731	3.44697031	3689309.319	52.34910172	2.428026757	3.369113893	186362.9282	186362.9282	576.7212216	0.57	0.03	0.04	0.02	19.80
2014	SC	Construction and Mining	21	Rollers	250	582222.1088	9.210085574	0.326414998	0.532694855	582257.6948	9.428415009	0.33402711	0.549691345	19783.89639	19783.89639	70.72996114	0.93	0.03	0.05	0.03	29.43
2014	SC	Construction and Mining	21	Rollers	500	366834.8513	6.414308404	0.264182305	0.402254447	366834.8513	5.651719922	0.219747445	0.340455798	7872.837692	7872.837692	29.01741995	1.63	0.07	0.10	0.06	46.59
2014	SC	Construction and Mining	21	Rollers	750	17923.4909	0.462332574	0.017217827	0.02732069	17923.4909	0.462332574	0.017217827	0.02732069	249.7018827	249.7018827	0.906794374	3.70	0.14	0.22	0.13	71.78
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	50	116337.9977	1.639869996	0.136767847	0.306516431	116337.9977	1.639869996	0.136767847	0.306516431	14974.85542	14974.85542	60.74962186	0.22	0.02	0.04	0.02	7.77
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	120	9356548.812	126.3925872	7.412706562	8.247911301	9356003.383	125.3859828	7.324458686	8.13542711	657544.93	657544.93	2602.807075	0.38	0.02	0.03	0.02	14.23
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	175	1720384.675	19.239256	0.759565967	1.001042288	1720384.675	18.59315271	0.721376665	0.946461222	90077.96414	90077.96414	348.2629184	0.43	0.02	0.02	0.02	19.10
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	250	141538.223	2.590192029	0.114611146	0.175264305	141502.7293	1.265343196	0.036935967	0.065267161	4594.301698	4594.301698	20.42444183	1.13	0.05	0.08	0.05	30.80
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	500	59958.07586	0.844470243	0.025822658	0.042878474	59958.07586	0.636395662	0.013846461	0.025567093	1097.539671	1097.539671	4.713332731	1.54	0.05	0.08	0.04	54.63
2014	SC	Construction and Mining	22	Rough Terrain Forklifts	750	9381.914822	0.424921298	0.022591277	0.034028512	9381.914822	0.036847315	0.000250032	0.001830328	101.7464701	101.7464701	0.523703637	8.35	0.44	0.67	0.41	92.21
2014	SC	Construction and Mining	23	Rubber Tired Dozers	50	100113.8586	1.825874234	0.240592807	0.671815695	100113.8586	1.825874234	0.240592807	0.671815695	15145.88496	15145.88496	17.70193403	0.24	0.03	0.09	0.03	6.61
2014	SC	Construction and Mining	23	Rubber Tired Dozers	120	477801.5906	13.62296507	1.219299521	1.448949031	477801.5906	13.62296507	1.219299521	1.448949031	40023.5387	40023.5387	52.67404759	0.68	0.06	0.07	0.06	11.94
2014	SC	Construction and Mining	23	Rubber Tired Dozers	175	400137.9513	11.78024118	0.674103551	0.951164533	400137.9513	11.78024118	0.674103551	0.951164533	18366.27558	18366.27558	27.20053277	1.28	0.07	0.10	0.07	21.79
2014	SC	Construction and Mining	23	Rubber Tired Dozers	250	417409.83	9.930058307	0.488863248	0.742511081	417409.83	9.930058307	0.488863248	0.742511081	13548.87194	13548.87194	21.15596993	1.47	0.07	0.11	0.07	30.81
2014	SC	Construction and Mining	23	Rubber Tired Dozers	500	4782569.092	114.9365885	5.364799564	8.337488678	4780009.037	113.9197692	5.311519516	8.26324361	91635.48673	91635.48673	141.1837177	2.51	0.12	0.18	0.11	52.16

CARB Offroad 2011 module output

						Ton/year			lb/yr					hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2014	SC	Construction and Mining	23	Rubber Tired Dozers	750	562096.1294	12.63703592	0.464537981	0.757241986	562096.1294	12.03948541	0.434020464	0.714344265	6618.545118	6618.545118	8.635089769	3.82	0.14	0.23	0.13	84.93
2014	SC	Construction and Mining	24	Rubber Tired Loaders	50	316927.7511	5.27757401	0.586723206	1.516806665	316920.1497	5.233410053	0.579464537	1.49848213	51565.28184	51565.28184	66.60281118	0.20	0.02	0.06	0.02	6.15
2014	SC	Construction and Mining	24	Rubber Tired Loaders	120	7724494.578	169.7402851	14.76921414	17.12268687	7717397.074	167.4035297	14.53283252	16.84040625	683442.4323	683442.4323	828.0349498	0.50	0.04	0.05	0.04	11.29
2014	SC	Construction and Mining	24	Rubber Tired Loaders	175	18326312.39	348.2431477	19.53741039	27.81041605	18328018.1	345.8504743	19.31708012	27.57669532	921783.9575	921783.9575	1084.995796	0.76	0.04	0.06	0.04	19.88
2014	SC	Construction and Mining	24	Rubber Tired Loaders	250	25257968.19	420.59786	14.32449182	25.74608429	25255888.16	418.8316277	14.23763326	25.61006215	928111.8228	928111.8228	964.3907052	0.91	0.03	0.06	0.03	27.21
2014	SC	Construction and Mining	24	Rubber Tired Loaders	500	32978431.16	531.940512	20.24272779	35.71356045	32944971.58	518.1370458	19.52553916	34.71549275	782365.9589	782365.9589	895.987818	1.36	0.05	0.09	0.05	42.11
2014	SC	Construction and Mining	24	Rubber Tired Loaders	750	5811683.292	86.44760795	3.421684672	6.03996912	5810918.137	86.80635077	3.43030891	6.055833099	75351.91777	75351.91777	79.20334303	2.29	0.09	0.16	0.08	77.12
2014	SC	Construction and Mining	24	Rubber Tired Loaders	1000	1694285.665	34.14794029	0.995079848	1.745365103	1694285.665	34.14540111	0.994889677	1.744188722	15287.75605	15287.75605	14.40060782	4.47	0.13	0.23	0.12	110.83
2014	SC	Construction and Mining	24	Rubber Tired Loaders	9999	673693.484	12.96066997	0.37398186	0.698798065	673693.484	12.96066997	0.37398186	0.698798065	3358.035953	3358.035953	3.150132961	7.72	0.22	0.42	0.20	200.62
2014	SC	Construction and Mining	25	Scrapers	50	7266.76704	0.132452869	0.017660035	0.051942431	7266.76704	0.132452869	0.017660035	0.051942431	1025.883945	1025.883945	3.113420032	0.26	0.03	0.10	0.03	7.08
2014	SC	Construction and Mining	25	Scrapers	120	331861.0565	6.865729272	0.511347037	0.577373896	331861.0565	6.865729272	0.511347037	0.577373896	21670.71129	21670.71129	44.92220332	0.63	0.05	0.05	0.04	15.31
2014	SC	Construction and Mining	25	Scrapers	175	3502878.176	82.86151951	4.398275723	6.231498625	3502297.006	81.98304101	4.342017945	6.154187851	117341.9718	117341.9718	288.6585144	1.41	0.07	0.11	0.07	29.85
2014	SC	Construction and Mining	25	Scrapers	250	4024583.263	109.5652193	5.023000254	7.63843553	4022262.294	107.2805343	4.90424132	7.461814202	101732.4871	101732.4871	280.2078029	2.15	0.10	0.15	0.09	39.54
2014	SC	Construction and Mining	25	Scrapers	500	35252179.65	675.4109068	27.44811302	43.05682861	35247107.02	658.947153	26.5798684	41.82803011	521338.3253	521338.3253	1231.58001	2.59	0.11	0.17	0.10	67.61
2014	SC	Construction and Mining	25	Scrapers	750	16135190.29	248.6795406	9.532574927	15.19610122	16133616.79	242.5422932	9.17074132	14.74998301	161069.2664	161069.2664	350.926915	3.09	0.12	0.19	0.11	100.17
2014	SC	Construction and Mining	25	Scrapers	1000	252246.1083	10.14630971	0.473058053	0.734898303	252246.1083	10.14630971	0.473058053	0.734898303	1499.779821	1499.779821	5.782065773	13.53	0.63	0.98	0.58	168.19
2014	SC	Construction and Mining	25	Scrapers	9999	916856.2526	19.71118557	0.73914957	1.134446728	916856.2526	19.71118557	0.73914957	1.134446728	2635.029555	2635.029555	5.782065773	14.96	0.56	0.86	0.52	347.95
2014	SC	Construction and Mining	26	Skid Steer Loaders	50	1726224.406	21.19052263	1.344332599	2.592712926	1726372.807	21.07915181	1.32603524	2.549179332	262908.35	262908.35	926.6094578	0.16	0.01	0.02	0.01	6.57
2014	SC	Construction and Mining	26	Skid Steer Loaders	120	9175603.408	110.8375975	6.49346185	6.956198058	9174428.804	110.4998973	6.457158487	6.919173559	960973.5668	960973.5668	2990.233496	0.23	0.01	0.01	0.01	9.55
2014	SC	Construction and Mining	26	Skid Steer Loaders	175	62030.07698	0.779365588	0.035528311	0.047000548	62030.07698	0.779365588	0.035528311	0.047000548	3020.223957	3020.223957	12.40379542	0.52	0.02	0.03	0.02	20.54
2014	SC	Construction and Mining	26	Skid Steer Loaders	250	47721.08829	0.511779879	0.018169169	0.028652477	47701.6504	0.534951391	0.019255085	0.030382031	1785.592618	1785.592618	6.890997455	0.57	0.02	0.03	0.02	26.71
2014	SC	Construction and Mining	26	Skid Steer Loaders	500	13087.93737	0.12398366	0.004361853	0.007553222	13087.93737	0.12398366	0.004361853	0.007553222	359.2008474	359.2008474	1.378199491	0.69	0.02	0.04	0.02	36.44
2014	SC	Construction and Mining	26	Skid Steer Loaders	750	13806.04904	0.099491944	0.004117431	0.004884143	13806.04904	0.099491944	0.004117431	0.004884143	192.6149471	192.6149471	0.45939983	1.03	0.04	0.05	0.04	71.68
2014	SC	Construction and Mining	26	Skid Steer Loaders	1000	22528.99386	0.559290237	0.020023678	0.035668469	22528.99386	0.259226414	0.008119558	0.012298867	166.5859003	166.5859003	0.918799661	6.71	0.24	0.43	0.22	135.24
2014	SC	Construction and Mining	27	Surfacing Equipment	50	15899.35099	0.229699266	0.018384171	0.03992917	15899.35099	0.229699266	0.018384171	0.03992917	3571.789006	3571.789006	16.25405385	0.13	0.01	0.02	0.01	4.45
2014	SC	Construction and Mining	27	Surfacing Equipment	120	124966.1827	2.073997248	0.147019845	0.173545861	124966.1827	2.073216834	0.146768877	0.17350668	12742.81902	12742.81902	52.09632643	0.33	0.02	0.03	0.02	9.81
2014	SC	Construction and Mining	27	Surfacing Equipment	175	64728.62485	1.114146495	0.053703558	0.076159096	64738.99613	1.112343475	0.053101728	0.075989184	3881.428472	3881.428472	17.50436568	0.57	0.03	0.04	0.03	16.68
2014	SC	Construction and Mining	27	Surfacing Equipment	250	137304.1752	2.150805444	0.064863756	0.108453141	137303.9479	2.084579212	0.061002629	0.103343488	5690.100565	5690.100565	26.25654852	0.76	0.02	0.04	0.02	24.13
2014	SC	Construction and Mining	27	Surfacing Equipment	500	434191.9903	5.109720162	0.164622989	0.256985236	434191.9903	5.109720162	0.164622989	0.256985236	10892.83316	10892.83316	43.34414359	0.94	0.03	0.05	0.03	39.86
2014	SC	Construction and Mining	27	Surfacing Equipment	750	402076.3086	3.968821557	0.124680481	0.173502653	402076.3086	3.968821557	0.124680481	0.173502653	5911.417637	5911.417637	21.67207179	1.34	0.04	0.06	0.04	68.02
2014	SC	Construction and Mining	27	Surfacing Equipment	1000	65506.01308	1.124498953	0.027455427	0.048214997	65506.01308	1.124498953	0.027455427	0.048214997	724.4337405	724.4337405	2.91739428	3.10	0.08	0.13	0.07	90.42
2014	SC	Construction and Mining	27	Surfacing Equipment	9999	22960.37034	0.268305779	0.006040723	0.00940751	22960.37034	0.268305779	0.006040723	0.00940751	184.7686554	184.7686554	0.833541223	2.90	0.07	0.10	0.06	124.27

CARB Offroad 2011 module output

						Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	50	3414963.252	50.80680026	4.662347238	10.58200246	3415447.43	50.44624718	4.587281716	10.37209577	603893.5766	603893.5766	1296.719845	0.17	0.02	0.04	0.01	5.66
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	120	55198742.69	918.6119185	72.32266411	79.37675602	55184562.88	913.7418462	71.77988133	78.77335998	4876841.326	4876841.326	8804.592204	0.38	0.03	0.03	0.03	11.32
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	175	9537028.268	143.4795142	7.240613913	10.18197411	9536981.377	142.201755	7.151874059	10.06532278	492558.9548	492558.9548	984.9649	0.58	0.03	0.04	0.03	19.36
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	250	5526986.302	82.72954773	2.685926058	4.553782056	5526135.921	81.92395389	2.642356659	4.49718526	200657.593	200657.593	393.98596	0.82	0.03	0.05	0.02	27.54
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	500	7436828.491	100.8305471	3.421566896	5.815991645	7437540.513	100.1683508	3.388270202	5.758700748	171623.8264	171623.8264	355.5813653	1.18	0.04	0.07	0.04	43.34
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	750	1052538.595	13.55416597	0.490658394	0.804303127	1052538.595	13.55416597	0.490658394	0.804303127	13684.66061	13684.66061	24.85003188	1.98	0.07	0.12	0.07	76.91
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	1000	177705.7222	2.004946997	0.044475494	0.073806209	177705.7222	2.004946997	0.044475494	0.073806209	1492.414296	1492.414296	2.259093807	2.69	0.06	0.10	0.05	119.07
2014	SC	Construction and Mining	28	Tractors/Loaders/Backhoes	9999	2492541.005	40.24275625	1.206522668	1.997574277	2492541.005	41.23981602	1.269877522	2.090560246	9175.714639	9175.714639	16.71729417	8.77	0.26	0.44	0.24	271.65
2014	SC	Construction and Mining	29	Trenchers	50	1210781.944	17.77257439	1.633961125	3.426637877	1210782.172	17.74160958	1.627737842	3.407806336	147601.8242	147601.8242	425.239037	0.24	0.02	0.05	0.02	8.20
2014	SC	Construction and Mining	29	Trenchers	120	877699.6555	19.09810461	1.494088877	1.795340427	877376.0222	18.86843491	1.471637138	1.767665726	57519.45207	57519.45207	197.1562808	0.66	0.05	0.06	0.05	15.25
2014	SC	Construction and Mining	29	Trenchers	175	178898.6333	4.294980119	0.221947777	0.320649222	178974.1658	4.17508965	0.214278644	0.310439366	6804.680342	6804.680342	26.09421364	1.26	0.07	0.09	0.06	26.30
2014	SC	Construction and Mining	29	Trenchers	250	350655.2414	6.838093742	0.272741833	0.432437389	350594.7712	6.81390997	0.270978755	0.431424556	8685.585749	8685.585749	30.92647542	1.57	0.06	0.10	0.06	40.37
2014	SC	Construction and Mining	29	Trenchers	500	589212.175	7.777661223	0.286717411	0.449898926	589212.175	7.777661223	0.286717411	0.449898926	8961.871838	8961.871838	28.02711835	1.74	0.06	0.10	0.06	65.75
2014	SC	Construction and Mining	29	Trenchers	750	267093.8198	1.455568161	0.048873138	0.077552266	267093.8198	1.455568161	0.048873138	0.077552266	2325.221325	2325.221325	5.798714141	1.25	0.04	0.07	0.04	114.87
2014	SC	Construction and Mining	29	Trenchers	1000	15774.7854	0.621175349	0.028131927	0.044248369	15774.7854	0.621175349	0.028131927	0.044248369	99.46330321	99.46330321	0.483226178	12.49	0.57	0.89	0.52	158.60
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	50	1052699.808	16.41165797	1.724013724	4.179476656	1052699.808	16.34144848	1.712690599	4.150144262	158978.6635	158978.6635	249.6016628	0.21	0.02	0.05	0.02	6.62
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	120	1626982.465	34.39384081	3.036888749	3.430772512	1626982.465	33.73684428	2.96968673	3.348137446	124966.3346	124966.3346	203.2155131	0.55	0.05	0.05	0.04	13.02
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	175	405834.4163	11.49993449	0.638962135	0.91684861	405834.4163	11.07707696	0.612067132	0.879934443	15185.68694	15185.68694	23.41396129	1.51	0.08	0.12	0.08	26.72
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	250	216293.3865	4.373129359	0.173065792	0.272045519	216293.3865	4.373129359	0.173065792	0.272045519	6354.346484	6354.346484	9.719002801	1.38	0.05	0.09	0.05	34.04
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	500	60343.02593	1.091480205	0.047154399	0.068489013	60343.02593	1.091480205	0.047154399	0.068489013	1193.031541	1193.031541	1.767091418	1.83	0.08	0.11	0.07	50.58
2014	SC	Construction and Mining	36	Sweepers/Scrubbers	1000	42289.98842	0.512230607	0.013027716	0.016644956	42289.98842	0.512230607	0.013027716	0.016644956	298.2578853	298.2578853	0.441772855	3.43	0.09	0.11	0.08	141.79
2014	SC	Industrial	30	Aerial Lifts	50	2392306.741	26.49651417	1.022904062	1.397085721	2392306.741	26.45715035	1.018633636	1.390520832	412368.9273	412368.9273	1512.886377	0.13	0.00	0.01	0.00	5.80
2014	SC	Industrial	30	Aerial Lifts	120	4174292.302	42.49967989	2.034403865	2.116165735	4174292.302	42.28182521	2.01586262	2.096211532	498523.3905	498523.3905	1832.741543	0.17	0.01	0.01	0.01	8.37
2014	SC	Industrial	30	Aerial Lifts	175	255115.9613	2.471498674	0.101542385	0.123112652	255115.9613	2.471498674	0.101542385	0.123112652	17288.22402	17288.22402	63.54265577	0.29	0.01	0.01	0.01	14.76
2014	SC	Industrial	30	Aerial Lifts	250	9279.665385	0.329277768	0.017110188	0.025242345	9279.665385	0.329277768	0.017110188	0.025242345	390.6738325	390.6738325	1.427924849	1.69	0.09	0.13	0.08	23.75
2014	SC	Industrial	30	Aerial Lifts	500	16791.77546	0.232197846	0.005105252	0.009907866	16791.77546	0.232118822	0.00510373	0.009845104	390.6738325	390.6738325	1.427924849	1.19	0.03	0.05	0.02	42.98
2014	SC	Industrial	31	Forklifts	50	1610118.533	26.28745468	2.897608734	7.740768702	1610118.533	26.09281351	2.851385778	7.588355671	462340.0557	462340.0557	701.2132481	0.11	0.01	0.03	0.01	3.48
2014	SC	Industrial	31	Forklifts	120	19397719.51	405.7183471	33.99583663	39.03437228	19397719.51	399.4456132	33.46382214	38.29704028	3196046.009	3196046.009	4681.90234	0.25	0.02	0.02	0.02	6.07
2014	SC	Industrial	31	Forklifts	175	6125020.543	121.2091074	6.625377622	9.181352549	6125020.543	116.8456103	6.347926872	8.789958273	587630.469	587630.469	868.6931065	0.41	0.02	0.03	0.02	10.42
2014	SC	Industrial	31	Forklifts	250	1294042.099	30.07698299	1.395874556	2.125433862	1294042.099	28.20450523	1.27941611	1.969047055	84049.4521	84049.4521	124.5957424	0.72	0.03	0.05	0.03	15.40
2014	SC	Industrial	31	Forklifts	500	378343.7486	8.038760781	0.37745132	0.571356282	378343.7486	7.195178694	0.327432968	0.506720682	14872.66772	14872.66772	22.60108816	1.08	0.05	0.08	0.05	25.44
2014	SC	Industrial	31	Forklifts	1000	26699.59212	1.252655475	0.069957549	0.103169486	26699.59212	1.252655475	0.069957549	0.103169486	411.3010641	411.3010641	0.579515081	6.09	0.34	0.50	0.31	64.91
2014	SC	Industrial	32	Other General Industrial Equipment	50	3462688.36	52.14808155	5.082801899	11.7496855	3462688.36	52.09882809	5.074649469	11.7289567	705720.2441	705720.2441	935.4509884	0.15	0.01	0.03	0.01	4.91

CARB Offroad 2011 module output

						Ton/year			lb/yr				hr/yr			Emissions per Equipment (lb/hr)				lb/hr
Calendar Year	AirBasin	Equipment Class	EquipmentTypeID	Equipment Type	HorsepowerBin	BaseBSFC	BaseNOx	BasePM	BaseHC	ScenBSFC	ScenNOx	ScenPM	ScenHC	BaseActivity	ScenActivity	Population	NOx	PM	HC	PM2.5	BSFC per equipment
2014	SC	Industrial	32	Other General Industrial Equipment	120	2800506.134	57.83872362	4.940619502	5.628600598	2800506.134	56.79598561	4.848785007	5.506419944	306446.6337	306446.6337	410.5732831	0.38	0.03	0.04	0.03	9.14
2014	SC	Industrial	32	Other General Industrial Equipment	175	1290978.648	23.16138222	1.258634213	1.743359783	1290978.648	22.46717647	1.209515687	1.675293712	69049.87257	69049.87257	90.2133556	0.67	0.04	0.05	0.03	18.70
2014	SC	Industrial	32	Other General Industrial Equipment	250	1177817.591	22.09961006	0.918407927	1.451796507	1177817.591	21.71217661	0.898291906	1.422159848	44815.13371	44815.13371	60.9965302	0.99	0.04	0.06	0.04	26.28
2014	SC	Industrial	32	Other General Industrial Equipment	500	3640298.64	51.29141974	1.964744649	3.316884408	3640298.64	49.82036666	1.882057713	3.200129396	81685.85978	81685.85978	106.6157839	1.26	0.05	0.08	0.04	44.56
2014	SC	Industrial	32	Other General Industrial Equipment	750	1316753.184	14.90761372	0.489982133	0.884920118	1316753.184	14.2820282	0.454843873	0.833447181	17697.50549	17697.50549	23.57849067	1.68	0.06	0.10	0.05	74.40
2014	SC	Industrial	32	Other General Industrial Equipment	1000	134580.3581	2.578461208	0.067404305	0.115681363	134580.3581	2.578461208	0.067404305	0.115681363	1212.627368	1212.627368	1.537727652	4.25	0.11	0.19	0.10	110.98
2014	SC	Industrial	32	Other General Industrial Equipment	9999	101378.8008	1.328328256	0.034361028	0.054060625	101378.8008	1.328328256	0.034361028	0.054060625	404.2091227	404.2091227	0.512575884	6.57	0.17	0.27	0.16	250.81
2014	SC	Industrial	33	Other Material Handling Equipment	50	161933.3533	2.521357338	0.252107942	0.614211542	161933.3533	2.521357338	0.252107942	0.614211542	28145.72681	28145.72681	41.52791145	0.18	0.02	0.04	0.02	5.75
2014	SC	Industrial	33	Other Material Handling Equipment	120	1952992.298	31.53691157	2.417895016	2.709236666	1952992.298	31.40999167	2.409924561	2.696015264	144031.5978	144031.5978	208.8093576	0.44	0.03	0.04	0.03	13.56
2014	SC	Industrial	33	Other Material Handling Equipment	175	1085096.802	18.89576278	1.022860515	1.423936215	1085096.802	18.88872757	1.018958885	1.422533042	51719.14333	51719.14333	77.20682129	0.73	0.04	0.06	0.04	20.98
2014	SC	Industrial	33	Other Material Handling Equipment	250	1290895.405	25.44653908	1.030027217	1.643904809	1290895.405	23.96182959	0.93985561	1.524338081	40813.13097	40813.13097	61.41451693	1.25	0.05	0.08	0.05	31.63
2014	SC	Industrial	33	Other Material Handling Equipment	500	3066943.083	45.11838315	1.837810343	2.906473797	3066943.083	40.28187433	1.561470667	2.532386103	64035.85552	64035.85552	92.41422548	1.41	0.06	0.09	0.05	47.89
2014	SC	Industrial	33	Other Material Handling Equipment	750	419307.2839	4.347181452	0.147471353	0.239422261	419307.2839	4.347181452	0.147471353	0.239422261	5119.310537	5119.310537	7.018801935	1.70	0.06	0.09	0.05	81.91
2014	SC	Industrial	33	Other Material Handling Equipment	1000	57124.81521	0.387327539	0.003027301	0.007201176	57124.81521	0.387327539	0.003027301	0.007201176	426.6092114	426.6092114	0.584900161	1.82	0.01	0.03	0.01	133.90
2014	SC	Industrial	33	Other Material Handling Equipment	9999	129969.7854	1.341442195	0.025958721	0.045555402	129969.7854	1.341442195	0.025958721	0.045555402	853.2184229	853.2184229	1.169800323	3.14	0.06	0.11	0.06	152.33

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	15	Construction and Mining Equipment	Los Angeles	SC	2.78E+00	6.18E+00	2.92E+00	3.72E-05	1.95E-04	2.33E-04	3.19E-02	4.97E-07	9.03E-06	0.00E+00	3.35E-06	6.31E-02	1.61E-04
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	25	Construction and Mining Equipment	Los Angeles	SC	8.34E+00	1.85E+01	1.35E+01	1.79E-04	6.10E-04	1.14E-03	1.48E-01	1.88E-06	4.54E-05	0.00E+00	1.62E-05	6.59E-02	2.03E-04
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	50	Construction and Mining Equipment	Los Angeles	SC	3.64E+01	8.41E+01	1.19E+02	1.21E-03	9.58E-03	1.08E-02	1.30E+00	1.68E-05	5.03E-04	0.00E+00	1.10E-04	2.28E-01	4.00E-04
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	120	Construction and Mining Equipment	Los Angeles	SC	1.12E+02	2.58E+02	9.06E+02	5.76E-03	6.05E-02	5.91E-02	9.94E+00	1.17E-04	3.31E-03	0.00E+00	5.19E-04	4.69E-01	9.07E-04
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	175	Construction and Mining Equipment	Los Angeles	SC	2.58E+01	5.97E+01	3.83E+02	2.10E-03	2.25E-02	2.07E-02	4.21E+00	4.73E-05	8.98E-04	0.00E+00	1.89E-04	7.54E-01	1.58E-03
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	250	Construction and Mining Equipment	Los Angeles	SC	2.22E+01	5.13E+01	4.36E+02	2.04E-03	8.79E-03	1.96E-02	4.82E+00	5.43E-05	5.68E-04	0.00E+00	1.84E-04	3.43E-01	2.12E-03
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	500	Construction and Mining Equipment	Los Angeles	SC	4.95E+01	1.14E+02	1.61E+03	7.39E-03	3.15E-02	6.69E-02	1.78E+01	1.74E-04	2.07E-03	0.00E+00	6.67E-04	5.53E-01	3.05E-03
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	750	Construction and Mining Equipment	Los Angeles	SC	4.36E-01	1.01E+00	2.80E+01	1.29E-04	5.48E-04	1.18E-03	3.09E-01	3.11E-06	3.61E-05	0.00E+00	1.17E-05	1.09E+00	6.16E-03
2013	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	1000	Construction and Mining Equipment	Los Angeles	SC	7.31E-01	1.69E+00	7.07E+01	3.51E-04	1.40E-03	5.03E-03	7.82E-01	7.86E-06	1.30E-04	0.00E+00	3.17E-05	1.66E+00	9.30E-03
2013	Annual	Mon-Sun	2.3E+09	Cement and Mortar Mixers	15	Construction and Mining Equipment	Los Angeles	SC	1.42E+02	1.17E+02	3.37E+01	4.34E-04	2.25E-03	2.74E-03	3.69E-01	5.74E-06	1.25E-04	0.00E+00	3.92E-05	3.85E-02	9.81E-05
2013	Annual	Mon-Sun	2.3E+09	Cement and Mortar Mixers	25	Construction and Mining Equipment	Los Angeles	SC	1.28E+01	1.05E+01	8.42E+00	1.42E-04	4.27E-04	7.93E-04	9.22E-02	1.17E-06	4.37E-05	0.00E+00	1.28E-05	8.13E-02	2.23E-04
2013	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	25	Construction and Mining Equipment	Los Angeles	SC	1.11E+00	1.80E+00	1.35E+00	1.79E-05	6.12E-05	1.13E-04	1.49E-02	1.88E-07	4.39E-06	0.00E+00	1.62E-06	6.80E-02	2.09E-04
2013	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	50	Construction and Mining Equipment	Los Angeles	SC	9.73E+00	1.55E+01	2.16E+01	7.35E-04	2.25E-03	2.21E-03	2.33E-01	3.02E-06	1.90E-04	0.00E+00	6.63E-05	2.90E-01	3.90E-04
2013	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	120	Construction and Mining Equipment	Los Angeles	SC	1.70E+01	2.70E+01	9.14E+01	1.43E-03	6.51E-03	9.62E-03	9.99E-01	1.17E-05	7.90E-04	0.00E+00	1.29E-04	4.82E-01	8.67E-04
2013	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	175	Construction and Mining Equipment	Los Angeles	SC	5.56E-01	8.84E-01	6.45E+00	6.90E-05	3.84E-04	5.99E-04	7.07E-02	7.96E-07	3.10E-05	0.00E+00	6.22E-06	8.69E-01	1.80E-03
2013	Annual	Mon-Sun	2.3E+09	Cranes	50	Construction and Mining Equipment	Los Angeles	SC	9.45E+00	3.32E+01	3.59E+01	1.68E-03	4.79E-03	3.97E-03	3.84E-01	4.97E-06	3.96E-04	0.00E+00	1.51E-04	2.89E-01	2.99E-04
2013	Annual	Mon-Sun	2.3E+09	Cranes	120	Construction and Mining Equipment	Los Angeles	SC	1.04E+02	3.64E+02	8.37E+02	1.67E-02	6.58E-02	1.00E-01	9.12E+00	1.07E-04	8.93E-03	0.00E+00	1.50E-03	3.62E-01	5.88E-04
2013	Annual	Mon-Sun	2.3E+09	Cranes	175	Construction and Mining Equipment	Los Angeles	SC	1.04E+02	3.64E+02	1.34E+03	1.87E-02	8.77E-02	1.41E-01	1.46E+01	1.64E-04	8.07E-03	0.00E+00	1.69E-03	4.82E-01	9.01E-04
2013	Annual	Mon-Sun	2.3E+09	Cranes	250	Construction and Mining Equipment	Los Angeles	SC	2.01E+02	7.06E+02	3.59E+03	3.67E-02	1.04E-01	3.50E-01	3.95E+01	4.45E-04	1.24E-02	0.00E+00	3.31E-03	2.95E-01	1.26E-03
2013	Annual	Mon-Sun	2.3E+09	Cranes	500	Construction and Mining Equipment	Los Angeles	SC	7.36E+01	2.59E+02	2.11E+03	2.00E-02	6.85E-02	1.84E-01	2.33E+01	2.28E-04	6.70E-03	0.00E+00	1.81E-03	5.29E-01	1.76E-03
2013	Annual	Mon-Sun	2.3E+09	Cranes	750	Equipment	Los Angeles	SC	9.14E-01	3.21E+00	4.41E+01	4.21E-04	1.43E-03	3.93E-03	4.86E-01	4.89E-06	1.42E-04	0.00E+00	3.80E-05	8.91E-01	3.05E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Cranes	9999	Construction and Mining Equipment	Los Angeles	SC	1.15E+00	4.03E+00	1.78E+02	1.91E-03	6.73E-03	2.08E-02	1.95E+00	1.96E-05	6.42E-04	0.00E+00	1.73E-04	3.34E+00	9.73E-03
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	50	Construction and Mining Equipment	Los Angeles	SC	3.89E+00	1.12E+01	1.30E+01	6.53E-04	1.81E-03	1.46E-03	1.39E-01	1.79E-06	1.50E-04	0.00E+00	5.89E-05	3.23E-01	3.20E-04
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	120	Construction and Mining Equipment	Los Angeles	SC	2.21E+03	6.33E+03	1.91E+04	4.07E-01	1.54E+00	2.43E+00	2.08E+02	2.44E-03	2.13E-01	0.00E+00	3.68E-02	4.87E-01	7.71E-04
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	175	Construction and Mining Equipment	Los Angeles	SC	7.47E+02	2.14E+03	1.19E+04	1.78E-01	7.97E-01	1.34E+00	1.30E+02	1.46E-03	7.60E-02	0.00E+00	1.61E-02	7.45E-01	1.36E-03
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	250	Construction and Mining Equipment	Los Angeles	SC	6.42E+02	1.84E+03	1.39E+04	1.62E-01	4.61E-01	1.46E+00	1.53E+02	1.72E-03	5.65E-02	0.00E+00	1.46E-02	5.01E-01	1.87E-03
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	500	Construction and Mining Equipment	Los Angeles	SC	4.40E+02	1.26E+03	1.49E+04	1.60E-01	6.01E-01	1.41E+00	1.63E+02	1.60E-03	5.48E-02	0.00E+00	1.45E-02	9.54E-01	2.54E-03
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	750	Construction and Mining Equipment	Los Angeles	SC	3.75E-01	1.07E+00	2.27E+01	2.46E-04	9.18E-04	2.19E-03	2.50E-01	2.51E-06	8.45E-05	0.00E+00	2.22E-05	1.72E+00	4.69E-03
2013	Annual	Mon-Sun	2.3E+09	Crawler Tractors	1000	Construction and Mining Equipment	Los Angeles	SC	3.75E-01	1.07E+00	3.21E+01	3.71E-04	1.46E-03	3.95E-03	3.53E-01	3.55E-06	1.27E-04	0.00E+00	3.35E-05	2.73E+00	6.64E-03
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	50	Construction and Mining Equipment	Los Angeles	SC	4.45E+01	1.16E+02	2.38E+02	1.01E-02	2.91E-02	2.53E-02	2.56E+00	3.31E-05	2.45E-03	0.00E+00	9.10E-04	5.02E-01	5.71E-04
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	120	Construction and Mining Equipment	Los Angeles	SC	1.25E+02	3.28E+02	1.25E+03	2.29E-02	9.44E-02	1.40E-01	1.36E+01	1.60E-04	1.27E-02	0.00E+00	2.07E-03	5.76E-01	9.76E-04
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	175	Construction and Mining Equipment	Los Angeles	SC	5.31E+01	1.39E+02	1.06E+03	1.34E-02	6.67E-02	1.06E-01	1.16E+01	1.31E-04	5.97E-03	0.00E+00	1.21E-03	9.60E-01	1.88E-03
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	250	Construction and Mining Equipment	Los Angeles	SC	5.28E+00	1.38E+01	1.53E+02	1.27E-03	3.75E-03	1.39E-02	1.69E+00	1.90E-05	4.28E-04	0.00E+00	1.15E-04	5.43E-01	2.75E-03
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	500	Construction and Mining Equipment	Los Angeles	SC	2.97E+01	7.79E+01	1.32E+03	1.01E-02	3.30E-02	1.05E-01	1.45E+01	1.43E-04	3.44E-03	0.00E+00	9.15E-04	8.47E-01	3.67E-03
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	750	Construction and Mining Equipment	Los Angeles	SC	2.34E-02	6.13E-02	1.64E+00	1.27E-05	4.05E-05	1.36E-04	1.80E-02	1.81E-07	4.33E-06	0.00E+00	1.14E-06	1.32E+00	5.91E-03
2013	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	9999	Construction and Mining Equipment	Los Angeles	SC	2.34E-02	6.13E-02	3.64E+00	3.45E-05	1.13E-04	4.08E-04	4.01E-02	4.03E-07	1.19E-05	0.00E+00	3.12E-06	3.69E+00	1.31E-02
2013	Annual	Mon-Sun	2.3E+09	Dumpers/Tenders	25	Construction and Mining Equipment	Los Angeles	SC	6.67E+00	1.21E+01	4.20E+00	5.84E-05	1.94E-04	3.63E-04	4.61E-02	5.85E-07	1.75E-05	0.00E+00	5.27E-06	3.21E-02	9.67E-05
2013	Annual	Mon-Sun	2.3E+09	Excavators	25	Construction and Mining Equipment	Los Angeles	SC	1.03E+01	3.94E+01	2.94E+01	3.90E-04	1.33E-03	2.46E-03	3.23E-01	4.10E-06	9.23E-05	0.00E+00	3.52E-05	6.75E-02	2.08E-04
2013	Annual	Mon-Sun	2.3E+09	Excavators	50	Construction and Mining Equipment	Los Angeles	SC	3.87E+02	1.51E+03	1.75E+03	6.13E-02	2.14E-01	1.86E-01	1.89E+01	2.44E-04	1.60E-02	0.00E+00	5.53E-03	2.83E-01	3.23E-04
2013	Annual	Mon-Sun	2.3E+09	Excavators	120	Construction and Mining Equipment	Los Angeles	SC	1.05E+03	4.10E+03	1.38E+04	2.22E-01	1.06E+00	1.39E+00	1.51E+02	1.77E-03	1.20E-01	0.00E+00	2.00E-02	5.17E-01	8.63E-04
2013	Annual	Mon-Sun	2.3E+09	Excavators	175	Construction and Mining Equipment	Los Angeles	SC	2.03E+03	7.92E+03	4.05E+04	4.76E-01	2.64E+00	3.52E+00	4.44E+02	5.00E-03	2.02E-01	0.00E+00	4.29E-02	6.67E-01	1.26E-03
2013	Annual	Mon-Sun	2.3E+09	Excavators	250	Construction and Mining Equipment	Los Angeles	SC	8.25E+02	3.22E+03	2.31E+04	2.00E-01	5.70E-01	1.82E+00	2.55E+02	2.87E-03	5.98E-02	0.00E+00	1.80E-02	3.54E-01	1.78E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Excavators	500	Construction and Mining Equipment	Los Angeles	SC	5.95E+02	2.32E+03	2.46E+04	2.01E-01	6.12E-01	1.71E+00	2.71E+02	2.66E-03	5.99E-02	0.00E+00	1.82E-02	5.28E-01	2.29E-03
2013	Annual	Mon-Sun	2.3E+09	Excavators	750	Construction and Mining Equipment	Los Angeles	SC	2.20E-01	8.60E-01	1.51E+01	1.24E-04	3.76E-04	1.08E-03	1.66E-01	1.67E-06	3.73E-05	0.00E+00	1.12E-05	8.74E-01	3.88E-03
2013	Annual	Mon-Sun	2.3E+09	Graders	50	Construction and Mining Equipment	Los Angeles	SC	3.89E+00	1.01E+01	1.30E+01	5.45E-04	1.65E-03	1.40E-03	1.40E-01	1.80E-06	1.32E-04	0.00E+00	4.91E-05	3.27E-01	3.56E-04
2013	Annual	Mon-Sun	2.3E+09	Graders	120	Construction and Mining Equipment	Los Angeles	SC	2.60E+02	6.77E+02	2.32E+03	4.22E-02	1.79E-01	2.61E-01	2.53E+01	2.97E-04	2.27E-02	0.00E+00	3.81E-03	5.29E-01	8.77E-04
2013	Annual	Mon-Sun	2.3E+09	Graders	175	Construction and Mining Equipment	Los Angeles	SC	8.87E+02	2.31E+03	1.31E+04	1.69E-01	8.48E-01	1.29E+00	1.43E+02	1.61E-03	7.25E-02	0.00E+00	1.52E-02	7.34E-01	1.39E-03
2013	Annual	Mon-Sun	2.3E+09	Graders	250	Construction and Mining Equipment	Los Angeles	SC	5.50E+02	1.43E+03	1.12E+04	1.07E-01	3.11E-01	1.01E+00	1.23E+02	1.39E-03	3.54E-02	0.00E+00	9.64E-03	4.35E-01	1.94E-03
2013	Annual	Mon-Sun	2.3E+09	Graders	500	Construction and Mining Equipment	Los Angeles	SC	1.56E+01	4.06E+01	4.22E+02	3.76E-03	1.28E-02	3.41E-02	4.65E+00	4.56E-05	1.23E-03	0.00E+00	3.39E-04	6.31E-01	2.25E-03
2013	Annual	Mon-Sun	2.3E+09	Graders	750	Construction and Mining Equipment	Los Angeles	SC	1.41E-02	3.66E-02	8.07E-01	7.22E-06	2.44E-05	6.67E-05	8.89E-03	8.94E-08	2.39E-06	0.00E+00	6.52E-07	1.33E+00	4.89E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	120	Construction and Mining Equipment	Los Angeles	SC	2.78E-01	8.50E-01	3.66E+00	8.95E-05	3.05E-04	5.25E-04	3.98E-02	4.67E-07	4.56E-05	0.00E+00	8.08E-06	7.18E-01	1.10E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	175	Construction and Mining Equipment	Los Angeles	SC	3.40E+02	1.04E+03	6.20E+03	1.06E-01	4.33E-01	7.96E-01	6.77E+01	7.62E-04	4.51E-02	0.00E+00	9.56E-03	8.33E-01	1.47E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	250	Construction and Mining Equipment	Los Angeles	SC	3.21E+02	9.83E+02	5.83E+03	8.07E-02	2.31E-01	7.09E-01	6.40E+01	7.20E-04	2.96E-02	0.00E+00	7.28E-03	4.70E-01	1.46E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	750	Construction and Mining Equipment	Los Angeles	SC	2.35E+00	7.19E+00	1.86E+02	2.36E-03	1.04E-02	2.08E-02	2.04E+00	2.05E-05	8.48E-04	0.00E+00	2.13E-04	2.89E+00	5.70E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	1000	Construction and Mining Equipment	Los Angeles	SC	2.48E-01	7.59E-01	2.82E+01	3.73E-04	1.72E-03	3.81E-03	3.09E-01	3.10E-06	1.31E-04	0.00E+00	3.37E-05	4.53E+00	8.17E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	175	Construction and Mining Equipment	Los Angeles	SC	1.81E+01	9.86E+01	5.63E+02	7.07E-03	3.73E-02	5.06E-02	6.16E+00	6.93E-05	2.95E-03	0.00E+00	6.38E-04	7.57E-01	1.41E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	250	Construction and Mining Equipment	Los Angeles	SC	1.33E+02	7.28E+02	5.49E+03	5.09E-02	1.40E-01	4.49E-01	6.06E+01	6.82E-04	1.50E-02	0.00E+00	4.59E-03	3.85E-01	1.87E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	500	Construction and Mining Equipment	Los Angeles	SC	1.88E+02	1.03E+03	1.27E+04	1.11E-01	3.26E-01	9.14E-01	1.40E+02	1.37E-03	3.24E-02	0.00E+00	1.00E-02	6.33E-01	2.66E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	750	Construction and Mining Equipment	Los Angeles	SC	2.95E+00	1.61E+01	3.22E+02	2.84E-03	8.30E-03	2.39E-02	3.55E+00	3.57E-05	8.38E-04	0.00E+00	2.57E-04	1.03E+00	4.43E-03
2013	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	1000	Construction and Mining Equipment	Los Angeles	SC	1.38E+00	7.54E+00	2.13E+02	2.06E-03	6.30E-03	2.25E-02	2.35E+00	2.37E-05	6.76E-04	0.00E+00	1.86E-04	1.67E+00	6.29E-03
2013	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	15	Construction and Mining Equipment	Los Angeles	SC	9.20E+01	1.74E+02	8.03E+01	1.02E-03	5.37E-03	6.41E-03	8.79E-01	1.37E-05	2.49E-04	0.00E+00	9.23E-05	6.17E-02	1.57E-04
2013	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	25	Construction and Mining Equipment	Los Angeles	SC	1.56E+01	2.94E+01	1.77E+01	2.35E-04	8.01E-04	1.49E-03	1.94E-01	2.47E-06	5.97E-05	0.00E+00	2.12E-05	5.45E-02	1.68E-04
2013	Annual	Mon-Sun	2.3E+09	Equipment	50	Equipment	Los Angeles	SC	2.39E+01	4.61E+01	5.95E+01	1.72E-03	6.09E-03	5.95E-03	6.44E-01	8.33E-06	4.70E-04	0.00E+00	1.55E-04	2.64E-01	3.61E-04

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	120	Construction and Mining Equipment	Los Angeles	SC	3.95E+01	7.61E+01	2.81E+02	3.80E-03	2.00E-02	2.66E-02	3.07E+00	3.60E-05	2.14E-03	0.00E+00	3.43E-04	5.26E-01	9.46E-04
2013	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	175	Construction and Mining Equipment	Los Angeles	SC	5.45E+01	1.05E+02	5.09E+02	4.88E-03	3.08E-02	4.19E-02	5.59E+00	6.29E-05	2.19E-03	0.00E+00	4.40E-04	5.87E-01	1.20E-03
2013	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	500	Construction and Mining Equipment	Los Angeles	SC	1.26E+02	2.44E+02	2.80E+03	1.77E-02	6.38E-02	1.85E-01	3.10E+01	3.04E-04	5.98E-03	0.00E+00	1.59E-03	5.23E-01	2.49E-03
2013	Annual	Mon-Sun	2.3E+09	Pavers	25	Construction and Mining Equipment	Los Angeles	SC	4.17E+00	9.38E+00	7.97E+00	1.16E-04	3.75E-04	7.03E-04	8.75E-02	1.11E-06	3.53E-05	0.00E+00	1.04E-05	8.00E-02	2.37E-04
2013	Annual	Mon-Sun	2.3E+09	Pavers	50	Construction and Mining Equipment	Los Angeles	SC	2.42E+02	5.54E+02	7.25E+02	3.77E-02	9.92E-02	8.15E-02	7.74E+00	1.00E-04	8.50E-03	0.00E+00	3.40E-03	3.58E-01	3.61E-04
2013	Annual	Mon-Sun	2.3E+09	Pavers	120	Construction and Mining Equipment	Los Angeles	SC	2.86E+02	6.53E+02	2.07E+03	4.51E-02	1.65E-01	2.72E-01	2.26E+01	2.65E-04	2.37E-02	0.00E+00	4.07E-03	5.05E-01	8.12E-04
2013	Annual	Mon-Sun	2.3E+09	Pavers	175	Construction and Mining Equipment	Los Angeles	SC	1.78E+02	4.06E+02	2.38E+03	3.59E-02	1.58E-01	2.79E-01	2.60E+01	2.93E-04	1.55E-02	0.00E+00	3.24E-03	7.78E-01	1.44E-03
2013	Annual	Mon-Sun	2.3E+09	Pavers	250	Construction and Mining Equipment	Los Angeles	SC	2.14E+01	4.89E+01	4.31E+02	5.06E-03	1.49E-02	4.75E-02	4.75E+00	5.34E-05	1.85E-03	0.00E+00	4.57E-04	6.09E-01	2.18E-03
2013	Annual	Mon-Sun	2.3E+09	Pavers	500	Construction and Mining Equipment	Los Angeles	SC	2.20E+01	5.02E+01	5.32E+02	5.71E-03	2.33E-02	5.28E-02	5.84E+00	5.74E-05	2.05E-03	0.00E+00	5.15E-04	9.28E-01	2.29E-03
2013	Annual	Mon-Sun	2.3E+09	Paving Equipment	25	Construction and Mining Equipment	Los Angeles	SC	7.23E+00	1.64E+01	9.44E+00	1.25E-04	4.27E-04	7.94E-04	1.04E-01	1.31E-06	3.18E-05	0.00E+00	1.13E-05	5.21E-02	1.60E-04
2013	Annual	Mon-Sun	2.3E+09	Paving Equipment	50	Construction and Mining Equipment	Los Angeles	SC	6.11E+00	1.40E+01	1.57E+01	8.14E-04	2.13E-03	1.76E-03	1.68E-01	2.17E-06	1.84E-04	0.00E+00	7.35E-05	3.04E-01	3.10E-04
2013	Annual	Mon-Sun	2.3E+09	Paving Equipment	120	Construction and Mining Equipment	Los Angeles	SC	8.81E+01	2.02E+02	5.05E+02	1.09E-02	3.99E-02	6.61E-02	5.50E+00	6.45E-05	5.77E-03	0.00E+00	9.87E-04	3.95E-01	6.39E-04
2013	Annual	Mon-Sun	2.3E+09	Paving Equipment	175	Construction and Mining Equipment	Los Angeles	SC	4.14E+01	9.49E+01	4.38E+02	6.56E-03	2.88E-02	5.12E-02	4.79E+00	5.39E-05	2.84E-03	0.00E+00	5.92E-04	6.07E-01	1.14E-03
2013	Annual	Mon-Sun	2.3E+09	Paving Equipment	250	Construction and Mining Equipment	Los Angeles	SC	1.17E+01	2.68E+01	1.49E+02	1.71E-03	5.04E-03	1.63E-02	1.63E+00	1.84E-05	6.25E-04	0.00E+00	1.54E-04	3.76E-01	1.37E-03
2013	Annual	Mon-Sun	2.3E+09	Plate Compactors	15	Construction and Mining Equipment	Los Angeles	SC	8.95E+01	1.47E+02	2.90E+01	3.69E-04	1.94E-03	2.31E-03	3.17E-01	4.94E-06	9.06E-05	0.00E+00	3.33E-05	2.64E-02	6.72E-05
2013	Annual	Mon-Sun	2.3E+09	Rollers	15	Construction and Mining Equipment	Los Angeles	SC	1.68E+02	3.20E+02	9.24E+01	1.18E-03	6.18E-03	7.37E-03	1.01E+00	1.57E-05	2.86E-04	0.00E+00	1.06E-04	3.86E-02	9.81E-05
2013	Annual	Mon-Sun	2.3E+09	Rollers	25	Construction and Mining Equipment	Los Angeles	SC	7.03E+01	1.34E+02	8.13E+01	1.08E-03	3.68E-03	6.85E-03	8.93E-01	1.13E-05	2.74E-04	0.00E+00	9.75E-05	5.49E-02	1.69E-04
2013	Annual	Mon-Sun	2.3E+09	Rollers	50	Construction and Mining Equipment	Los Angeles	SC	2.19E+02	4.21E+02	5.09E+02	2.15E-02	6.11E-02	5.43E-02	5.46E+00	7.06E-05	5.13E-03	0.00E+00	1.94E-03	2.90E-01	3.35E-04
2013	Annual	Mon-Sun	2.3E+09	Rollers	120	Construction and Mining Equipment	Los Angeles	SC	1.17E+03	2.26E+03	6.10E+03	1.11E-01	4.58E-01	7.05E-01	6.66E+01	7.81E-04	6.00E-02	0.00E+00	1.00E-02	4.05E-01	6.91E-04
2013	Annual	Mon-Sun	2.3E+09	Rollers	175	Construction and Mining Equipment	Los Angeles	SC	4.72E+02	9.09E+02	4.48E+03	5.64E-02	2.81E-01	4.58E-01	4.91E+01	5.52E-04	2.49E-02	0.00E+00	5.09E-03	6.18E-01	1.21E-03
2013	Annual	Mon-Sun	2.3E+09	Rollers	250	Equipment	Los Angeles	SC	6.70E+01	1.29E+02	8.94E+02	8.12E-03	2.51E-02	8.43E-02	9.86E+00	1.11E-04	2.90E-03	0.00E+00	7.33E-04	3.89E-01	1.72E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Rollers	500	Construction and Mining Equipment	Los Angeles	SC	4.70E+01	9.04E+01	8.98E+02	7.47E-03	2.86E-02	7.59E-02	9.89E+00	9.71E-05	2.68E-03	0.00E+00	6.74E-04	6.33E-01	2.15E-03
2013	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	50	Construction and Mining Equipment	Los Angeles	SC	3.08E+01	9.59E+01	1.51E+02	5.63E-03	1.81E-02	1.59E-02	1.62E+00	2.10E-05	1.43E-03	0.00E+00	5.08E-04	3.77E-01	4.38E-04
2013	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	120	Construction and Mining Equipment	Los Angeles	SC	1.48E+03	4.59E+03	1.31E+04	2.18E-01	9.92E-01	1.37E+00	1.43E+02	1.68E-03	1.21E-01	0.00E+00	1.97E-02	4.32E-01	7.32E-04
2013	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	175	Construction and Mining Equipment	Los Angeles	SC	1.89E+02	5.88E+02	3.35E+03	3.95E-02	2.13E-01	3.06E-01	3.67E+01	4.13E-04	1.73E-02	0.00E+00	3.57E-03	7.24E-01	1.40E-03
2013	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	250	Construction and Mining Equipment	Los Angeles	SC	1.06E+01	3.28E+01	2.54E+02	2.12E-03	6.23E-03	2.12E-02	2.80E+00	3.15E-05	6.81E-04	0.00E+00	1.91E-04	3.80E-01	1.92E-03
2013	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	500	Construction and Mining Equipment	Los Angeles	SC	6.95E+00	2.16E+01	2.51E+02	1.97E-03	6.17E-03	1.84E-02	2.77E+00	2.72E-05	6.30E-04	0.00E+00	1.77E-04	5.71E-01	2.52E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	175	Construction and Mining Equipment	Los Angeles	SC	2.78E+00	1.24E+01	7.34E+01	1.31E-03	5.24E-03	9.62E-03	8.02E-01	9.02E-06	5.51E-04	0.00E+00	1.18E-04	8.45E-01	1.45E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	250	Construction and Mining Equipment	Los Angeles	SC	6.81E+01	3.04E+02	2.54E+03	3.70E-02	1.04E-01	3.16E-01	2.78E+01	3.13E-04	1.34E-02	0.00E+00	3.34E-03	6.84E-01	2.06E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	500	Construction and Mining Equipment	Los Angeles	SC	1.05E+02	4.67E+02	5.64E+03	7.51E-02	3.34E-01	6.38E-01	6.18E+01	6.07E-04	2.65E-02	0.00E+00	6.78E-03	1.43E+00	2.60E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	750	Construction and Mining Equipment	Los Angeles	SC	6.23E-01	2.78E+00	5.05E+01	6.75E-04	2.99E-03	5.79E-03	5.54E-01	5.57E-06	2.39E-04	0.00E+00	6.09E-05	2.15E+00	4.01E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	1000	Construction and Mining Equipment	Los Angeles	SC	4.22E-02	1.88E-01	5.08E+00	7.06E-05	3.25E-04	7.00E-04	5.56E-02	5.59E-07	2.44E-05	0.00E+00	6.37E-06	3.46E+00	5.95E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	25	Construction and Mining Equipment	Los Angeles	SC	3.89E+00	1.02E+01	7.86E+00	1.04E-04	3.56E-04	6.59E-04	8.63E-02	1.10E-06	2.55E-05	0.00E+00	9.40E-06	6.98E-02	2.16E-04
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	50	Construction and Mining Equipment	Los Angeles	SC	7.56E+01	2.02E+02	2.93E+02	1.21E-02	3.67E-02	3.15E-02	3.15E+00	4.07E-05	2.94E-03	0.00E+00	1.09E-03	3.63E-01	4.03E-04
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	120	Construction and Mining Equipment	Los Angeles	SC	2.06E+03	5.50E+03	1.48E+04	2.65E-01	1.14E+00	1.65E+00	1.62E+02	1.90E-03	1.43E-01	0.00E+00	2.39E-02	4.15E-01	6.91E-04
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	175	Construction and Mining Equipment	Los Angeles	SC	1.16E+03	3.10E+03	1.50E+04	1.91E-01	9.71E-01	1.47E+00	1.65E+02	1.85E-03	8.24E-02	0.00E+00	1.72E-02	6.26E-01	1.19E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	250	Construction and Mining Equipment	Los Angeles	SC	1.15E+03	3.08E+03	2.08E+04	1.94E-01	5.68E-01	1.86E+00	2.29E+02	2.58E-03	6.41E-02	0.00E+00	1.75E-02	3.69E-01	1.68E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	500	Construction and Mining Equipment	Los Angeles	SC	4.79E+02	1.28E+03	1.38E+04	1.20E-01	4.10E-01	1.10E+00	1.52E+02	1.49E-03	3.93E-02	0.00E+00	1.08E-02	6.41E-01	2.33E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	750	Construction and Mining Equipment	Los Angeles	SC	5.67E-01	1.52E+00	3.34E+01	2.91E-04	9.94E-04	2.72E-03	3.68E-01	3.70E-06	9.64E-05	0.00E+00	2.63E-05	1.31E+00	4.87E-03
2013	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	1000	Construction and Mining Equipment	Los Angeles	SC	6.09E-02	1.63E-01	4.38E+00	4.22E-05	1.50E-04	4.84E-04	4.83E-02	4.85E-07	1.46E-05	0.00E+00	3.81E-06	1.84E+00	5.95E-03
2013	Annual	Mon-Sun	2.3E+09	Scrapers	120	Construction and Mining Equipment	Los Angeles	SC	1.08E+01	3.30E+01	1.42E+02	3.09E-03	1.15E-02	1.84E-02	1.55E+00	1.82E-05	1.62E-03	0.00E+00	2.79E-04	6.97E-01	1.10E-03
2013	Annual	Mon-Sun	2.3E+09	Scrapers	175	Construction Equipment	Los Angeles	SC	9.92E+01	3.02E+02	2.05E+03	3.12E-02	1.38E-01	2.35E-01	2.24E+01	2.52E-04	1.33E-02	0.00E+00	2.81E-03	9.14E-01	1.67E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Scrapers	250	Construction and Mining Equipment	Los Angeles	SC	9.67E+01	2.95E+02	2.80E+03	3.32E-02	9.46E-02	3.01E-01	3.09E+01	3.47E-04	1.17E-02	0.00E+00	2.99E-03	6.41E-01	2.35E-03
2013	Annual	Mon-Sun	2.3E+09	Scrapers	500	Construction and Mining Equipment	Los Angeles	SC	2.66E+02	8.12E+02	1.19E+04	1.29E-01	4.93E-01	1.15E+00	1.30E+02	1.28E-03	4.46E-02	0.00E+00	1.17E-02	1.21E+00	3.15E-03
2013	Annual	Mon-Sun	2.3E+09	Scrapers	750	Construction and Mining Equipment	Los Angeles	SC	7.36E-01	2.24E+00	5.66E+01	6.20E-04	2.35E-03	5.57E-03	6.22E-01	6.25E-06	2.15E-04	0.00E+00	5.59E-05	2.10E+00	5.58E-03
2013	Annual	Mon-Sun	2.3E+09	Signal Boards	15	Construction and Mining Equipment	Los Angeles	SC	7.82E+02	1.61E+03	4.53E+02	5.77E-03	3.03E-02	3.61E-02	4.96E+00	7.72E-05	1.41E-03	0.00E+00	5.21E-04	3.76E-02	9.59E-05
2013	Annual	Mon-Sun	2.3E+09	Signal Boards	50	Construction and Mining Equipment	Los Angeles	SC	3.89E+00	5.71E+00	9.55E+00	3.27E-04	9.84E-04	9.73E-04	1.03E-01	1.33E-06	8.42E-05	0.00E+00	2.95E-05	3.45E-01	4.66E-04
2013	Annual	Mon-Sun	2.3E+09	Signal Boards	120	Construction and Mining Equipment	Los Angeles	SC	6.36E+01	9.34E+01	3.42E+02	5.46E-03	2.43E-02	3.64E-02	3.74E+00	4.39E-05	2.99E-03	0.00E+00	4.93E-04	5.20E-01	9.40E-04
2013	Annual	Mon-Sun	2.3E+09	Signal Boards	175	Construction and Mining Equipment	Los Angeles	SC	3.95E+01	5.79E+01	4.08E+02	4.42E-03	2.41E-02	3.85E-02	4.47E+00	5.03E-05	1.97E-03	0.00E+00	3.99E-04	8.32E-01	1.74E-03
2013	Annual	Mon-Sun	2.3E+09	Signal Boards	250	Construction and Mining Equipment	Los Angeles	SC	8.34E+00	1.22E+01	1.41E+02	9.96E-04	3.27E-03	1.22E-02	1.56E+00	1.75E-05	3.54E-04	0.00E+00	8.99E-05	5.36E-01	2.87E-03
2013	Annual	Mon-Sun	2.3E+09	Skid Steer Loaders	25	Construction and Mining Equipment	Los Angeles	SC	5.34E+02	1.22E+03	7.67E+02	1.23E-02	3.78E-02	7.10E-02	8.41E+00	1.07E-04	3.83E-03	0.00E+00	1.11E-03	6.20E-02	1.75E-04
2013	Annual	Mon-Sun	2.3E+09	Skid Steer Loaders	50	Construction and Mining Equipment	Los Angeles	SC	4.84E+03	1.13E+04	1.32E+04	2.90E-01	1.27E+00	1.28E+00	1.44E+02	1.86E-03	8.82E-02	0.00E+00	2.61E-02	2.25E-01	3.29E-04
2013	Annual	Mon-Sun	2.3E+09	Skid Steer Loaders	120	Construction and Mining Equipment	Los Angeles	SC	2.54E+03	5.91E+03	1.15E+04	1.26E-01	8.11E-01	9.63E-01	1.26E+02	1.48E-03	7.19E-02	0.00E+00	1.14E-02	2.74E-01	5.01E-04
2013	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	50	Construction and Mining Equipment	Los Angeles	SC	5.56E+00	6.90E+00	4.51E+00	1.64E-04	4.83E-04	4.68E-04	4.86E-02	6.29E-07	4.08E-05	0.00E+00	1.48E-05	1.40E-01	1.82E-04
2013	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	120	Construction and Mining Equipment	Los Angeles	SC	1.11E+00	1.38E+00	4.02E+00	6.66E-05	2.90E-04	4.49E-04	4.40E-02	5.16E-07	3.55E-05	0.00E+00	6.01E-06	4.20E-01	7.48E-04
2013	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	175	Construction and Mining Equipment	Los Angeles	SC	8.34E-01	1.03E+00	4.05E+00	4.60E-05	2.45E-04	3.99E-04	4.43E-02	4.99E-07	2.02E-05	0.00E+00	4.15E-06	4.76E-01	9.69E-04
2013	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	250	Construction and Mining Equipment	Los Angeles	SC	1.67E+00	2.07E+00	1.26E+01	1.06E-04	3.49E-04	1.15E-03	1.39E-01	1.57E-06	3.89E-05	0.00E+00	9.56E-06	3.37E-01	1.52E-03
2013	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	500	Construction and Mining Equipment	Los Angeles	SC	1.39E+01	1.72E+01	1.73E+02	1.32E-03	5.54E-03	1.43E-02	1.91E+00	1.87E-05	4.89E-04	0.00E+00	1.19E-04	6.44E-01	2.17E-03
2013	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	750	Construction and Mining Equipment	Los Angeles	SC	1.41E-01	1.74E-01	2.74E+00	2.13E-05	8.80E-05	2.32E-04	3.02E-02	3.04E-07	7.84E-06	0.00E+00	1.92E-06	1.01E+00	3.49E-03
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	25	Construction and Mining Equipment	Los Angeles	SC	7.84E+01	2.02E+02	1.46E+02	1.97E-03	6.64E-03	1.25E-02	1.60E+00	2.04E-05	5.72E-04	0.00E+00	1.78E-04	6.57E-02	2.02E-04
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	50	Construction and Mining Equipment	Los Angeles	SC	4.68E+02	1.24E+03	1.75E+03	5.51E-02	1.98E-01	1.80E-01	1.88E+01	2.44E-04	1.47E-02	0.00E+00	4.97E-03	3.19E-01	3.94E-04
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	120	Construction and Mining Equipment	Los Angeles	SC	6.26E+03	1.66E+04	3.93E+04	5.73E-01	2.93E+00	3.78E+00	4.30E+02	5.04E-03	3.16E-01	0.00E+00	5.17E-02	3.53E-01	6.07E-04
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	175	Construction and Mining Equipment	Los Angeles	SC	4.67E+02	1.24E+03	5.73E+03	6.09E-02	3.63E-01	4.75E-01	6.28E+01	7.07E-04	2.64E-02	0.00E+00	5.50E-03	5.85E-01	1.14E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	250	Construction and Mining Equipment	Los Angeles	SC	1.51E+02	4.01E+02	3.12E+03	2.41E-02	7.35E-02	2.33E-01	3.44E+01	3.87E-04	7.40E-03	0.00E+00	2.17E-03	3.67E-01	1.93E-03
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	500	Construction and Mining Equipment	Los Angeles	SC	2.44E+02	6.48E+02	1.01E+04	7.40E-02	2.41E-01	6.67E-01	1.12E+02	1.26E-03	2.26E-02	0.00E+00	6.68E-03	7.44E-01	3.89E-03
2013	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	750	Construction and Mining Equipment	Los Angeles	SC	2.83E+00	7.52E+00	1.76E+02	1.30E-03	4.20E-03	1.20E-02	1.94E+00	2.19E-05	4.01E-04	0.00E+00	1.17E-04	1.12E+00	5.82E-03
2013	Annual	Mon-Sun	2.3E+09	Trenchers	15	Construction and Mining Equipment	Los Angeles	SC	2.08E+01	3.53E+01	1.36E+01	1.74E-04	9.12E-04	1.09E-03	1.49E-01	2.32E-06	4.25E-05	0.00E+00	1.57E-05	5.17E-02	1.31E-04
2013	Annual	Mon-Sun	2.3E+09	Trenchers	25	Construction and Mining Equipment	Los Angeles	SC	2.20E+01	3.72E+01	5.57E+01	7.38E-04	2.52E-03	4.67E-03	6.12E-01	7.76E-06	1.81E-04	0.00E+00	6.66E-05	1.35E-01	4.17E-04
2013	Annual	Mon-Sun	2.3E+09	Trenchers	50	Construction and Mining Equipment	Los Angeles	SC	8.36E+02	1.44E+03	2.22E+03	1.13E-01	2.94E-01	2.48E-01	2.38E+01	3.07E-04	2.54E-02	0.00E+00	1.02E-02	4.08E-01	4.26E-04
2013	Annual	Mon-Sun	2.3E+09	Trenchers	120	Construction and Mining Equipment	Los Angeles	SC	1.13E+03	1.96E+03	5.83E+03	1.25E-01	4.58E-01	7.69E-01	6.35E+01	7.45E-04	6.52E-02	0.00E+00	1.13E-02	4.67E-01	7.60E-04
2013	Annual	Mon-Sun	2.3E+09	Trenchers	175	Construction and Mining Equipment	Los Angeles	SC	1.24E+02	2.14E+02	1.41E+03	2.09E-02	9.24E-02	1.66E-01	1.54E+01	1.73E-04	9.06E-03	0.00E+00	1.88E-03	8.64E-01	1.62E-03
2013	Annual	Mon-Sun	2.3E+09	Trenchers	250	Construction and Mining Equipment	Los Angeles	SC	1.11E+01	1.92E+01	1.95E+02	2.26E-03	6.82E-03	2.16E-02	2.14E+00	2.41E-05	8.47E-04	0.00E+00	2.04E-04	7.10E-01	2.51E-03
2013	Annual	Mon-Sun	2.3E+09	Trenchers	500	Construction and Mining Equipment	Los Angeles	SC	1.42E+01	2.45E+01	3.47E+02	3.66E-03	1.60E-02	3.49E-02	3.81E+00	3.74E-05	1.36E-03	0.00E+00	3.30E-04	1.31E+00	3.05E-03
2013	Annual	Mon-Sun	2.3E+09	Trenchers	750	Construction and Mining Equipment	Los Angeles	SC	2.81E-02	4.86E-02	1.30E+00	1.38E-05	5.98E-05	1.32E-04	1.43E-02	1.43E-07	5.11E-06	0.00E+00	1.24E-06	2.46E+00	5.88E-03
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	15	Construction and Mining Equipment	Los Angeles	SC	2.82E+00	6.28E+00	2.96E+00	3.78E-05	1.98E-04	2.36E-04	3.24E-02	5.05E-07	9.22E-06	0.00E+00	3.41E-06	6.31E-02	1.61E-04
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	25	Construction and Mining Equipment	Los Angeles	SC	8.47E+00	1.88E+01	1.37E+01	1.82E-04	6.19E-04	1.15E-03	1.50E-01	1.91E-06	4.48E-05	0.00E+00	1.64E-05	6.59E-02	2.03E-04
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	50	Construction and Mining Equipment	Los Angeles	SC	3.70E+01	8.53E+01	1.21E+02	1.09E-03	9.61E-03	1.02E-02	1.32E+00	1.71E-05	4.07E-04	0.00E+00	9.82E-05	2.25E-01	4.01E-04
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	120	Construction and Mining Equipment	Los Angeles	SC	1.13E+02	2.62E+02	9.19E+02	5.34E-03	6.13E-02	5.57E-02	1.01E+01	1.18E-04	2.66E-03	0.00E+00	4.82E-04	4.68E-01	9.01E-04
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	175	Construction and Mining Equipment	Los Angeles	SC	2.63E+01	6.06E+01	3.89E+02	2.03E-03	2.28E-02	1.98E-02	4.27E+00	4.80E-05	7.44E-04	0.00E+00	1.83E-04	7.52E-01	1.58E-03
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	250	Construction and Mining Equipment	Los Angeles	SC	2.26E+01	5.21E+01	4.43E+02	1.92E-03	8.92E-03	1.60E-02	4.90E+00	5.51E-05	4.69E-04	0.00E+00	1.73E-04	3.42E-01	2.12E-03
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	500	Construction and Mining Equipment	Los Angeles	SC	5.02E+01	1.16E+02	1.63E+03	6.99E-03	3.19E-02	5.52E-02	1.80E+01	1.77E-04	1.71E-03	0.00E+00	6.30E-04	5.50E-01	3.05E-03
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	750	Construction and Mining Equipment	Los Angeles	SC	4.43E-01	1.02E+00	2.84E+01	1.22E-04	5.56E-04	9.69E-04	3.14E-01	3.16E-06	2.98E-05	0.00E+00	1.10E-05	1.09E+00	6.20E-03
2014	Annual	Mon-Sun	2.3E+09	Bore/Drill Rigs	1000	Construction and Mining Equipment	Los Angeles	SC	7.42E-01	1.71E+00	7.18E+01	3.33E-04	1.42E-03	4.63E-03	7.94E-01	7.98E-06	1.21E-04	0.00E+00	3.00E-05	1.66E+00	9.33E-03
2014	Annual	Mon-Sun	2.3E+09	Cement and Mortar Mixers	15	Construction and Mining Equipment	Los Angeles	SC	1.44E+02	1.19E+02	3.42E+01	4.39E-04	2.29E-03	2.76E-03	3.75E-01	5.83E-06	1.17E-04	0.00E+00	3.96E-05	3.85E-02	9.80E-05

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Cement and Mortar Mixers	25	Construction and Mining Equipment	Los Angeles	SC	1.30E+01	1.07E+01	8.55E+00	1.38E-04	4.24E-04	7.90E-04	9.37E-02	1.19E-06	4.17E-05	0.00E+00	1.25E-05	7.93E-02	2.22E-04
2014	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	25	Construction and Mining Equipment	Los Angeles	SC	1.13E+00	1.83E+00	1.37E+00	1.82E-05	6.21E-05	1.15E-04	1.51E-02	1.91E-07	4.37E-06	0.00E+00	1.64E-06	6.79E-02	2.09E-04
2014	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	50	Construction and Mining Equipment	Los Angeles	SC	9.88E+00	1.57E+01	2.19E+01	6.75E-04	2.21E-03	2.16E-03	2.37E-01	3.07E-06	1.76E-04	0.00E+00	6.09E-05	2.82E-01	3.91E-04
2014	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	120	Construction and Mining Equipment	Los Angeles	SC	1.72E+01	2.74E+01	9.28E+01	1.33E-03	6.56E-03	9.19E-03	1.01E+00	1.19E-05	7.32E-04	0.00E+00	1.20E-04	4.79E-01	8.69E-04
2014	Annual	Mon-Sun	2.3E+09	Concrete/Industrial Saws	175	Construction and Mining Equipment	Los Angeles	SC	5.65E-01	8.98E-01	6.55E+00	6.50E-05	3.89E-04	5.71E-04	7.19E-02	8.08E-07	2.88E-05	0.00E+00	5.87E-06	8.66E-01	1.80E-03
2014	Annual	Mon-Sun	2.3E+09	Cranes	50	Construction and Mining Equipment	Los Angeles	SC	9.60E+00	3.37E+01	3.64E+01	1.56E-03	4.72E-03	3.89E-03	3.90E-01	5.05E-06	3.71E-04	0.00E+00	1.41E-04	2.80E-01	3.00E-04
2014	Annual	Mon-Sun	2.3E+09	Cranes	120	Construction and Mining Equipment	Los Angeles	SC	1.05E+02	3.70E+02	8.50E+02	1.58E-02	6.62E-02	9.57E-02	9.26E+00	1.09E-04	8.34E-03	0.00E+00	1.43E-03	3.58E-01	5.89E-04
2014	Annual	Mon-Sun	2.3E+09	Cranes	175	Construction and Mining Equipment	Los Angeles	SC	1.05E+02	3.70E+02	1.36E+03	1.80E-02	8.88E-02	1.35E-01	1.48E+01	1.67E-04	7.57E-03	0.00E+00	1.62E-03	4.80E-01	9.03E-04
2014	Annual	Mon-Sun	2.3E+09	Cranes	250	Construction and Mining Equipment	Los Angeles	SC	2.04E+02	7.17E+02	3.64E+03	3.51E-02	1.01E-01	3.25E-01	4.02E+01	4.52E-04	1.13E-02	0.00E+00	3.16E-03	2.82E-01	1.26E-03
2014	Annual	Mon-Sun	2.3E+09	Cranes	500	Construction and Mining Equipment	Los Angeles	SC	7.48E+01	2.63E+02	2.15E+03	1.93E-02	6.51E-02	1.70E-01	2.36E+01	2.32E-04	6.17E-03	0.00E+00	1.74E-03	4.95E-01	1.76E-03
2014	Annual	Mon-Sun	2.3E+09	Cranes	750	Construction and Mining Equipment	Los Angeles	SC	9.28E-01	3.26E+00	4.48E+01	4.04E-04	1.36E-03	3.64E-03	4.93E-01	4.96E-06	1.31E-04	0.00E+00	3.65E-05	8.34E-01	3.04E-03
2014	Annual	Mon-Sun	2.3E+09	Cranes	9999	Construction and Mining Equipment	Los Angeles	SC	1.17E+00	4.09E+00	1.80E+02	1.87E-03	6.36E-03	2.00E-02	1.98E+00	1.99E-05	6.13E-04	0.00E+00	1.68E-04	3.11E+00	9.73E-03
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	50	Construction and Mining Equipment	Los Angeles	SC	3.95E+00	1.13E+01	1.32E+01	6.16E-04	1.79E-03	1.44E-03	1.41E-01	1.82E-06	1.41E-04	0.00E+00	5.56E-05	3.17E-01	3.22E-04
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	120	Construction and Mining Equipment	Los Angeles	SC	2.24E+03	6.42E+03	1.94E+04	3.89E-01	1.54E+00	2.33E+00	2.11E+02	2.48E-03	2.00E-01	0.00E+00	3.51E-02	4.80E-01	7.73E-04
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	175	Construction and Mining Equipment	Los Angeles	SC	7.59E+02	2.17E+03	1.20E+04	1.72E-01	8.05E-01	1.28E+00	1.32E+02	1.48E-03	7.16E-02	0.00E+00	1.56E-02	7.42E-01	1.36E-03
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	250	Construction and Mining Equipment	Los Angeles	SC	6.52E+02	1.87E+03	1.41E+04	1.56E-01	4.48E-01	1.37E+00	1.55E+02	1.74E-03	5.25E-02	0.00E+00	1.41E-02	4.79E-01	1.86E-03
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	500	Construction and Mining Equipment	Los Angeles	SC	4.47E+02	1.28E+03	1.51E+04	1.55E-01	5.70E-01	1.32E+00	1.66E+02	1.63E-03	5.11E-02	0.00E+00	1.40E-02	8.91E-01	2.55E-03
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	750	Construction and Mining Equipment	Los Angeles	SC	3.81E-01	1.09E+00	2.30E+01	2.37E-04	8.70E-04	2.05E-03	2.53E-01	2.54E-06	7.88E-05	0.00E+00	2.14E-05	1.60E+00	4.66E-03
2014	Annual	Mon-Sun	2.3E+09	Crawler Tractors	1000	Construction and Mining Equipment	Los Angeles	SC	3.81E-01	1.09E+00	3.26E+01	3.59E-04	1.38E-03	3.81E-03	3.58E-01	3.60E-06	1.21E-04	0.00E+00	3.24E-05	2.53E+00	6.61E-03
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	50	Construction and Mining Equipment	Los Angeles	SC	4.52E+01	1.18E+02	2.42E+02	9.16E-03	2.84E-02	2.47E-02	2.60E+00	3.36E-05	2.26E-03	0.00E+00	8.26E-04	4.81E-01	5.69E-04
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	120	Construction and Mining Equipment	Los Angeles	SC	1.27E+02	3.33E+02	1.27E+03	2.13E-02	9.49E-02	1.33E-01	1.38E+01	1.62E-04	1.17E-02	0.00E+00	1.92E-03	5.70E-01	9.73E-04

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	175	Construction and Mining Equipment	Los Angeles	SC	5.39E+01	1.41E+02	1.08E+03	1.26E-02	6.76E-02	9.98E-02	1.18E+01	1.33E-04	5.48E-03	0.00E+00	1.14E-03	9.59E-01	1.89E-03
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	250	Construction and Mining Equipment	Los Angeles	SC	5.36E+00	1.40E+01	1.55E+02	1.22E-03	3.71E-03	1.28E-02	1.72E+00	1.93E-05	3.93E-04	0.00E+00	1.10E-04	5.30E-01	2.76E-03
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	500	Construction and Mining Equipment	Los Angeles	SC	3.02E+01	7.91E+01	1.34E+03	9.79E-03	3.20E-02	9.60E-02	1.48E+01	1.45E-04	3.16E-03	0.00E+00	8.83E-04	8.09E-01	3.67E-03
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	750	Construction and Mining Equipment	Los Angeles	SC	2.38E-02	6.23E-02	1.66E+00	1.22E-05	3.93E-05	1.23E-04	1.83E-02	1.84E-07	3.97E-06	0.00E+00	1.10E-06	1.26E+00	5.91E-03
2014	Annual	Mon-Sun	2.3E+09	Crushing/Proc. Equipment	9999	Construction and Mining Equipment	Los Angeles	SC	2.38E-02	6.23E-02	3.69E+00	3.27E-05	1.05E-04	3.86E-04	4.07E-02	4.09E-07	1.11E-05	0.00E+00	2.95E-06	3.37E+00	1.31E-02
2014	Annual	Mon-Sun	2.3E+09	Dumpers/Tenders	25	Construction and Mining Equipment	Los Angeles	SC	6.77E+00	1.23E+01	4.27E+00	5.81E-05	1.95E-04	3.65E-04	4.68E-02	5.94E-07	1.66E-05	0.00E+00	5.25E-06	3.17E-02	9.66E-05
2014	Annual	Mon-Sun	2.3E+09	Excavators	25	Construction and Mining Equipment	Los Angeles	SC	1.04E+01	4.00E+01	2.99E+01	3.96E-04	1.35E-03	2.50E-03	3.28E-01	4.17E-06	9.33E-05	0.00E+00	3.57E-05	6.75E-02	2.09E-04
2014	Annual	Mon-Sun	2.3E+09	Excavators	50	Construction and Mining Equipment	Los Angeles	SC	3.93E+02	1.53E+03	1.78E+03	5.55E-02	2.11E-01	1.80E-01	1.92E+01	2.48E-04	1.44E-02	0.00E+00	5.01E-03	2.76E-01	3.24E-04
2014	Annual	Mon-Sun	2.3E+09	Excavators	120	Construction and Mining Equipment	Los Angeles	SC	1.07E+03	4.17E+03	1.40E+04	2.07E-01	1.07E+00	1.31E+00	1.53E+02	1.80E-03	1.07E-01	0.00E+00	1.86E-02	5.13E-01	8.63E-04
2014	Annual	Mon-Sun	2.3E+09	Excavators	175	Construction and Mining Equipment	Los Angeles	SC	2.06E+03	8.04E+03	4.11E+04	4.53E-01	2.67E+00	3.33E+00	4.51E+02	5.07E-03	1.83E-01	0.00E+00	4.09E-02	6.64E-01	1.26E-03
2014	Annual	Mon-Sun	2.3E+09	Excavators	250	Construction and Mining Equipment	Los Angeles	SC	8.38E+02	3.27E+03	2.35E+04	1.92E-01	5.68E-01	1.64E+00	2.59E+02	2.92E-03	5.43E-02	0.00E+00	1.74E-02	3.47E-01	1.79E-03
2014	Annual	Mon-Sun	2.3E+09	Excavators	500	Construction and Mining Equipment	Los Angeles	SC	6.04E+02	2.36E+03	2.50E+04	1.95E-01	6.01E-01	1.54E+00	2.75E+02	2.70E-03	5.45E-02	0.00E+00	1.76E-02	5.09E-01	2.29E-03
2014	Annual	Mon-Sun	2.3E+09	Excavators	750	Construction and Mining Equipment	Los Angeles	SC	2.24E-01	8.73E-01	1.53E+01	1.20E-04	3.69E-04	9.74E-04	1.69E-01	1.70E-06	3.40E-05	0.00E+00	1.09E-05	8.45E-01	3.89E-03
2014	Annual	Mon-Sun	2.3E+09	Graders	50	Construction and Mining Equipment	Los Angeles	SC	3.95E+00	1.03E+01	1.32E+01	5.04E-04	1.63E-03	1.37E-03	1.42E-01	1.83E-06	1.23E-04	0.00E+00	4.55E-05	3.17E-01	3.55E-04
2014	Annual	Mon-Sun	2.3E+09	Graders	120	Construction and Mining Equipment	Los Angeles	SC	2.64E+02	6.87E+02	2.36E+03	3.98E-02	1.81E-01	2.49E-01	2.57E+01	3.02E-04	2.09E-02	0.00E+00	3.59E-03	5.27E-01	8.79E-04
2014	Annual	Mon-Sun	2.3E+09	Graders	175	Construction and Mining Equipment	Los Angeles	SC	9.01E+02	2.35E+03	1.33E+04	1.62E-01	8.60E-01	1.23E+00	1.45E+02	1.64E-03	6.74E-02	0.00E+00	1.46E-02	7.32E-01	1.40E-03
2014	Annual	Mon-Sun	2.3E+09	Graders	250	Construction and Mining Equipment	Los Angeles	SC	5.59E+02	1.46E+03	1.14E+04	1.02E-01	3.04E-01	9.31E-01	1.25E+02	1.41E-03	3.23E-02	0.00E+00	9.23E-03	4.16E-01	1.93E-03
2014	Annual	Mon-Sun	2.3E+09	Graders	500	Construction and Mining Equipment	Los Angeles	SC	1.58E+01	4.12E+01	4.28E+02	3.62E-03	1.24E-02	3.13E-02	4.72E+00	4.64E-05	1.13E-03	0.00E+00	3.26E-04	6.02E-01	2.25E-03
2014	Annual	Mon-Sun	2.3E+09	Graders	750	Construction and Mining Equipment	Los Angeles	SC	1.43E-02	3.72E-02	8.19E-01	6.95E-06	2.36E-05	6.13E-05	9.03E-03	9.08E-08	2.19E-06	0.00E+00	6.27E-07	1.27E+00	4.88E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	120	Construction and Mining Equipment	Los Angeles	SC	2.82E-01	8.63E-01	3.71E+00	8.63E-05	3.07E-04	5.08E-04	4.04E-02	4.74E-07	4.35E-05	0.00E+00	7.79E-06	7.11E-01	1.10E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	175	Construction and Mining Equipment	Los Angeles	SC	3.45E+02	1.06E+03	6.29E+03	1.03E-01	4.36E-01	7.70E-01	6.87E+01	7.73E-04	4.31E-02	0.00E+00	9.29E-03	8.23E-01	1.46E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	250	Construction and Mining Equipment	Los Angeles	SC	3.26E+02	9.97E+02	5.91E+03	7.80E-02	2.25E-01	6.73E-01	6.50E+01	7.31E-04	2.79E-02	0.00E+00	7.04E-03	4.51E-01	1.47E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	750	Construction and Mining Equipment	Los Angeles	SC	2.39E+00	7.30E+00	1.89E+02	2.29E-03	9.89E-03	1.98E-02	2.07E+00	2.08E-05	8.03E-04	0.00E+00	2.06E-04	2.71E+00	5.70E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Tractors	1000	Construction and Mining Equipment	Los Angeles	SC	2.52E-01	7.70E-01	2.86E+01	3.63E-04	1.63E-03	3.70E-03	3.13E-01	3.15E-06	1.26E-04	0.00E+00	3.28E-05	4.23E+00	8.18E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	175	Construction and Mining Equipment	Los Angeles	SC	1.83E+01	1.00E+02	5.71E+02	6.75E-03	3.78E-02	4.79E-02	6.26E+00	7.04E-05	2.68E-03	0.00E+00	6.09E-04	7.56E-01	1.41E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	250	Construction and Mining Equipment	Los Angeles	SC	1.35E+02	7.39E+02	5.58E+03	4.89E-02	1.39E-01	4.07E-01	6.15E+01	6.92E-04	1.36E-02	0.00E+00	4.41E-03	3.76E-01	1.87E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	500	Construction and Mining Equipment	Los Angeles	SC	1.91E+02	1.04E+03	1.28E+04	1.07E-01	3.19E-01	8.28E-01	1.42E+02	1.39E-03	2.95E-02	0.00E+00	9.69E-03	6.13E-01	2.67E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	750	Construction and Mining Equipment	Los Angeles	SC	2.99E+00	1.63E+01	3.27E+02	2.75E-03	8.12E-03	2.17E-02	3.60E+00	3.62E-05	7.61E-04	0.00E+00	2.48E-04	9.96E-01	4.44E-03
2014	Annual	Mon-Sun	2.3E+09	Off-Highway Trucks	1000	Construction and Mining Equipment	Los Angeles	SC	1.40E+00	7.65E+00	2.17E+02	1.98E-03	6.00E-03	2.13E-02	2.39E+00	2.40E-05	6.35E-04	0.00E+00	1.79E-04	1.57E+00	6.27E-03
2014	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	15	Construction and Mining Equipment	Los Angeles	SC	9.34E+01	1.77E+02	8.15E+01	1.04E-03	5.45E-03	6.51E-03	8.93E-01	1.39E-05	2.54E-04	0.00E+00	9.37E-05	6.16E-02	1.57E-04
2014	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	25	Construction and Mining Equipment	Los Angeles	SC	1.58E+01	2.99E+01	1.80E+01	2.38E-04	8.13E-04	1.51E-03	1.97E-01	2.51E-06	5.88E-05	0.00E+00	2.15E-05	5.44E-02	1.68E-04
2014	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	50	Construction and Mining Equipment	Los Angeles	SC	2.43E+01	4.68E+01	6.03E+01	1.55E-03	6.00E-03	5.77E-03	6.54E-01	8.45E-06	4.25E-04	0.00E+00	1.40E-04	2.56E-01	3.61E-04
2014	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	120	Construction and Mining Equipment	Los Angeles	SC	4.01E+01	7.72E+01	2.85E+02	3.51E-03	2.02E-02	2.53E-02	3.12E+00	3.66E-05	1.93E-03	0.00E+00	3.17E-04	5.23E-01	9.48E-04
2014	Annual	Mon-Sun	2.3E+09	Other Construction Equipment	175	Construction and Mining Equipment	Los Angeles	SC	5.53E+01	1.07E+02	5.17E+02	4.60E-03	3.12E-02	3.97E-02	5.67E+00	6.38E-05	1.98E-03	0.00E+00	4.15E-04	5.83E-01	1.19E-03
2014	Annual	Mon-Sun	2.3E+09	Equipment	500	Construction and Mining Equipment	Los Angeles	SC	1.28E+02	2.47E+02	2.84E+03	1.70E-02	6.28E-02	1.66E-01	3.14E+01	3.08E-04	5.44E-03	0.00E+00	1.54E-03	5.09E-01	2.49E-03
2014	Annual	Mon-Sun	2.3E+09	Pavers	25	Construction and Mining Equipment	Los Angeles	SC	4.23E+00	9.53E+00	8.10E+00	1.14E-04	3.75E-04	7.01E-04	8.88E-02	1.13E-06	3.34E-05	0.00E+00	1.03E-05	7.87E-02	2.37E-04
2014	Annual	Mon-Sun	2.3E+09	Pavers	50	Construction and Mining Equipment	Los Angeles	SC	2.46E+02	5.62E+02	7.35E+02	3.58E-02	9.83E-02	8.03E-02	7.86E+00	1.02E-04	8.10E-03	0.00E+00	3.23E-03	3.50E-01	3.63E-04
2014	Annual	Mon-Sun	2.3E+09	Pavers	120	Construction and Mining Equipment	Los Angeles	SC	2.90E+02	6.63E+02	2.10E+03	4.32E-02	1.66E-01	2.63E-01	2.29E+01	2.69E-04	2.25E-02	0.00E+00	3.90E-03	5.01E-01	8.11E-04
2014	Annual	Mon-Sun	2.3E+09	Pavers	175	Construction and Mining Equipment	Los Angeles	SC	1.80E+02	4.12E+02	2.41E+03	3.47E-02	1.59E-01	2.69E-01	2.64E+01	2.97E-04	1.48E-02	0.00E+00	3.14E-03	7.72E-01	1.44E-03
2014	Annual	Mon-Sun	2.3E+09	Pavers	250	Construction and Mining Equipment	Los Angeles	SC	2.17E+01	4.96E+01	4.38E+02	4.87E-03	1.45E-02	4.47E-02	4.82E+00	5.42E-05	1.73E-03	0.00E+00	4.39E-04	5.85E-01	2.19E-03
2014	Annual	Mon-Sun	2.3E+09	Pavers	500	Construction and Mining Equipment	Los Angeles	SC	2.23E+01	5.09E+01	5.39E+02	5.51E-03	2.21E-02	4.97E-02	5.93E+00	5.82E-05	1.92E-03	0.00E+00	4.97E-04	8.68E-01	2.29E-03
2014	Annual	Mon-Sun	2.3E+09	Paving Equipment	25	Construction and Mining Equipment	Los Angeles	SC	7.34E+00	1.67E+01	9.59E+00	1.27E-04	4.33E-04	8.04E-04	1.05E-01	1.34E-06	3.13E-05	0.00E+00	1.15E-05	5.19E-02	1.60E-04

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Paving Equipment	50	Construction and Mining Equipment	Los Angeles	SC	6.21E+00	1.42E+01	1.59E+01	7.75E-04	2.11E-03	1.73E-03	1.70E-01	2.20E-06	1.75E-04	0.00E+00	7.00E-05	2.97E-01	3.10E-04
2014	Annual	Mon-Sun	2.3E+09	Paving Equipment	120	Construction and Mining Equipment	Los Angeles	SC	8.95E+01	2.05E+02	5.12E+02	1.05E-02	4.02E-02	6.39E-02	5.58E+00	6.55E-05	5.49E-03	0.00E+00	9.47E-04	3.92E-01	6.39E-04
2014	Annual	Mon-Sun	2.3E+09	Paving Equipment	175	Construction and Mining Equipment	Los Angeles	SC	4.21E+01	9.64E+01	4.45E+02	6.35E-03	2.91E-02	4.94E-02	4.87E+00	5.47E-05	2.71E-03	0.00E+00	5.73E-04	6.04E-01	1.13E-03
2014	Annual	Mon-Sun	2.3E+09	Paving Equipment	250	Construction and Mining Equipment	Los Angeles	SC	1.19E+01	2.72E+01	1.51E+02	1.64E-03	4.89E-03	1.54E-02	1.66E+00	1.87E-05	5.83E-04	0.00E+00	1.48E-04	3.60E-01	1.38E-03
2014	Annual	Mon-Sun	2.3E+09	Plate Compactors	15	Construction and Mining Equipment	Los Angeles	SC	9.09E+01	1.50E+02	2.94E+01	3.75E-04	1.97E-03	2.35E-03	3.22E-01	5.01E-06	9.16E-05	0.00E+00	3.38E-05	2.63E-02	6.68E-05
2014	Annual	Mon-Sun	2.3E+09	Rollers	15	Construction and Mining Equipment	Los Angeles	SC	1.71E+02	3.25E+02	9.39E+01	1.20E-03	6.27E-03	7.49E-03	1.03E+00	1.60E-05	2.92E-04	0.00E+00	1.08E-04	3.86E-02	9.85E-05
2014	Annual	Mon-Sun	2.3E+09	Rollers	25	Construction and Mining Equipment	Los Angeles	SC	7.14E+01	1.36E+02	8.26E+01	1.10E-03	3.74E-03	6.93E-03	9.07E-01	1.15E-05	2.70E-04	0.00E+00	9.88E-05	5.50E-02	1.69E-04
2014	Annual	Mon-Sun	2.3E+09	Rollers	50	Construction and Mining Equipment	Los Angeles	SC	2.22E+02	4.27E+02	5.16E+02	2.01E-02	6.04E-02	5.32E-02	5.55E+00	7.17E-05	4.82E-03	0.00E+00	1.82E-03	2.83E-01	3.36E-04
2014	Annual	Mon-Sun	2.3E+09	Rollers	120	Construction and Mining Equipment	Los Angeles	SC	1.19E+03	2.29E+03	6.19E+03	1.05E-01	4.62E-01	6.76E-01	6.76E+01	7.93E-04	5.63E-02	0.00E+00	9.49E-03	4.03E-01	6.93E-04
2014	Annual	Mon-Sun	2.3E+09	Rollers	175	Construction and Mining Equipment	Los Angeles	SC	4.80E+02	9.23E+02	4.55E+03	5.41E-02	2.85E-01	4.38E-01	4.99E+01	5.61E-04	2.34E-02	0.00E+00	4.88E-03	6.18E-01	1.22E-03
2014	Annual	Mon-Sun	2.3E+09	Rollers	250	Construction and Mining Equipment	Los Angeles	SC	6.80E+01	1.31E+02	9.08E+02	7.71E-03	2.43E-02	7.83E-02	1.00E+01	1.13E-04	2.66E-03	0.00E+00	6.96E-04	3.71E-01	1.73E-03
2014	Annual	Mon-Sun	2.3E+09	Rollers	500	Construction and Mining Equipment	Los Angeles	SC	4.77E+01	9.18E+01	9.11E+02	7.13E-03	2.72E-02	7.03E-02	1.00E+01	9.86E-05	2.46E-03	0.00E+00	6.43E-04	5.93E-01	2.15E-03
2014	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	50	Construction and Mining Equipment	Los Angeles	SC	3.13E+01	9.73E+01	1.53E+02	5.10E-03	1.77E-02	1.55E-02	1.65E+00	2.13E-05	1.31E-03	0.00E+00	4.60E-04	3.64E-01	4.38E-04
2014	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	120	Construction and Mining Equipment	Los Angeles	SC	1.50E+03	4.66E+03	1.33E+04	2.03E-01	9.99E-01	1.30E+00	1.45E+02	1.71E-03	1.10E-01	0.00E+00	1.83E-02	4.29E-01	7.34E-04
2014	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	175	Construction and Mining Equipment	Los Angeles	SC	1.92E+02	5.97E+02	3.40E+03	3.75E-02	2.16E-01	2.90E-01	3.73E+01	4.19E-04	1.58E-02	0.00E+00	3.39E-03	7.24E-01	1.40E-03
2014	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	250	Construction and Mining Equipment	Los Angeles	SC	1.07E+01	3.33E+01	2.58E+02	2.04E-03	6.19E-03	1.93E-02	2.84E+00	3.20E-05	6.24E-04	0.00E+00	1.85E-04	3.72E-01	1.92E-03
2014	Annual	Mon-Sun	2.3E+09	Rough Terrain Forklifts	500	Construction and Mining Equipment	Los Angeles	SC	7.06E+00	2.19E+01	2.55E+02	1.91E-03	6.03E-03	1.67E-02	2.81E+00	2.76E-05	5.79E-04	0.00E+00	1.72E-04	5.51E-01	2.52E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	175	Construction and Mining Equipment	Los Angeles	SC	2.82E+00	1.26E+01	7.45E+01	1.27E-03	5.28E-03	9.32E-03	8.14E-01	9.16E-06	5.27E-04	0.00E+00	1.15E-04	8.38E-01	1.45E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	250	Construction and Mining Equipment	Los Angeles	SC	6.92E+01	3.08E+02	2.57E+03	3.58E-02	1.01E-01	3.00E-01	2.83E+01	3.18E-04	1.27E-02	0.00E+00	3.23E-03	6.56E-01	2.06E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	500	Construction and Mining Equipment	Los Angeles	SC	1.06E+02	4.74E+02	5.72E+03	7.29E-02	3.17E-01	6.07E-01	6.28E+01	6.16E-04	2.51E-02	0.00E+00	6.58E-03	1.34E+00	2.60E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	750	Construction and Mining Equipment	Los Angeles	SC	6.33E-01	2.82E+00	5.12E+01	6.55E-04	2.83E-03	5.51E-03	5.62E-01	5.65E-06	2.27E-04	0.00E+00	5.91E-05	2.01E+00	4.01E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Dozers	1000	Construction and Mining Equipment	Los Angeles	SC	4.28E-02	1.91E-01	5.15E+00	6.88E-05	3.09E-04	6.80E-04	5.64E-02	5.67E-07	2.35E-05	0.00E+00	6.20E-06	3.24E+00	5.94E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	25	Construction and Mining Equipment	Los Angeles	SC	3.95E+00	1.04E+01	7.99E+00	1.06E-04	3.61E-04	6.69E-04	8.77E-02	1.11E-06	2.54E-05	0.00E+00	9.55E-06	6.94E-02	2.13E-04
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	50	Construction and Mining Equipment	Los Angeles	SC	7.68E+01	2.05E+02	2.97E+02	1.11E-02	3.62E-02	3.08E-02	3.20E+00	4.13E-05	2.72E-03	0.00E+00	1.01E-03	3.53E-01	4.03E-04
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	120	Construction and Mining Equipment	Los Angeles	SC	2.09E+03	5.58E+03	1.51E+04	2.50E-01	1.15E+00	1.57E+00	1.64E+02	1.93E-03	1.32E-01	0.00E+00	2.26E-02	4.12E-01	6.92E-04
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	175	Construction and Mining Equipment	Los Angeles	SC	1.18E+03	3.15E+03	1.53E+04	1.83E-01	9.84E-01	1.40E+00	1.67E+02	1.88E-03	7.65E-02	0.00E+00	1.65E-02	6.25E-01	1.19E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	250	Construction and Mining Equipment	Los Angeles	SC	1.17E+03	3.13E+03	2.11E+04	1.85E-01	5.56E-01	1.71E+00	2.33E+02	2.62E-03	5.86E-02	0.00E+00	1.67E-02	3.55E-01	1.67E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	500	Construction and Mining Equipment	Los Angeles	SC	4.87E+02	1.30E+03	1.40E+04	1.15E-01	3.96E-01	1.01E+00	1.54E+02	1.51E-03	3.60E-02	0.00E+00	1.04E-02	6.09E-01	2.32E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	750	Construction and Mining Equipment	Los Angeles	SC	5.76E-01	1.54E+00	3.39E+01	2.80E-04	9.60E-04	2.50E-03	3.74E-01	3.76E-06	8.84E-05	0.00E+00	2.53E-05	1.25E+00	4.88E-03
2014	Annual	Mon-Sun	2.3E+09	Rubber Tired Loaders	1000	Construction and Mining Equipment	Los Angeles	SC	6.19E-02	1.65E-01	4.45E+00	4.07E-05	1.44E-04	4.63E-04	4.90E-02	4.93E-07	1.39E-05	0.00E+00	3.67E-06	1.75E+00	5.98E-03
2014	Annual	Mon-Sun	2.3E+09	Scrapers	120	Construction and Mining Equipment	Los Angeles	SC	1.10E+01	3.35E+01	1.44E+02	2.95E-03	1.15E-02	1.77E-02	1.57E+00	1.85E-05	1.52E-03	0.00E+00	2.67E-04	6.87E-01	1.10E-03
2014	Annual	Mon-Sun	2.3E+09	Scrapers	175	Construction and Mining Equipment	Los Angeles	SC	1.01E+02	3.07E+02	2.08E+03	3.02E-02	1.39E-01	2.26E-01	2.27E+01	2.55E-04	1.26E-02	0.00E+00	2.72E-03	9.06E-01	1.66E-03
2014	Annual	Mon-Sun	2.3E+09	Scrapers	250	Construction and Mining Equipment	Los Angeles	SC	9.82E+01	2.99E+02	2.84E+03	3.19E-02	9.20E-02	2.82E-01	3.13E+01	3.52E-04	1.09E-02	0.00E+00	2.88E-03	6.15E-01	2.35E-03
2014	Annual	Mon-Sun	2.3E+09	Scrapers	500	Construction and Mining Equipment	Los Angeles	SC	2.70E+02	8.24E+02	1.20E+04	1.25E-01	4.69E-01	1.07E+00	1.32E+02	1.30E-03	4.17E-02	0.00E+00	1.13E-02	1.14E+00	3.16E-03
2014	Annual	Mon-Sun	2.3E+09	Scrapers	750	Construction and Mining Equipment	Los Angeles	SC	7.47E-01	2.28E+00	5.74E+01	5.98E-04	2.24E-03	5.23E-03	6.31E-01	6.35E-06	2.01E-04	0.00E+00	5.40E-05	1.96E+00	5.57E-03
2014	Annual	Mon-Sun	2.3E+09	Signal Boards	15	Construction and Mining Equipment	Los Angeles	SC	7.95E+02	1.63E+03	4.60E+02	5.86E-03	3.08E-02	3.67E-02	5.04E+00	7.84E-05	1.43E-03	0.00E+00	5.29E-04	3.78E-02	9.62E-05
2014	Annual	Mon-Sun	2.3E+09	Signal Boards	50	Construction and Mining Equipment	Los Angeles	SC	3.95E+00	5.80E+00	9.69E+00	2.98E-04	9.63E-04	9.47E-04	1.05E-01	1.35E-06	7.76E-05	0.00E+00	2.69E-05	3.32E-01	4.66E-04
2014	Annual	Mon-Sun	2.3E+09	Signal Boards	120	Construction and Mining Equipment	Los Angeles	SC	6.46E+01	9.48E+01	3.47E+02	5.05E-03	2.44E-02	3.46E-02	3.80E+00	4.46E-05	2.76E-03	0.00E+00	4.56E-04	5.15E-01	9.41E-04
2014	Annual	Mon-Sun	2.3E+09	Signal Boards	175	Construction and Mining Equipment	Los Angeles	SC	4.01E+01	5.88E+01	4.14E+02	4.14E-03	2.44E-02	3.65E-02	4.54E+00	5.11E-05	1.82E-03	0.00E+00	3.73E-04	8.30E-01	1.74E-03
2014	Annual	Mon-Sun	2.3E+09	Signal Boards	250	Construction and Mining Equipment	Los Angeles	SC	8.47E+00	1.24E+01	1.43E+02	9.41E-04	3.24E-03	1.12E-02	1.58E+00	1.78E-05	3.25E-04	0.00E+00	8.49E-05	5.23E-01	2.87E-03
2014	Annual	Mon-Sun	2.3E+09	Skid Steer Loaders	25	Construction and Mining Equipment	Los Angeles	SC	5.42E+02	1.24E+03	7.79E+02	1.21E-02	3.78E-02	7.09E-02	8.54E+00	1.08E-04	3.68E-03	0.00E+00	1.09E-03	6.10E-02	1.74E-04
2014	Annual	Mon-Sun	2.3E+09	Skid Steer Loaders	50	Construction and Mining Equipment	Los Angeles	SC	4.92E+03	1.14E+04	1.34E+04	2.53E-01	1.26E+00	1.24E+00	1.46E+02	1.89E-03	7.69E-02	0.00E+00	2.28E-02	2.21E-01	3.32E-04

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Skid Steer Loaders	120	Construction and Mining Equipment	Los Angeles	SC	2.58E+03	6.00E+03	1.17E+04	1.14E-01	8.17E-01	9.05E-01	1.28E+02	1.50E-03	6.16E-02	0.00E+00	1.03E-02	2.72E-01	5.00E-04
2014	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	50	Construction and Mining Equipment	Los Angeles	SC	5.65E+00	7.01E+00	4.57E+00	1.54E-04	4.78E-04	4.58E-04	4.94E-02	6.39E-07	3.83E-05	0.00E+00	1.39E-05	1.36E-01	1.82E-04
2014	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	120	Construction and Mining Equipment	Los Angeles	SC	1.13E+00	1.40E+00	4.09E+00	6.30E-05	2.93E-04	4.32E-04	4.46E-02	5.24E-07	3.33E-05	0.00E+00	5.69E-06	4.19E-01	7.49E-04
2014	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	175	Construction and Mining Equipment	Los Angeles	SC	8.47E-01	1.05E+00	4.11E+00	4.40E-05	2.48E-04	3.83E-04	4.50E-02	5.07E-07	1.90E-05	0.00E+00	3.97E-06	4.72E-01	9.66E-04
2014	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	250	Construction and Mining Equipment	Los Angeles	SC	1.69E+00	2.10E+00	1.28E+01	1.00E-04	3.40E-04	1.07E-03	1.42E-01	1.59E-06	3.58E-05	0.00E+00	9.04E-06	3.24E-01	1.51E-03
2014	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	500	Construction and Mining Equipment	Los Angeles	SC	1.41E+01	1.75E+01	1.76E+02	1.25E-03	5.32E-03	1.32E-02	1.94E+00	1.90E-05	4.52E-04	0.00E+00	1.13E-04	6.08E-01	2.17E-03
2014	Annual	Mon-Sun	2.3E+09	Surfacing Equipment	750	Construction and Mining Equipment	Los Angeles	SC	1.43E-01	1.77E-01	2.79E+00	2.02E-05	8.45E-05	2.15E-04	3.07E-02	3.09E-07	7.25E-06	0.00E+00	1.82E-06	9.55E-01	3.49E-03
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	25	Construction and Mining Equipment	Los Angeles	SC	7.96E+01	2.06E+02	1.48E+02	1.98E-03	6.72E-03	1.26E-02	1.63E+00	2.07E-05	5.39E-04	0.00E+00	1.79E-04	6.52E-02	2.01E-04
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	50	Construction and Mining Equipment	Los Angeles	SC	4.76E+02	1.26E+03	1.77E+03	4.96E-02	1.95E-01	1.74E-01	1.91E+01	2.47E-04	1.33E-02	0.00E+00	4.47E-03	3.10E-01	3.92E-04
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	120	Construction and Mining Equipment	Los Angeles	SC	6.36E+03	1.69E+04	3.99E+04	5.32E-01	2.95E+00	3.57E+00	4.36E+02	5.11E-03	2.82E-01	0.00E+00	4.80E-02	3.49E-01	6.05E-04
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	175	Construction and Mining Equipment	Los Angeles	SC	4.75E+02	1.26E+03	5.82E+03	5.78E-02	3.68E-01	4.49E-01	6.38E+01	7.18E-04	2.38E-02	0.00E+00	5.22E-03	5.84E-01	1.14E-03
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	250	Construction and Mining Equipment	Los Angeles	SC	1.54E+02	4.07E+02	3.17E+03	2.32E-02	7.34E-02	2.09E-01	3.49E+01	3.93E-04	6.70E-03	0.00E+00	2.09E-03	3.61E-01	1.93E-03
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	500	Construction and Mining Equipment	Los Angeles	SC	2.48E+02	6.57E+02	1.03E+04	7.17E-02	2.38E-01	5.98E-01	1.13E+02	1.27E-03	2.06E-02	0.00E+00	6.47E-03	7.25E-01	3.87E-03
2014	Annual	Mon-Sun	2.3E+09	Tractors/Loaders/Backhoes	750	Construction and Mining Equipment	Los Angeles	SC	2.88E+00	7.64E+00	1.79E+02	1.26E-03	4.15E-03	1.07E-02	1.97E+00	2.22E-05	3.64E-04	0.00E+00	1.13E-04	1.09E+00	5.81E-03
2014	Annual	Mon-Sun	2.3E+09	Trenchers	15	Construction and Mining Equipment	Los Angeles	SC	2.12E+01	3.59E+01	1.39E+01	1.77E-04	9.26E-04	1.11E-03	1.52E-01	2.36E-06	4.32E-05	0.00E+00	1.59E-05	5.16E-02	1.31E-04
2014	Annual	Mon-Sun	2.3E+09	Trenchers	25	Construction and Mining Equipment	Los Angeles	SC	2.23E+01	3.78E+01	5.66E+01	7.50E-04	2.56E-03	4.74E-03	6.21E-01	7.88E-06	1.80E-04	0.00E+00	6.76E-05	1.35E-01	4.17E-04
2014	Annual	Mon-Sun	2.3E+09	Trenchers	50	Construction and Mining Equipment	Los Angeles	SC	8.49E+02	1.47E+03	2.25E+03	1.08E-01	2.92E-01	2.44E-01	2.41E+01	3.12E-04	2.43E-02	0.00E+00	9.73E-03	3.97E-01	4.24E-04
2014	Annual	Mon-Sun	2.3E+09	Trenchers	120	Construction and Mining Equipment	Los Angeles	SC	1.15E+03	1.99E+03	5.91E+03	1.20E-01	4.60E-01	7.43E-01	6.44E+01	7.56E-04	6.21E-02	0.00E+00	1.08E-02	4.62E-01	7.60E-04
2014	Annual	Mon-Sun	2.3E+09	Trenchers	175	Construction and Mining Equipment	Los Angeles	SC	1.26E+02	2.17E+02	1.43E+03	2.02E-02	9.32E-02	1.60E-01	1.56E+01	1.76E-04	8.64E-03	0.00E+00	1.82E-03	8.59E-01	1.62E-03
2014	Annual	Mon-Sun	2.3E+09	Trenchers	250	Construction and Mining Equipment	Los Angeles	SC	1.13E+01	1.95E+01	1.97E+02	2.17E-03	6.63E-03	2.04E-02	2.17E+00	2.44E-05	7.93E-04	0.00E+00	1.96E-04	6.80E-01	2.50E-03
2014	Annual	Mon-Sun	2.3E+09	Trenchers	500	Construction and Mining Equipment	Los Angeles	SC	1.44E+01	2.49E+01	3.52E+02	3.53E-03	1.51E-02	3.29E-02	3.87E+00	3.80E-05	1.27E-03	0.00E+00	3.18E-04	1.21E+00	3.05E-03

OFFROAD2007 Output
used to calculate CO and SOx

(ton/day)

CY	Season	AvgDays	Code	Equipment	MaxHP	Class	County	Air Basin	Population	Activity (hr/day)	Consumption	ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust	CO lb/hr/equipment	SOx lb/hr/equipment
2014	Annual	Mon-Sun	2.3E+09	Trenchers	750	Construction and Mining Equipment	Los Angeles	SC	2.86E-02	4.93E-02	1.32E+00	1.33E-05	5.65E-05	1.25E-04	1.45E-02	1.45E-07	4.80E-06	0.00E+00	1.20E-06	2.29E+00	5.88E-03

GHG emission factors (kg/gal)

	CO2	CH4	N2O
offroad construction equipment[1],[2]	10.21	0.00058	0.00026
onroad trucks[3]	10.21	0.0051	0.0048

[1] CO2 emission factors: 2011 Climate Registry Default Emission Factors, Table 13.1.
[2]N2O and CH4 emission factors: 2011 Climate Registry Default Emission Factors, Table 13.6 for diesel equipment (Other Large Utility Non-Highway Vehicles).
[3] GHG emission factors are from the 2011 Climate Registry Default Emission Factors. Table 13.1 for CO2 and Table 13.4 for N2O and CH4.

Fuel density

Diesel (lb/gal)	7.04

Global Warming Potentials (GWP):

CO2	CH4	N2O
1	21	310

Tugboats

Baseline		2011					Unmitigated Emission Factors (g/hp-hr)											
Equipment	Fuel	Average Model Year [1]	Number of Engines per Craft	Power Rating (hp)	Equipment Age (yr)	Load Factor (%)	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	N2O	CH4
Tug Boat (main engine)	diesel	2001	2	702	11	0.31	0.12	0.10	0.12	2.38	0.01	0.69	0.19	0.18	151	0.01	0.00
Tug Boat (auxiliary engine)	diesel	2000	1	50	12	0.43	0.23	0.19	0.23	3.07	0.01	1.87	0.46	0.44	209	0.01	0.01
Total																	
Project		**2014**															
Tug Boat (main engine)	diesel	2001	2	702	14	0.31	0.13	0.10	0.13	2.45	0.01	0.71	0.20	0.19	151	0.01	0.00
Tug Boat (auxiliary engine)	diesel	2000	1	50	15	0.43	0.24	0.19	0.24	3.10	0.01	1.96	0.49	0.46	209	0.01	0.01
Total																	

Reference:

[1] POLA 2009 Inventory, Table 4.1

E = Power x Act x LF x EF x FCF

Where:

E = emissions (lb/day or lb/year)

Power = rated power of the engine (hp or kW)

Act = activity (hr/day or hr/year)

LF = load factor (ratio of average load used during normal operations as compared to full load at maximum rated horsepower)

EF = emission factor (g/hp-hr)

FCF = fuel correction factor

EF = ZH + (DR x Cumulative Hours) = ZH*(1+DF*Equipment Age/Useful Life)

Where:

ZH = emission rate when the engine is new and there is no component malfunctioning for a given horsepower category and model year

DR = deterioration rate (rate of change of emissions as a function of equipment age)

Cumulative hours = annual operating hours * age of the equipment

DR = (DF x ZH) / cumulative hours at end of useful life

DR = deterioration rate

DF = deterioration factor; percent increase in emissions at the end of the useful life (expressed as %)

ZH = emission rate when the engine is new and there is no component malfunctioning for a given horsepower category and model year

Cumulative hours at end of useful life = annual operating hours * useful life in years

SOx (gms/hp-hr) = (S content in X/1,000,000) x = 0.00552

Where:

X = S content in parts per million (ppm)	15	ppm
BSFC = Brake Specific Fuel Consumption (184 g/bhp-hr per (	184	(g/hp-hr)
MW = Molecular Weight	32	S
	64	SO2

Harbor Craft Zero Emission Factors (ZH):

Propulsion Engine (g/kw-hr) [1]										Auxiliary Engine (g/kw-hr) [1]									
kW Range	Model Year	NOx	CO	HC	PM10	SO2	CO2	N2O	CH4	kW Range	Model Year	NOx	PM10	HC	CO	SO2	CO2	N2O	CH4
0	pre-1998	10.91	4.89	2.47	0.97	0.17	652	0.031	0.049	0	pre-1998	9.25	0.86	2.94	6.9	0.17	652	0.031	0.059
through	1998-1999	10.91	4.89	2.41	0.97	0.17	652	0.031	0.048	through	1998-1999	9.25	0.86	2.87	6.9	0.17	652	0.031	0.057
37	2000-2004	9.8	4.89	2.41	0.97	0.17	652	0.031	0.048	37	2000-2004	9.25	0.86	2.87	6.9	0.17	652	0.031	0.057
	2005-2008	7.13	5	2.41	0.4	0.17	652	0.031	0.048		2005-2008	7.13	0.4	2.87	5	0.17	652	0.031	0.057
	2009-2040	7.13	5	2.41	0.29	0.17	652	0.031	0.048		2009-2040	7.13	0.29	2.87	5	0.17	652	0.031	0.057
37	pre-1997	20.56	4.69	1.93	1.07	0.17	652	0.031	0.039	37	pre-1997	17.43	0.95	2.29	6.62	0.17	652	0.031	0.046
through	1997-1999	13.85	3.42	1.33	0.88	0.17	652	0.031	0.027	through	1997-1999	11.73	0.78	1.58	4.81	0.17	652	0.031	0.032
89	2000-2004	9.8	3.42	1.33	0.88	0.17	652	0.031	0.027	89	2000-2004	9.8	0.78	1.58	4.81	0.17	652	0.031	0.032
	2005-2008	7.13	5	1.33	0.4	0.17	652	0.031	0.027		2005-2008	7.13	0.4	1.58	5	0.17	652	0.031	0.032
	2009-2040	7.13	5	1.33	0.29	0.17	652	0.031	0.027		2009-2040	7.13	0.29	1.58	5	0.17	652	0.031	0.032
89	pre-1971	22.14	4.3	1.77	0.98	0.17	652	0.031	0.035	89	pre-1971	18.77	0.87	2.1	6.07	0.17	652	0.031	0.042
through	1971-1978	20.56	4.3	1.47	0.84	0.17	652	0.031	0.029	through	1971-1978	17.43	0.74	1.76	6.07	0.17	652	0.031	0.035
130	1979-1983	18.98	4.3	1.34	0.7	0.17	652	0.031	0.027	130	1979-1983	16.09	0.62	1.6	6.07	0.17	652	0.031	0.032
	1984-1986	17.4	4.21	1.26	0.7	0.17	652	0.031	0.025		1984-1986	14.75	0.62	1.5	5.94	0.17	652	0.031	0.030
	1987-1994	17.4	4.21	1.18	0.7	0.17	652	0.031	0.024		1987-1995	14.75	0.62	1.41	5.8	0.17	652	0.031	0.028
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1996-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2003	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2003	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2004-2013	6.84	5	0.91	0.29	0.17	652	0.031	0.018		2004-2012	6.84	0.29	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.09	5	0.91	0.12	0.17	652	0.031	0.018		2013-2040	5.09	0.12	1.09	5	0.17	652	0.031	0.022
130	pre-1971	22.14	4.3	1.77	0.98	0.17	652	0.031	0.035	130	pre-1971	18.77	0.87	2.1	6.07	0.17	652	0.031	0.042
through	1971-1978	20.56	4.3	1.47	0.84	0.17	652	0.031	0.029	through	1971-1978	17.43	0.74	1.76	6.07	0.17	652	0.031	0.035
186	1979-1983	18.98	4.3	1.34	0.7	0.17	652	0.031	0.027	186	1979-1983	16.09	0.62	1.6	6.07	0.17	652	0.031	0.032
	1984-1986	17.4	4.21	1.26	0.7	0.17	652	0.031	0.025		1984-1986	14.75	0.62	1.5	5.94	0.17	652	0.031	0.030
	1987-1994	17.4	4.12	1.18	0.7	0.17	652	0.031	0.024		1987-1994	14.75	0.62	1.41	5.8	0.17	652	0.031	0.028
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1995-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2003	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2003	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2004-2013	6.84	5	0.91	0.2	0.17	652	0.031	0.018		2004-2013	6.84	0.2	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.35	5	0.91	0.11	0.17	652	0.031	0.018		2014-2040	5.35	0.11	1.09	5	0.17	652	0.031	0.022
186	pre-1971	2.14	4.12	1.69	0.94	0.17	652	0.031	0.034	186	pre-1971	18.77	0.87	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
373	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	373	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1994	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1994	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1995-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2003	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2003	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2004-2013	6.84	5	0.91	0.2	0.17	652	0.031	0.018		2004-2013	6.84	0.2	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.35	5	0.91	0.11	0.17	652	0.031	0.018		2014-2040	5.35	0.11	1.09	5	0.17	652	0.031	0.022
373	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	373	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
559	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	559	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1994	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1994	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1995-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2013	6.84	5	0.91	0.2	0.17	652	0.031	0.018		2007-2012	6.84	0.2	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.35	5	0.91	0.11	0.17	652	0.031	0.018		2013-2040	5.35	0.11	1.09	5	0.17	652	0.031	0.022
559	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	559	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
1417	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	1417	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1998	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1998	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2011	7.41	5	0.91	0.27	0.17	652	0.031	0.018		2007-2011	7.41	0.27	1.09	5	0.17	652	0.031	0.022
	2012-2016	5.48	5	0.91	0.11	0.17	652	0.031	0.018		2012-2016	5.48	0.11	1.09	5	0.17	652	0.031	0.022

Harbor Craft Zero Emission Factors (ZH):

Propulsion Engine (g/kw-hr) [1]										Auxiliary Engine (g/kw-hr) [1]									
	2017-2040	1.74	5	0.24	0.04	0.17	652	0.031	0.005		2017-2040	1.74	0.04	0.24	5	0.17	652	0.031	0.005
1417	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	1417	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
2461	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	2461	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1998	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1998	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2012	7.41	5	0.91	0.27	0.17	652	0.031	0.018		2007-2012	7.41	0.27	1.09	5	0.17	652	0.031	0.022
	2012-2015	5.86	5	0.91	0.13	0.17	652	0.031	0.018		2012-2015	5.86	0.13	1.09	5	0.17	652	0.031	0.022
	2016-2040	1.74	5	0.24	0.04	0.17	652	0.031	0.005		2016-2040	1.74	0.04	0.24	5	0.17	652	0.031	0.005
2461	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	2461	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
3729	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	3729	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1998	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1998	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2013	7.41	5	0.91	0.27	0.17	652	0.031	0.018		2007-2013	7.41	0.27	1.09	5	0.17	652	0.031	0.022
	2014-2015	6.62	5	0.91	0.34	0.17	652	0.031	0.018		2014-2015	6.62	0.34	1.09	5.03	0.17	652	0.031	0.022
	2016-2040	1.74	5	0.24	0.04	0.17	652	0.031	0.005		2016-2040	1.74	0.04	0.24	5.03	0.17	652	0.031	0.005

Source: CARB 2007. *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix A.*

Harbor Craft Engine Deterioration Factor (DF):

	Propulsion Engine				Auxiliary Engine			
Horsepower Range	**NOx**	**PM10**	**HC**	**CO**	**NOx**	**PM10**	**HC**	**CO**
25-50	0.06	0.31	0.51	0.41	0.06	0.31	0.51	0.41
51-250	0.14	0.44	0.28	0.16	0.14	0.44	0.28	0.16
>250	0.21	0.67	0.44	0.25	0.21	0.67	0.44	0.25

Source: POLA 2010 Emissions Inventory, Table 4.3

Harbor Craft Useful Life (UL) in years:

Harbor Vessel Type	**Main Engines**	**Auxiliary Engines**
Tugboat	21	23

Source: POLA 2010 Emissions Inventory, Table 4.4

Harbor Craft Fuel Correction Factors (FCF):

Equipment MY	**PM10**	**NOx**	**SO2**	**CO**	**HC**	ROG	**CO2**	**N2O**	**CH4**
1995 and older	0.72	0.93	0.04	1	0.72	0.72	1	0.93	0.72
1996 and newer	0.8	0.948	0.04	1	0.72	0.72	1	0.948	0.72

Source: POLA 2010 Emissions Inventory, Table 4.5

Harbor Craft Load Factors (LF):

Harbor Vessel Type	**Main Engines**	**Auxiliary Engines**
Tugboat	0.31	0.43

Source: POLA 2010 Emissions Inventory, Table 4.6

Harbor Craft - SOx Emission Factor

SOx (gms/hp-hr) = (S content in X/1,000,000) x (MW SO2/ MW S) x BSF =	0.00552	g/hp-hr
Where:		
X = S content in parts per million (ppm)	15	ppm
BSFC = Brake Specific Fuel Consumption (per CARB 2007 Harbor Craft Metho	184	(g/hp-hr)
S MW = Molecular Weight	32	
SO2 MW = Molecular Weight	64	

N = Days in period (365 for annual calculation) - not used for peak daily emissions

Operational, Ocean-Going Vessels

OGVs

Baseline	**Propulsion Engines**						**Auxiliary Engines**					**Auxiliary Boilers**				
Vessel	Egine Rating (kW)	Peak Day Activity (hr/day)	Annual Activity (hr/yr)	Load Factor	Peak Day Energy Demand (kW-hr/day)	Annual Energy Demand (kW-hr/yr)	Egine Loads (kW)	Peak Day Activity (hr/day)	Annual Activity (hr/yr)	Peak Day Energy Demand (kW-hr/day)	Annual Energy Demand (kW-hr/yr)	Boiler Loads (kW)	Peak Day Activity (hr/day)	Annual Activity (hr/yr)	Peak Day Energy Demand (kW-hr/day)	Annual Energy Demand (kW-hr/yr)
Baseline 2011																
Fairway	13,000	14.3	685.6	22%	41,335	1,984,094	440	14.3	685.6	6,285	301,664	0	0	0	0	0
Precautionary Zone	13,000	2.9	141.4	17%	6,566	315,152	440	2.9	141.4	1,296	62,208	0	0	0	0	0
Harbor	13,000	1.1	51.2	5%	754	36,174	1321	1.1	51.2	1,409	67,635	246	1.1	51.2	262	12,595
Hotelling	13,000	2	96	2%	520	24,960	734	24	1,152	17,616	845,568	246	24	1,152	5,904	283,392
Project 2014																
Fairway	13,000	14.3	685.6	22%	41,335	1,984,094	440	14.3	685.6	6,285	301,664	0	0	0	0	0
Precautionary Zone	13,000	2.9	141.4	17%	6,566	315,152	440	2.9	141.4	1,296	62,208	0	0	0	0	0
Harbor	13,000	1.1	51.2	5%	754	36,174	1,321	1.1	51.2	1,409	67,635	246	1.1	51.2	262	12,595
Hotelling	13,000	2	96	2%	520	24,960	734	24	1,152	17,616	845,568	246	24	1,152	5,904	283,392

Average Vessel

			Source
World Spirit IMO:	9175925		
Year Built:	1998		
Length x Breadth:	175 m X 29 m		
DeadWeight:	14,101		
Maximum speed (knots)	19.8		2009 POLA Emissions Inventory, Table 3.26
Propulsion Engine (kV	13,000		2009 POLA Emissions Inventory, Table 3.26
Typical propulsion po	10,790	83% of MCR	
Auxiliary Engine (kW)	3,317		
	440	at sea	2009 POLA Emissions Inventory, Table 3.13
	1,321	maneuvering	2009 POLA Emissions Inventory, Table 3.13
	734	hotelling at b	2009 POLA Emissions Inventory, Table 3.13
Boiler (hp)	0	at sea	2009 POLA Emissions Inventory, Table 3.17
	246	maneuvering	2009 POLA Emissions Inventory, Table 3.17
	246	hotelling at b	2009 POLA Emissions Inventory, Table 3.17

Note: Average vessel size would not change from baseline to Project.

Route Distances, nm

Route	Fairway Distance, nm		Precautionary Zone Distance, nm		Harbor Transit Distance, nm
	Inbound	Outbound	Inbound	Outbound	
North	43.3	42.4	8.6	7.6	2
East	25.7	25.7	7.6	7.6	
South	31.3	32.5	8.5	7.4	
West	40	40	8.6	8.6	

Source: 2009 POLA Emissions Inventory, Table 3.1.

Notes:

Breakwater (BW)

Precautionary Zone (PZ)

Vessel Speed, knots

Vessel Type	PZ Speed	Harbor Speed Inbound	Harbor Speed Outbound	Fairway
Auto Carrier	11	7	8	12

Source: 2009 POLA Emissions Inventory, Table 3.15

Notes:

Precautionary Zone (PZ)

Main Engine Emission Factors for OGV using Residual Oil, (g/kW-hr)

Engine	Model Year	PM10	PM2.5	DPM	NOx	SOx	
Slow speed diesel	≤ 1999	1.5	1.2	1.5	18.1	10.5	
Medium speed diesel	≤ 1999	1.5	1.2	1.5	14	11.5	
Slow speed diesel	2000 +	1.5	1.2	1.5	17	10.5	
Medium speed diesel	2000 +	1.5	1.2	1.5	13	11.5	
Gas turbine	all	0.05	0.04	0	6.1	16.5	
Steamship	all	0.8	0.6	0	2.1	16.5	

Source: 2009 POLA Emissions Inventory, Table 3.6 (criterial pollutants) and Table 3.7 (GHGs)

Auxiliary Boiler Emission Factors for OGV using Residual Oil, (g/kW-hr)

Engine	PM10	PM2.5	DPM	NOx
Steam Boil	0.8	0.6	0	2.1

Source: 2009 POLA Emissions Inventory, Table 3.15 (criterial pollutants) and Table 3.16 (GHGs)

Propulsion Engine Load Factor

$LF = (AS / MS)^3$

Where:

LF = load factor, percent

AS = actual speed, knots

MS = maximum speed, knots

Low Load Adjustment Multipliers for Emission Factors

Load	PM	NOx	SOx	CO	HC	CO2	
2%	7.29	4.63	1	9.68	21.18	1	
3%	4.33	2.92	1	6.46	11.68	1	
4%	3.09	2.21	1	4.86	7.71	1	
5%	2.44	1.83	1	3.89	5.61	1	
6%	2.04	1.6	1	3.25	4.35	1	
7%	1.79	1.45	1	2.79	3.52	1	
8%	1.61	1.35	1	2.45	2.95	1	
9%	1.48	1.27	1	2.18	2.52	1	
10%	1.38	1.22	1	1.96	2.18	1	
11%	1.3	1.17	1	1.79	1.96	1	
12%	1.24	1.14	1	1.64	1.76	1	
13%	1.19	1.11	1	1.52	1.6	1	
14%	1.15	1.08	1	1.41	1.47	1	
15%	1.11	1.06	1	1.32	1.36	1	
16%	1.08	1.05	1	1.24	1.26	1	
17%	1.06	1.03	1	1.17	1.18	1	
18%	1.04	1.02	1	1.11	1.11	1	
19%	1.02	1.01	1	1.05	1.05	1	
20%	1	1	1	1	1	1	

Source: 2009 POLA Emissions Inventory, Table 3.10.

Operational, Harbor Craft

WWL Screening Assessment
Tugboats

Baseline							Unmitigated Emission Factors (g/hp-hr)												Operational Activity	
Equipment	Fuel	Average Model Year [1]	of Engines per Craft	Power Rating (hp)	Equipment Age (yr)	Load Factor (%)	PM10	PM2.5	DPM	NOx	SOx	CO	HC	VOC	CO2	N2O	CH4	Peak Day (hr/day)	Annual (hr/year)
2011																			
Tug Boat (main engine)	diesel	2001	2	702	11	0.31	0.12	0.10	0.12	2.38	0.01	0.69	0.19	0.18	151	0.01	0.00	2	102
Tug Boat (auxiliary engine)	diesel	2000	1	50	12	0.43	0.23	0.19	0.23	3.07	0.01	1.87	0.46	0.44	209	0.01	0.01	2	102
Total Project																			
2014																			
Tug Boat (main engine)	diesel	2001	2	702	14	0.31	0.13	0.10	0.13	2.45	0.01	0.71	0.20	0.19	151	0.01	0.00	2	102
Tug Boat (auxiliary engine)	diesel	2000	1	50	15	0.43	0.24	0.19	0.24	3.10	0.01	1.96	0.49	0.46	209	0.01	0.01	2	102

Reference:
[1] POLA 2009 Inventory, Table 4.1

E = Power x Act x LF x EF x FCF
Where:
E = emissions (lb/day or lb/year)
Power = rated power of the engine (hp or kW)
Act = activity (hr/day or hr/year)
LF = load factor (ratio of average load used during normal operations as compared to full load at maximum rated horsepower)
EF = emission factor (g/hp-hr)
FCF = fuel correction factor

EF = ZH + (DR x Cumulative Hours) = ZH*(1+DF*Equipment Age/Useful Life)
Where:
ZH = emission rate when the engine is new and there is no component malfunctioning for a given horsepower category and model year
DR = deterioration rate (rate of change of emissions as a function of equipment age)
Cumulative hours = annual operating hours * age of the equipment

DR = (DF x ZH) / cumulative hours at end of useful life
DR = deterioration rate
DF = deterioration factor; percent increase in emissions at the end of the useful life (expressed as %)
ZH = emission rate when the engine is new and there is no component malfunctioning for a given horsepower category and model year
Cumulative hours at end of useful life = annual operating hours * useful life in years

SOx (gms/hp-hr) = (S content in X/1,000,000) x = 0.00552
Where:
X = S content in parts per million (ppm) 15 ppm
BSFC = Brake Specific Fuel Consumption (184 g/bhp-hr per 184 (g/hp-hr)
MW = Molecular Weight 32 S
64 SO2

Fuel Correction Factors

Fuel	Sulfur Content	PM	NOx	SOx	CO	HC
HFO	1.50%	0.82	1.00	0.56	1	1
MDO	1.50%	0.47	0.90	0.56	1	1
MDO/MGO	0.50%	0.25	0.94	0.18	1	1
MDO/MGO	0.20%	0.19	0.94	0.07	1	1
MDO/MGO	0.10%	0.17	0.94	0.04	1	1

Source: 2009 POLA Emissions Inventory, Table 3.18.

Harbor Craft Zero Emission Factors (ZH):

Propulsion Engine (g/kw-hr) [1]										Auxiliary Engine (g/kw-hr) [1]									
kW Range	Model Year	NOx	CO	HC	PM10	SO2	CO2	N2O	CH4	kW Range	Model Year	NOx	PM10	HC	CO	SO2	CO2	N2O	CH4
0	pre-1998	10.91	4.89	2.47	0.97	0.17	652	0.031	0.049	0	pre-1998	9.25	0.86	2.94	6.9	0.17	652	0.031	0.059
through	1998-1999	10.91	4.89	2.41	0.97	0.17	652	0.031	0.048	through	1998-1999	9.25	0.86	2.87	6.9	0.17	652	0.031	0.057
37	2000-2004	9.8	4.89	2.41	0.97	0.17	652	0.031	0.048	37	2000-2004	9.25	0.86	2.87	6.9	0.17	652	0.031	0.057
	2005-2008	7.13	5	2.41	0.4	0.17	652	0.031	0.048		2005-2008	7.13	0.4	2.87	5	0.17	652	0.031	0.057
	2009-2040	7.13	5	2.41	0.29	0.17	652	0.031	0.048		2009-2040	7.13	0.29	2.87	5	0.17	652	0.031	0.057
37	pre-1997	20.56	4.69	1.93	1.07	0.17	652	0.031	0.039	37	pre-1997	17.43	0.95	2.29	6.62	0.17	652	0.031	0.046
through	1997-1999	13.85	3.42	1.33	0.88	0.17	652	0.031	0.027	through	1997-1999	11.73	0.78	1.58	4.81	0.17	652	0.031	0.032
89	2000-2004	9.8	3.42	1.33	0.88	0.17	652	0.031	0.027	89	2000-2004	9.8	0.78	1.58	4.81	0.17	652	0.031	0.032
	2005-2008	7.13	5	1.33	0.4	0.17	652	0.031	0.027		2005-2008	7.13	0.4	1.58	5	0.17	652	0.031	0.032
	2009-2040	7.13	5	1.33	0.29	0.17	652	0.031	0.027		2009-2040	7.13	0.29	1.58	5	0.17	652	0.031	0.032
89	pre-1971	22.14	4.3	1.77	0.98	0.17	652	0.031	0.035	89	pre-1971	18.77	0.87	2.1	6.07	0.17	652	0.031	0.042
through	1971-1978	20.56	4.3	1.47	0.84	0.17	652	0.031	0.029	through	1971-1978	17.43	0.74	1.76	6.07	0.17	652	0.031	0.035
130	1979-1983	18.98	4.3	1.34	0.7	0.17	652	0.031	0.027	130	1979-1983	16.09	0.62	1.6	6.07	0.17	652	0.031	0.032
	1984-1986	17.4	4.21	1.26	0.7	0.17	652	0.031	0.025		1984-1986	14.75	0.62	1.5	5.94	0.17	652	0.031	0.030
	1987-1994	17.4	4.21	1.18	0.7	0.17	652	0.031	0.024		1987-1995	14.75	0.62	1.41	5.8	0.17	652	0.031	0.028
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1996-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2003	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2003	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2004-2013	6.84	5	0.91	0.29	0.17	652	0.031	0.018		2004-2012	6.84	0.29	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.09	5	0.91	0.12	0.17	652	0.031	0.018		2013-2040	5.09	0.12	1.09	5	0.17	652	0.031	0.022
130	pre-1971	22.14	4.3	1.77	0.98	0.17	652	0.031	0.035	130	pre-1971	18.77	0.87	2.1	6.07	0.17	652	0.031	0.042
through	1971-1978	20.56	4.3	1.47	0.84	0.17	652	0.031	0.029	through	1971-1978	17.43	0.74	1.76	6.07	0.17	652	0.031	0.035
186	1979-1983	18.98	4.3	1.34	0.7	0.17	652	0.031	0.027	186	1979-1983	16.09	0.62	1.6	6.07	0.17	652	0.031	0.032
	1984-1986	17.4	4.21	1.26	0.7	0.17	652	0.031	0.025		1984-1986	14.75	0.62	1.5	5.94	0.17	652	0.031	0.030
	1987-1994	17.4	4.12	1.18	0.7	0.17	652	0.031	0.024		1987-1994	14.75	0.62	1.41	5.8	0.17	652	0.031	0.028
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1995-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2003	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2003	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2004-2013	6.84	5	0.91	0.2	0.17	652	0.031	0.018		2004-2013	6.84	0.2	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.35	5	0.91	0.11	0.17	652	0.031	0.018		2014-2040	5.35	0.11	1.09	5	0.17	652	0.031	0.022
186	pre-1971	2.14	4.12	1.69	0.94	0.17	652	0.031	0.034	186	pre-1971	18.77	0.87	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
373	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	373	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1994	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1994	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1995-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2003	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2003	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2004-2013	6.84	5	0.91	0.2	0.17	652	0.031	0.018		2004-2013	6.84	0.2	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.35	5	0.91	0.11	0.17	652	0.031	0.018		2014-2040	5.35	0.11	1.09	5	0.17	652	0.031	0.022
373	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	373	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
559	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	559	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1994	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1994	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1995-1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1995-1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2013	6.84	5	0.91	0.2	0.17	652	0.031	0.018		2007-2012	6.84	0.2	1.09	5	0.17	652	0.031	0.022
	2014-2040	5.35	5	0.91	0.11	0.17	652	0.031	0.018		2013-2040	5.35	0.11	1.09	5	0.17	652	0.031	0.022
559	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	559	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
1417	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	1417	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1998	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1998	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2011	7.41	5	0.91	0.27	0.17	652	0.031	0.018		2007-2011	7.41	0.27	1.09	5	0.17	652	0.031	0.022
	2012-2016	5.48	5	0.91	0.11	0.17	652	0.031	0.018		2012-2016	5.48	0.11	1.09	5	0.17	652	0.031	0.022

Harbor Craft Zero Emission Factors (ZH):

	Propulsion Engine (g/kw-hr) [1]										Auxiliary Engine (g/kw-hr) [1]								
	2017-2040	1.74	5	0.24	0.04	0.17	652	0.031	0.005		2017-2040	1.74	0.04	0.24	5	0.17	652	0.031	0.005
1417	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	1417	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
2461	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	2461	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1998	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1998	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2012	7.41	5	0.91	0.27	0.17	652	0.031	0.018		2007-2012	7.41	0.27	1.09	5	0.17	652	0.031	0.022
	2012-2015	5.86	5	0.91	0.13	0.17	652	0.031	0.018		2012-2015	5.86	0.13	1.09	5	0.17	652	0.031	0.022
	2016-2040	1.74	5	0.24	0.04	0.17	652	0.031	0.005		2016-2040	1.74	0.04	0.24	5	0.17	652	0.031	0.005
2461	pre-1971	22.14	4.12	1.69	0.94	0.17	652	0.031	0.034	2461	pre-1971	18.77	0.83	2.01	5.8	0.17	652	0.031	0.040
through	1971-1978	20.56	4.12	1.41	0.8	0.17	652	0.031	0.028	through	1971-1978	17.43	0.71	1.68	5.8	0.17	652	0.031	0.034
3729	1979-1983	18.98	4.12	1.27	0.67	0.17	652	0.031	0.025	3729	1979-1983	16.09	0.6	1.51	5.8	0.17	652	0.031	0.030
	1984-1986	17.4	4.12	1.21	0.67	0.17	652	0.031	0.024		1984-1986	14.75	0.6	1.43	5.8	0.17	652	0.031	0.029
	1987-1998	17.4	4.01	1.13	0.67	0.17	652	0.031	0.023		1987-1998	14.75	0.6	1.34	5.66	0.17	652	0.031	0.027
	1999	12.92	2.64	0.91	0.48	0.17	652	0.031	0.018		1999	10.95	0.43	1.09	3.73	0.17	652	0.031	0.022
	2000-2006	9.8	2.64	0.91	0.48	0.17	652	0.031	0.018		2000-2006	9.8	0.43	1.09	3.73	0.17	652	0.031	0.022
	2007-2013	7.41	5	0.91	0.27	0.17	652	0.031	0.018		2007-2013	7.41	0.27	1.09	5	0.17	652	0.031	0.022
	2014-2015	6.62	5	0.91	0.34	0.17	652	0.031	0.018		2014-2015	6.62	0.34	1.09	5.03	0.17	652	0.031	0.022
	2016-2040	1.74	5	0.24	0.04	0.17	652	0.031	0.005		2016-2040	1.74	0.04	0.24	5.03	0.17	652	0.031	0.005

Source: CARB 2007. *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix A.*

Harbor Craft Engine Deterioration Factor (DF):

	Propulsion Engine				Auxiliary Engine			
Horsepower Range	**NOx**	**PM10**	**HC**	**CO**	**NOx**	**PM10**	**HC**	**CO**
25-50	0.06	0.31	0.51	0.41	0.06	0.31	0.51	0.41
51-250	0.14	0.44	0.28	0.16	0.14	0.44	0.28	0.16
>250	0.21	0.67	0.44	0.25	0.21	0.67	0.44	0.25

Source: POLA 2010 Emissions Inventory, Table 4.3

Harbor Craft Useful Life (UL) in years:

Harbor Vessel Type	**Main Engines**	**Auxiliary Engines**
Tugboat	21	23

Source: POLA 2010 Emissions Inventory, Table 4.4

Harbor Craft Fuel Correction Factors (FCF):

Equipment MY	**PM10**	**NOx**	**SO2**	**CO**	**HC**	ROG	**CO2**	**N2O**	**CH4**
1995 and older	0.72	0.93	0.04	1	0.72	0.72	1	0.93	0.72
1996 and newer	0.8	0.948	0.04	1	0.72	0.72	1	0.948	0.72

Source: POLA 2010 Emissions Inventory, Table 4.5

Harbor Craft Load Factors (LF):

Harbor Vessel Type	**Main Engines**	**Auxiliary Engines**
Tugboat	0.31	0.43

Source: POLA 2010 Emissions Inventory, Table 4.6

Harbor Craft - SOx Emission Factor

SOx (gms/hp-hr) = (S content in X/1,000,000) x (MW SO2/ MW S) x BSF =	0.00552	g/hp-hr
Where:		
X = S content in parts per million (ppm)	15	ppm
BSFC = Brake Specific Fuel Consumption (per CARB 2007 Harbor Craft Metho	184	(g/hp-hr)
S MW = Molecular Weight	32	
SO2 MW = Molecular Weight	64	

N = Days in period (365 for annual calculation) - not used for peak daily emissions

Operational, Rail and Autocarriers

(Onroad Emission Factors, pp. 59-86)

Autocarriers and Automobiles

								Peak Day		Annual	
	Transit Segment	Emission Source	Source Type	Emissions Location	Fuel	Category/Class	Miles Traveled (mi/trip)	No. Vehicles/ Day	VMT/Day	No. Vehicles/Year	VMT/Year
2011		autocarrier trucks offsite exhaust	onroad	offsite	dsl	T7 single	50	20	2,003	5,008	500,777
		autocarrier trucks onsite exhaust	onroad	onsite	dsl	T7 single	0.01	20	0.4	5,008	95
		autocarrier trucks onsite idling exhaus	onroad	onsite	dsl	T7 single		20		5,008	
	Vessel to FPR	automobiles	onroad	onsite	gas&dsl	LDA	0.25	3,130	771	150,233	36,989
	FPR to Rail Parking	automobiles	onroad	onsite	gas&dsl	LDA	0.14	526	75	105,163	14,938
	Rail Parking to Rail Loading	automobiles	onroad	onsite	gas&dsl	LDA	0.05	1,200	63	105,163	5,477
	FPR to Truck Parking	automobiles	onroad	onsite	gas&dsl	LDA	0.27	225	62	45,070	12,377
	Truck Parking to Truck Loading	automobiles	onroad	onsite	gas&dsl	LDA	0.05	180	9	45,070	2,347
		autocarrier trucks road dust	fugitive	offsite		T7 single	50	20	2,003	5,008	500,777
		autocarrier trucks road dust	fugitive	onsite		T7 single	0.01	20	0.4	5,008	95
		worker vehicles exhaust	onroad	offsite	gas&dsl	LDA	35	200	14,000	14,592	1,021,440
		worker vehicles road dust	fugitive	offsite	gas&dsl	LDA	35.00	200	14,000.0	14,592	1,021,440
2014		autocarrier trucks exhaust	onroad	offsite	dsl	T7 single	50	30	2,960	7,400	740,000
		autocarrier trucks exhaust	onroad	onsite	dsl	T7 single	0.01	30	1	7,400	140
		autocarrier trucks onsite idling exhaus	onroad	onsite	dsl	T7 single		30		7,400	
	Vessel to FPR	automobiles	onroad	onsite	gas&dsl	LDA	0.25	4,625	1,139	222,000	54,659
	FPR to Rail Parking	automobiles	onroad	onsite	gas&dsl	LDA	0.14	777	110	155,400	22,074
	Rail Parking to Rail Loading	automobiles	onroad	onsite	gas&dsl	LDA	0.05	1,200	63	155,400	8,094
	FPR to Truck Parking	automobiles	onroad	onsite	gas&dsl	LDA	0.27	333	91	66,600	18,290
	Truck Parking to Truck Loading	automobiles	onroad	onsite	gas&dsl	LDA	0.05	266	14	66,600	3,469
		autocarrier trucks road dust	fugitive	offsite		T7 single	50	30	2,960	7,400	740,000
		autocarrier trucks road dust	fugitive	onsite		T7 single	0.01	30	1	7,400	140
		worker vehicles exhaust	onroad	offsite	gas&dsl	LDA	35	240	16,800	17,760	1,243,200
		worker vehicles road dust	fugitive	offsite	gas&dsl	LDA	35.00	240	16,800.0	17,760	1,243,200

PHL

Baseline	**2011**	Power	Activity			
	Travel Distance	Tier 2 Locomotives	Peak Day (No. locomotive	Annual (No. locomotive	Peak Day	Annual
Transit Segment	(mi)	Power (hp)	calls/day)	calls/year)	(hours/day)	(hours/year)
Onsite		240	4	876	1	876
Offsite	8	240	4	876	0.5	467
Total						

Project	**2014**	Power	Activity			
	Travel Distance	Tier 2 Locomotives	Peak Day (No. locomotive	Annual (No. locomotive	Peak Day	Annual
Transit Segment	(mi)	Power (hp)	calls/day)	calls/year)	(hours/day)	(hours/year)
Onsite		240	4	1,294	1	1,294
Offsite	8	240	4	1,294	0.5	690
Total						

PHL

	Emission Factors										
	HC	VOC	CO	NOx	SOx	PM10	PM2.5	DPM	**CO2**	**CH4**	**N2O**
PHL Locomotive (g/hp-hr) 2011 fleet			0.402	1.743	6.228	0.006	0.152	0.140	0.152	670.000	0.050	0.017
PHL Locomotive (g/hp-hr) 2014 fleet			0.211	1.743	4.192	0.006	0.025	0.023	0.025	670.000	0.050	0.017

Locomotive Characteristics

Average Locomotive Speed (mi/hr)	15
Average time locomotive spends at WWL, engaged in WWL tasks (hr)	1
Average travel distance to near-dock rail yards (mi)	4
Fleet mix	
Tier 2 locomotives	16
Gensets	6
Total	22

Onroad Emission Factors

offsite

EMFAC 2011
2013 Estimated Annual Emission Rates
EMFAC 2011 Vehicle Categories
Los Angeles COUNTY
South Coast AIR BASIN
South Coast AQMD

	Area	CalYr	Season	Veh	Fuel	MdlYr	Speed (Miles/hr)	Pop (Vehicles)	VMT (Miles/day)	Trips (Trips/day)
2011_T7 Single_DSL_offsite	Los Angele	2011	Annual	T7 Single	DSL	AllMYr	AllSpeeds	5642.225633	427433.0781	0
	Los Angele	2011	Annual	LDA	GAS	AllMYr	AllSpeeds	3.43E+06	1.14E+08	21597333.44
	Los Angele	2011	Annual	LDA	DSL	AllMYr	AllSpeeds	1.23E+04	3.46E+05	69210.91386
	Los Angele	2011	Annual	LDT1	GAS	AllMYr	AllSpeeds	3.81E+05	1.27E+07	2322656.398
	Los Angele	2011	Annual	LDT1	DSL	AllMYr	AllSpeeds	5.66E+02	1.62E+04	2974.67764
2011_worker_vehicle_exhaust_gas&dsl_offsite										
2013_LDT2_gas_offsite	Los Angele	2013	Annual	LDT2	gas	AllMYr	AllSpeeds	1.09E+06	3.87E+07	6894700.829
2013_LDT2_DSL_offsite	Los Angele	2013	Annual	LDT2	DSL	AllMYr	AllSpeeds	518.0616113	17318.49397	2912.519133
2013_T6 instate construction heavy_DSL_offsite	Los Angele	2013	Annual	T6 instate	DSL	AllMYr	AllSpeeds	1890.214883	100900.5262	0
2013_LDA_GAS_offsite	Los Angele	2013	Annual	LDA	GAS	AllMYr	AllSpeeds	3468117.5	1.16E+08	2.18E+07
2013_LDA_DSL_offsite	Los Angele	2013	Annual	LDA	DSL	AllMYr	AllSpeeds	12432.38094	378377.9968	71454.51036
2013_LDT1_GAS_offsite	Los Angele	2013	Annual	LDT1	GAS	AllMYr	AllSpeeds	381381.5782	1.28E+07	2320501.249
2013_LDT1_DSL_offsite	Los Angele	2013	Annual	LDT1	DSL	AllMYr	AllSpeeds	566.842614	17205.74963	2967.77334
2013_T7 Single_DSL_offsite	Los Angele	2013	Annual	T7 Single	DSL	AllMYr	AllSpeeds	6309.293858	472696.4817	0
2013_worker_vehicle_exhaust_gas&dsl_offsite										
2014_LDT2_GAS_offsite	Los Angele	2014	Annual	LDT2	GAS	AllMYr	AllSpeeds	1097945.493	3.88E+07	6911208.609
2014_LDT2_DSL_offsite	Los Angele	2014	Annual	LDT2	DSL	AllMYr	AllSpeeds	519.6417466	18104.74575	2999.701915
2014_T6 instate construction heavy_DSL_offsite	Los Angele	2014	Annual	T6 instate	DSL	AllMYr	AllSpeeds	2106.576218	111184.1812	0
2014_LDA_GAS_offsite	Los Angele	2014	Annual	LDA	GAS	AllMYr	AllSpeeds	3482857.315	1.16E+08	2.20E+07
2014_LDA_DSL_offsite	Los Angele	2014	Annual	LDA	DSL	AllMYr	AllSpeeds	12485.21805	387550.4452	72558.51227
2014_LDT1_GAS_offsite	Los Angele	2014	Annual	LDT1	GAS	AllMYr	AllSpeeds	381804.9854	1.28E+07	2319766.572
2014_LDT1_DSL_offsite	Los Angele	2014	Annual	LDT1	DSL	AllMYr	AllSpeeds	567.471762	17653.03086	2988.91864
2014_T7 Single_DSL_offsite	Los Angele	2014	Annual	T7 Single	DSL	AllMYr	AllSpeeds	6630.167493	496679.7927	0
2014_worker_vehicle_exhaust_gas&dsl_offsite										

CAAP trucks exhaust & idling

	Los Angele	2013	Annual	T6 instate	DSL	2007	AllSpeeds	94.62371161	6806.979758	0
	Los Angele	2013	Annual	T6 instate	DSL	2008	AllSpeeds	79.86182545	6068.845085	0
	Los Angele	2013	Annual	T6 instate	DSL	2009	AllSpeeds	50.00879994	3983.111587	0
	Los Angele	2013	Annual	T6 instate	DSL	2010	AllSpeeds	48.6913088	4017.084402	0
	Los Angele	2013	Annual	T6 instate	DSL	2011	AllSpeeds	58.15272211	4887.570209	0
	Los Angele	2013	Annual	T6 instate	DSL	2012	AllSpeeds	68.24082001	5710.772408	0
	Los Angele	2013	Annual	T6 instate	DSL	2013	AllSpeeds	64.40366274	5389.657687	0
	Los Angele	2013	Annual	T6 instate	DSL	2014	AllSpeeds	17.46637835	609.0349805	0
2013_T6 instate construction heavy_DSL_offsite_CAAP										
	Los Angele	2014	Annual	T6 instate	DSL	2007	AllSpeeds	88.90408024	6027.041881	0
	Los Angele	2014	Annual	T6 instate	DSL	2008	AllSpeeds	80.88562676	5818.698239	0
	Los Angele	2014	Annual	T6 instate	DSL	2009	AllSpeeds	56.31461578	4279.449878	0
	Los Angele	2014	Annual	T6 instate	DSL	2010	AllSpeeds	53.47109949	4258.877562	0

offsite

	ROG_RUNEX (gms/mile)	ROG_IDLEX (gms/vehicle/day)	ROG_STREX (gms/vehicle/day)	ROG_DIURN (gms/vehicle/day)	ROG_HTSK (gms/vehicle/day)	ROG_RUNLS (gms/mile)	ROG_RESTL (gms/vehicle/day)	TOG_RUNEX (gms/mile)
2011_T7 Single_DSL_offsite	0.560627182	3.563427573	0	0	0	0	0	0.638231371
	0.077849555	0	2.273973275	0.665796192	1.31486085	0.100697846	0.480791407	0.101680701
	0.105453522	0	0	0	0	0	0	0.120051818
	0.201215907	0	4.071836126	1.376626232	2.411958296	0.278545036	0.955516949	0.249107394
	0.15461024	0	0	0	0	0	0	0.176013466
2011_worker_vehicle_exhaust_gas&dsl_offsite								
2013_LDT2_gas_offsite	0.069938874	0	2.154628056	0.548756722	1.1716599	0.114550397	0.445275992	0.096713752
2013_LDT2_DSL_offsite	0.093917927	0	0	0	0	0	0	0.106919316
2013_T6 instate construction heavy_DSL_offsite	0.319673262	0.308327489	0	0	0	0	0	0.363923675
2013_LDA_GAS_offsite	0.056199619	0	1.667015133	0.526688878	1.122786836	0.079580064	0.411544271	0.075316958
2013_LDA_DSL_offsite	0.070358479	0	0	0	0	0	0	0.080098449
2013_LDT1_GAS_offsite	0.154348922	0	3.385134281	1.265430058	2.260178545	0.250519007	0.911049634	0.195042881
2013_LDT1_DSL_offsite	0.122721458	0	0	0	0	0	0	0.139710216
2013_T7 Single_DSL_offsite	0.437789513	3.46947122	0	0	0	0	0	0.498390035
2013_worker_vehicle_exhaust_gas&dsl_offsite								
2014_LDT2_GAS_offsite	0.060346665	0	1.912406943	0.520456404	1.140023646	0.107437659	0.439256051	0.084878639
2014_LDT2_DSL_offsite	0.070934195	0	0	0	0	0	0	0.080753862
2014_T6 instate construction heavy_DSL_offsite	0.196219235	0.211273524	0	0	0	0	0	0.223380662
2014_LDA_GAS_offsite	0.047015402	0	1.422943099	0.468996317	1.033038834	0.0707602	0.380678185	0.064251463
2014_LDA_DSL_offsite	0.058956376	0	0	0	0	0	0	0.067117914
2014_LDT1_GAS_offsite	0.133387044	0	3.078064749	1.215221949	2.187338932	0.237237792	0.89223751	0.170919677
2014_LDT1_DSL_offsite	0.108473082	0	0	0	0	0	0	0.123489391
2014_T7 Single_DSL_offsite	0.31871168	3.293368696	0	0	0	0	0	0.362828987
2014_worker_vehicle_exhaust_gas&dsl_offsite								
CAAP trucks exhaust & idling								
	0.164582567	0.20990721	0	0	0	0	0	0.187364724
	0.152908596	0.20990721	0	0	0	0	0	0.174074797
	0.140576651	0.20990721	0	0	0	0	0	0.160035816
	0.087390047	0.20990721	0	0	0	0	0	0.099486916
	0.080745928	0.20990721	0	0	0	0	0	0.091923092
	0.073977134	0.20990721	0	0	0	0	0	0.084217336
	0.064885656	0.20990721	0	0	0	0	0	0.07386738
	0.060497879	0.20990721	0	0	0	0	0	0.06887223
2013_T6 instate construction heavy_DSL_offsite_CAAP								
	0.17558401	0.20990721	0	0	0	0	0	0.19988903
	0.164582567	0.20990721	0	0	0	0	0	0.187364724
	0.152908596	0.20990721	0	0	0	0	0	0.174074797
	0.093804435	0.20990721	0	0	0	0	0	0.106789209

offsite

	TOG_IDLEX (gms/vehicle/day)	TOG_STREX (gms/vehicle/day)	TOG_DIURN (gms/vehicle/day)	TOG_HTSK (gms/vehicle/day)	TOG_RUNLS (gms/mile)	TOG_RESTL (gms/vehicle/day)	CO_RUNEX (gms/mile)	CO_IDLEX (gms/vehicle/day)
2011_T7 Single_DSL_offsite	4.056691039	0	0	0	0	0	2.611284884	15.21373125
	0	2.431538567	0.665796192	1.31486085	0.100697846	0.480791407	2.096035082	0
	0	0	0	0	0	0	0.470043228	0
	0	4.353306803	1.376626232	2.411958296	0.278545036	0.955516949	5.240754056	0
	0	0	0	0	0	0	0.664262848	0
2011_worker_vehicle_exhaust_gas&dsl_offsite								
2013_LDT2_gas_offsite	0	2.302058121	0.548756722	1.1716599	0.114550397	0.445275992	2.31839557	0
2013_LDT2_DSL_offsite	0	0	0	0	0	0	0.436165735	0
2013_T6 instate construction heavy_DSL_offsite	0.351007376	0	0	0	0	0	1.179374954	2.660861051
2013_LDA_GAS_offsite	0	1.782324305	0.526688878	1.122786836	0.079580064	0.411544271	1.644893749	0
2013_LDA_DSL_offsite	0	0	0	0	0	0	0.334179215	0
2013_LDT1_GAS_offsite	0	3.618040539	1.265430058	2.260178545	0.250519007	0.911049634	4.334663044	0
2013_LDT1_DSL_offsite	0	0	0	0	0	0	0.537068173	0
2013_T7 Single_DSL_offsite	3.949728884	0	0	0	0	0	2.037432248	15.90793076
2013_worker_vehicle_exhaust_gas&dsl_offsite								
2014_LDT2_GAS_offsite	0	2.043092314	0.520456404	1.140023646	0.107437659	0.439256051	2.090727944	0
2014_LDT2_DSL_offsite	0	0	0	0	0	0	0.356954065	0
2014_T6 instate construction heavy_DSL_offsite	0.240518824	0	0	0	0	0	0.720493972	1.813843289
2014_LDA_GAS_offsite	0	1.52116487	0.468996317	1.033038834	0.0707602	0.380678185	1.457075047	0
2014_LDA_DSL_offsite	0	0	0	0	0	0	0.288664061	0
2014_LDT1_GAS_offsite	0	3.289247195	1.215221949	2.187338932	0.237237792	0.89223751	3.937713899	0
2014_LDT1_DSL_offsite	0	0	0	0	0	0	0.478137998	0
2014_T7 Single_DSL_offsite	3.749249565	0	0	0	0	0	1.496316425	15.63231493
2014_worker_vehicle_exhaust_gas&dsl_offsite								
CAAP trucks exhaust & idling								
	0.23896338	0	0	0	0	0	0.686063287	2.48216654
	0.23896338	0	0	0	0	0	0.637400279	2.48216654
	0.23896338	0	0	0	0	0	0.585994501	2.48216654
	0.23896338	0	0	0	0	0	0.364285864	2.48216654
	0.23896338	0	0	0	0	0	0.336589819	2.48216654
	0.23896338	0	0	0	0	0	0.30837407	2.48216654
	0.23896338	0	0	0	0	0	0.270476194	2.48216654
	0.23896338	0	0	0	0	0	0.252185724	2.48216654
2013_T6 instate construction heavy_DSL_offsite_CAAP								
	0.23896338	0	0	0	0	0	0.731922861	2.48216654
	0.23896338	0	0	0	0	0	0.686063287	2.48216654
	0.23896338	0	0	0	0	0	0.637400279	2.48216654
	0.23896338	0	0	0	0	0	0.391024276	2.48216654

offsite

	CO_STREX (gms/vehicle/day)	NOX_RUNEX (gms/mile)	NOX_IDLEX (gms/vehicle/day)	NOX_STREX (gms/vehicle/day)	CO2_RUNEX (gms/mile)	CO2_IDLEX (gms/vehicle/day)	CO2_STREX (gms/vehicle/day)	CO2_RUNEX(Pavley (gms/mile)
2011_T7 Single_DSL_offsite	0	13.4135927	28.78112309	0	1741.57093	2429.239535	0	1737.217003
	24.80415383	0.186026837	0	1.708006832	369.2713433	0	462.3065234	361.0888324
	0	0.784941838	0	0	341.818524	0	0	330.5433609
	49.74332666	0.495087177	0	2.755186333	424.2167486	0	513.5833055	416.9208756
	0	1.025364244	0	0	359.9841577	0	0	351.3158199
2011_worker_vehicle_exhaust_gas&dsl_offsite								
2013_LDT2_gas_offsite	27.17400548	0.280706394	0	2.665109165	504.9927928	0	628.716615	478.2832325
2013_LDT2_DSL_offsite	0	0.818688972	0	0	343.3335622	0	0	318.3436682
2013_T6 instate construction heavy_DSL_offsite	0	7.929748688	9.779563744	0	1143.350256	697.6499075	0	1131.916754
2013_LDA_GAS_offsite	19.27172714	0.144044625	0	1.318942226	370.0218696	0	463.5784644	340.8174286
2013_LDA_DSL_offsite	0	0.593379507	0	0	333.7020948	0	0	299.7574959
2013_LDT1_GAS_offsite	42.23359078	0.41284409	0	2.362935139	425.5569186	0	512.1062308	399.9098164
2013_LDT1_DSL_offsite	0	0.839793883	0	0	350.2302375	0	0	322.947112
2013_T7 Single_DSL_offsite	0	11.81584329	29.16348588	0	1742.304182	2733.387604	0	1724.881141
2013_worker_vehicle_exhaust_gas&dsl_offsite								
2014_LDT2_GAS_offsite	24.54959319	0.249333593	0	2.382663501	504.9332715	0	628.9640508	468.2870035
2014_LDT2_DSL_offsite	0	0.695071878	0	0	337.2367325	0	0	303.0335439
2014_T6 instate construction heavy_DSL_offsite	0	7.464009762	9.709445623	0	1147.646446	708.2566046	0	1130.431749
2014_LDA_GAS_offsite	17.00661023	0.127493706	0	1.153787834	370.192281	0	464.1291169	330.7313443
2014_LDA_DSL_offsite	0	0.530622053	0	0	331.010068	0	0	288.2104124
2014_LDT1_GAS_offsite	38.88743895	0.378047278	0	2.186755261	425.9417703	0	511.3875407	390.951084
2014_LDT1_DSL_offsite	0	0.760802968	0	0	346.0844128	0	0	309.5758344
2014_T7 Single_DSL_offsite	0	10.89787705	29.39439231	0	1746.94247	2904.922067	0	1720.738333
2014_worker_vehicle_exhaust_gas&dsl_offsite								
CAAP trucks exhaust & idling								
	0	4.39694852	3.750044245	0	1162.943086	745.7841238	0	1151.313655
	0	3.984644827	3.750044245	0	1162.943086	745.7841238	0	1151.313655
	0	3.397244202	3.750044245	0	1162.943086	745.7841238	0	1151.313655
	0	1.166628436	3.750044245	0	1124.086393	745.7841238	0	1112.845529
	0	0.951802708	3.750044245	0	1124.086393	745.7841238	0	1112.845529
	0	0.701859093	3.750044245	0	1124.086393	745.7841238	0	1112.845529
	0	0.575487777	3.750044245	0	1121.499313	745.7841238	0	1110.28432
	0	0.496021202	3.750044245	0	1121.499313	745.7841238	0	1110.28432
2013_T6 instate construction heavy_DSL_offsite_CAAP								
	0	4.499632533	3.750044245	0	1162.943086	745.7841238	0	1145.49894
	0	4.090940285	3.750044245	0	1162.943086	745.7841238	0	1145.49894
	0	3.506538777	3.750044245	0	1162.943086	745.7841238	0	1145.49894
	0	1.266240955	3.750044245	0	1124.086393	745.7841238	0	1107.225097

offsite

	CO2_IDLEX(Pavley (gms/vehicle/day)	CO2_STREX(Pavley (gms/vehicle/day)	PM10_RUNEX (gms/mile)	PM10_IDLEX (gms/vehicle/day)	PM10_STREX (gms/vehicle/day)	PM10_PMTW (gms/mile)	PM10_PMBW (gms/mile)	PM2_5_RUNEX (gms/mile)
2011_T7 Single_DSL_offsite	2423.166436	0	0.429977276	0.455645999	0	0.035999812	0.061739677	0.395579094
	0	454.904321	0.003382811	0	0.025289343	0.007999959	0.036749814	0.003066938
	0	0	0.080705747	0	0	0.007999959	0.036749814	0.074249289
	0	506.738594	0.007861249	0	0.045614634	0.007999958	0.036749815	0.007131604
	0	0	0.132100012	0	0	0.007999959	0.036749814	0.12153201
2011_worker_vehicle_exhaust_gas&dsl_offsite								
2013_LDT2_gas_offsite	0	600.6013715	0.002781646	0	0.019560546	0.007999959	0.036749815	0.002538138
2013_LDT2_DSL_offsite	0	0	0.077078163	0	0	0.007999959	0.036749816	0.070911916
2013_T6 instate construction heavy_DSL_offsite	690.6734084	0	0.234217914	0.091135801	0	0.011999937	0.130339319	0.215480481
2013_LDA_GAS_offsite	0	435.1829398	0.002570804	0	0.020070253	0.007999959	0.036749815	0.002336156
2013_LDA_DSL_offsite	0	0	0.053349412	0	0	0.007999959	0.036749815	0.049081462
2013_LDT1_GAS_offsite	0	486.7281414	0.006580812	0	0.038505963	0.007999959	0.036749815	0.005999357
2013_LDT1_DSL_offsite	0	0	0.103642969	0	0	0.007999958	0.036749815	0.095351535
2013_T7 Single_DSL_offsite	2706.053728	0	0.316794176	0.365695346	0	0.035999812	0.061739677	0.291450642
2013_worker_vehicle_exhaust_gas&dsl_offsite								
2014_LDT2_GAS_offsite	0	589.487601	0.002544746	0	0.018518743	0.007999959	0.036749819	0.002327215
2014_LDT2_DSL_offsite	0	0	0.056717884	0	0	0.007999958	0.036749814	0.052180455
2014_T6 instate construction heavy_DSL_offsite	697.6327555	0	0.131059167	0.054761628	0	0.011999937	0.130339319	0.120574433
2014_LDA_GAS_offsite	0	424.3677771	0.002319151	0	0.01869571	0.007999958	0.036749813	0.002113408
2014_LDA_DSL_offsite	0	0	0.044489122	0	0	0.007999958	0.036749814	0.040929994
2014_LDT1_GAS_offsite	0	475.8589087	0.006069999	0	0.035872162	0.007999959	0.036749815	0.00555066
2014_LDT1_DSL_offsite	0	0	0.091048668	0	0	0.007999958	0.036749814	0.08376478
2014_T7 Single_DSL_offsite	2861.348236	0	0.208921773	0.299423289	0	0.035999812	0.061739677	0.192208031
2014_worker_vehicle_exhaust_gas&dsl_offsite								
CAAP trucks exhaust & idling								
	738.3262825	0	0.048366785	0.008813841	0	0.011999937	0.130339319	0.044497442
	738.3262825	0	0.045088513	0.008813841	0	0.011999937	0.130339319	0.041481432
	738.3262825	0	0.041625469	0.008813841	0	0.011999937	0.130339319	0.038295431
	738.3262825	0	0.037995766	0.008813841	0	0.011999937	0.130339319	0.034956104
	738.3262825	0	0.034236065	0.008813841	0	0.011999937	0.130339319	0.03149718
	738.3262825	0	0.030405815	0.008813841	0	0.011999937	0.130339319	0.02797335
	738.3262825	0	0.025342322	0.008813841	0	0.011999937	0.130339319	0.023314936
	738.3262825	0	0.022778323	0.008813841	0	0.011999937	0.130339319	0.020956057
2013_T6 instate construction heavy_DSL_offsite_CAAP								
	734.5973619	0	0.051456198	0.008813841	0	0.011999937	0.130339319	0.047339702
	734.5973619	0	0.048366785	0.008813841	0	0.011999937	0.130339319	0.044497442
	734.5973619	0	0.045088513	0.008813841	0	0.011999937	0.130339319	0.041481432
	734.5973619	0	0.041625469	0.008813841	0	0.011999937	0.130339319	0.038295431

offsite

	PM2_5_IDLEX (gms/vehicle/day)	PM2_5_STREX (gms/vehicle/day)	PM2_5_PMTW (gms/mile)	PM2_5_PMBW (gms/mile)	SOX_RUNEX (gms/mile)	SOX_IDLEX (gms/vehicle/day)	SOX_STREX (gms/vehicle/day)	exhaust ROG (gms/mile)
2011_T7 Single_DSL_offsite	0.419194319	0	0.008999953	0.026459862	0.016615401	0.023176081	0	5.61E-01
	0	0.02287112	0.00199999	0.015749919	0.003721842	0	0.005076043	1.79E-01
	0	0	0.00199999	0.015749919	0.003263212	0	0	1.05E-01
	0	0.0413885	0.00199999	0.01574992	0.004323978	0	0.00603624	4.80E-01
	0	0	0.00199999	0.01574992	0.003436632	0	0	1.55E-01
2011_worker_vehicle_exhaust_gas&dsl_offsite								2.30E-01
2013_LDT2_gas_offsite	0	0.017891655	0.00199999	0.015749919	0.005079912	0	0.006770437	1.84E-01
2013_LDT2_DSL_offsite	0	0	0.00199999	0.015749919	0.003277675	0	0	9.39E-02
2013_T6 instate construction heavy_DSL_offsite	0.083844937	0	0.002999984	0.055859708	0.010908096	0.006655906	0	3.20E-01
2013_LDA_GAS_offsite	0	0.018215861	0.00199999	0.01574992	0.003721479	0	0.004982646	1.36E-01
2013_LDA_DSL_offsite	0	0	0.00199999	0.01574992	0.003185727	0	0	7.04E-02
2013_LDT1_GAS_offsite	0	0.035120871	0.00199999	0.01574992	0.004321539	0	0.005881829	4.05E-01
2013_LDT1_DSL_offsite	0	0	0.00199999	0.015749919	0.003343515	0	0	1.23E-01
2013_T7 Single_DSL_offsite	0.336439719	0	0.008999953	0.026459862	0.016622396	0.026077796	0	4.38E-01
2013_worker_vehicle_exhaust_gas&dsl_offsite								1.83E-01
2014_LDT2_GAS_offsite	0	0.016979254	0.00199999	0.01574992	0.005075398	0	0.006724036	1.68E-01
2014_LDT2_DSL_offsite	0	0	0.00199999	0.01574992	0.003219471	0	0	7.09E-02
2014_T6 instate construction heavy_DSL_offsite	0.050380697	0	0.002999984	0.055859708	0.010949084	0.006757099	0	1.96E-01
2014_LDA_GAS_offsite	0	0.017029468	0.00199999	0.015749918	0.003719907	0	0.004944844	1.18E-01
2014_LDA_DSL_offsite	0	0	0.00199999	0.01574992	0.003160027	0	0	5.90E-02
2014_LDT1_GAS_offsite	0	0.032822952	0.00199999	0.01574992	0.004318439	0	0.005812389	3.71E-01
2014_LDT1_DSL_offsite	0	0	0.00199999	0.01574992	0.003303936	0	0	1.08E-01
2014_T7 Single_DSL_offsite	0.275469426	0	0.008999953	0.026459862	0.016666648	0.027714315	0	3.19E-01
2014_worker_vehicle_exhaust_gas&dsl_offsite								1.64E-01
CAAP trucks exhaust & idling								
	0.008108734	0	0.002999984	0.055859708	0.011095021	0.007115129	0	1.65E-01
	0.008108734	0	0.002999984	0.055859708	0.011095021	0.007115129	0	1.53E-01
	0.008108734	0	0.002999984	0.055859708	0.011095021	0.007115129	0	1.41E-01
	0.008108734	0	0.002999984	0.055859708	0.01072431	0.007115129	0	8.74E-02
	0.008108734	0	0.002999984	0.055859708	0.01072431	0.007115129	0	8.07E-02
	0.008108734	0	0.002999984	0.055859708	0.01072431	0.007115129	0	7.40E-02
	0.008108734	0	0.002999984	0.055859708	0.010699628	0.007115129	0	6.49E-02
	0.008108734	0	0.002999984	0.055859708	0.010699628	0.007115129	0	6.05E-02
2013_T6 instate construction heavy_DSL_offsite_CAAP								1.03E-01
	0.008108734	0	0.002999984	0.055859708	0.011095021	0.007115129	0	1.76E-01
	0.008108734	0	0.002999984	0.055859708	0.011095021	0.007115129	0	1.65E-01
	0.008108734	0	0.002999984	0.055859708	0.011095021	0.007115129	0	1.53E-01
	0.008108734	0	0.002999984	0.055859708	0.01072431	0.007115129	0	9.38E-02

offsite

	idling during transit ROG (gms/vehicle/day)	exhaust CO (gms/mile)	idling during transit CO (gms/vehicle/day)	exhaust NOx (gms/mile)	idling during transit NOx (gms/vehicle/day)	exhaust SOx (gms/mile)	idling during transit SOx (gms/vehicle/day)	exhaust PM10 (gms/mile)
2011_T7 Single_DSL_offsite	3.56E+00	2.61E+00	1.52E+01	1.34E+01	2.88E+01	1.66E-02	2.32E-02	5.28E-01
	4.74E+00	2.10E+00	2.48E+01	1.86E-01	1.71E+00	3.72E-03	5.08E-03	4.81E-02
	0.00E+00	4.70E-01	0.00E+00	7.85E-01	0.00E+00	3.26E-03	0.00E+00	1.25E-01
	8.82E+00	5.24E+00	4.97E+01	4.95E-01	2.76E+00	4.32E-03	6.04E-03	5.26E-02
	0.00E+00	6.64E-01	0.00E+00	1.03E+00	0.00E+00	3.44E-03	0.00E+00	1.77E-01
2011_worker_vehicle_exhaust_gas&dsl_offsite	3.39E+00	2.12E+00	1.86E+01	6.23E-01	1.12E+00	3.69E-03	2.78E-03	1.01E-01
2013_LDT2_gas_offsite	4.32E+00	2.32E+00	2.72E+01	2.81E-01	2.67E+00	5.08E-03	6.77E-03	4.75E-02
2013_LDT2_DSL_offsite	0.00E+00	4.36E-01	0.00E+00	8.19E-01	0.00E+00	3.28E-03	0.00E+00	1.22E-01
2013_T6 instate construction heavy_DSL_offsite	3.08E-01	1.18E+00	2.66E+00	7.93E+00	9.78E+00	1.09E-02	6.66E-03	3.77E-01
2013_LDA_GAS_offsite	3.73E+00	1.64E+00	1.93E+01	1.44E-01	1.32E+00	3.72E-03	4.98E-03	4.73E-02
2013_LDA_DSL_offsite	0.00E+00	3.34E-01	0.00E+00	5.93E-01	0.00E+00	3.19E-03	0.00E+00	9.81E-02
2013_LDT1_GAS_offsite	7.82E+00	4.33E+00	4.22E+01	4.13E-01	2.36E+00	4.32E-03	5.88E-03	5.13E-02
2013_LDT1_DSL_offsite	0.00E+00	5.37E-01	0.00E+00	8.40E-01	0.00E+00	3.34E-03	0.00E+00	1.48E-01
2013_T7 Single_DSL_offsite	3.47E+00	2.04E+00	1.59E+01	1.18E+01	2.92E+01	1.66E-02	2.61E-02	4.15E-01
2013_worker_vehicle_exhaust_gas&dsl_offsite	2.89E+00	1.71E+00	1.54E+01	4.98E-01	9.20E-01	3.64E-03	2.72E-03	8.63E-02
2014_LDT2_GAS_offsite	4.01E+00	2.09E+00	2.45E+01	2.49E-01	2.38E+00	5.08E-03	6.72E-03	4.73E-02
2014_LDT2_DSL_offsite	0.00E+00	3.57E-01	0.00E+00	6.95E-01	0.00E+00	3.22E-03	0.00E+00	1.01E-01
2014_T6 instate construction heavy_DSL_offsite	2.11E-01	7.20E-01	1.81E+00	7.46E+00	9.71E+00	1.09E-02	6.76E-03	2.73E-01
2014_LDA_GAS_offsite	3.31E+00	1.46E+00	1.70E+01	1.27E-01	1.15E+00	3.72E-03	4.94E-03	4.71E-02
2014_LDA_DSL_offsite	0.00E+00	2.89E-01	0.00E+00	5.31E-01	0.00E+00	3.16E-03	0.00E+00	8.92E-02
2014_LDT1_GAS_offsite	7.37E+00	3.94E+00	3.89E+01	3.78E-01	2.19E+00	4.32E-03	5.81E-03	5.08E-02
2014_LDT1_DSL_offsite	0.00E+00	4.78E-01	0.00E+00	7.61E-01	0.00E+00	3.30E-03	0.00E+00	1.36E-01
2014_T7 Single_DSL_offsite	3.29E+00	1.50E+00	1.56E+01	1.09E+01	2.94E+01	1.67E-02	2.77E-02	3.07E-01
2014_worker_vehicle_exhaust_gas&dsl_offsite	2.67E+00	1.54E+00	1.40E+01	4.49E-01	8.35E-01	3.63E-03	2.69E-03	8.07E-02
CAAP trucks exhaust & idling								
	2.10E-01	6.86E-01	2.48E+00	4.40E+00	3.75E+00	1.11E-02	7.12E-03	1.91E-01
	2.10E-01	6.37E-01	2.48E+00	3.98E+00	3.75E+00	1.11E-02	7.12E-03	1.87E-01
	2.10E-01	5.86E-01	2.48E+00	3.40E+00	3.75E+00	1.11E-02	7.12E-03	1.84E-01
	2.10E-01	3.64E-01	2.48E+00	1.17E+00	3.75E+00	1.07E-02	7.12E-03	1.80E-01
	2.10E-01	3.37E-01	2.48E+00	9.52E-01	3.75E+00	1.07E-02	7.12E-03	1.77E-01
	2.10E-01	3.08E-01	2.48E+00	7.02E-01	3.75E+00	1.07E-02	7.12E-03	1.73E-01
	2.10E-01	2.70E-01	2.48E+00	5.75E-01	3.75E+00	1.07E-02	7.12E-03	1.68E-01
	2.10E-01	2.52E-01	2.48E+00	4.96E-01	3.75E+00	1.07E-02	7.12E-03	1.65E-01
2013_T6 instate construction heavy_DSL_offsite_CAAP	2.10E-01	4.30E-01	2.48E+00	1.96E+00	3.75E+00	1.09E-02	7.12E-03	1.78E-01
	2.10E-01	7.32E-01	2.48E+00	4.50E+00	3.75E+00	1.11E-02	7.12E-03	1.94E-01
	2.10E-01	6.86E-01	2.48E+00	4.09E+00	3.75E+00	1.11E-02	7.12E-03	1.91E-01
	2.10E-01	6.37E-01	2.48E+00	3.51E+00	3.75E+00	1.11E-02	7.12E-03	1.87E-01
	2.10E-01	3.91E-01	2.48E+00	1.27E+00	3.75E+00	1.07E-02	7.12E-03	1.84E-01

offsite

	idling during transit PM10 (gms/vehicle/day)	exhaust PM2.5 (gms/mile)	idling during transit PM2.5 (gms/vehicle/day)	CO2 (gms/mile)	CO2 (gms/vehicle/day)
2011_T7 Single_DSL_offsite	4.56E-01	4.31E-01	4.19E-01	1.74E+03	2.42E+03
	2.53E-02	2.08E-02	2.29E-02	3.61E+02	4.55E+02
	0.00E+00	9.20E-02	0.00E+00	3.31E+02	0.00E+00
	4.56E-02	2.49E-02	4.14E-02	4.17E+02	5.07E+02
	0.00E+00	1.39E-01	0.00E+00	3.51E+02	0.00E+00
2011_worker_vehicle_exhaust_gas&dsl_offsite	1.77E-02	6.92E-02	1.61E-02	3.65E+02	2.40E+02
2013_LDT2_gas_offsite	1.96E-02	2.03E-02	1.79E-02	4.78E+02	6.01E+02
2013_LDT2_DSL_offsite	0.00E+00	8.87E-02	0.00E+00	3.18E+02	0.00E+00
2013_T6 instate construction heavy_DSL_offsite	9.11E-02	2.74E-01	8.38E-02	1.13E+03	6.91E+02
2013_LDA_GAS_offsite	2.01E-02	2.01E-02	1.82E-02	3.41E+02	4.35E+02
2013_LDA_DSL_offsite	0.00E+00	6.68E-02	0.00E+00	3.00E+02	0.00E+00
2013_LDT1_GAS_offsite	3.85E-02	2.37E-02	3.51E-02	4.00E+02	4.87E+02
2013_LDT1_DSL_offsite	0.00E+00	1.13E-01	0.00E+00	3.23E+02	0.00E+00
2013_T7 Single_DSL_offsite	3.66E-01	3.27E-01	3.36E-01	1.72E+03	2.71E+03
2013_worker_vehicle_exhaust_gas&dsl_offsite	1.46E-02	5.59E-02	1.33E-02	3.41E+02	2.30E+02
2014_LDT2_GAS_offsite	1.85E-02	2.01E-02	1.70E-02	4.68E+02	5.89E+02
2014_LDT2_DSL_offsite	0.00E+00	6.99E-02	0.00E+00	3.03E+02	0.00E+00
2014_T6 instate construction heavy_DSL_offsite	5.48E-02	1.79E-01	5.04E-02	1.13E+03	6.98E+02
2014_LDA_GAS_offsite	1.87E-02	1.99E-02	1.70E-02	3.31E+02	4.24E+02
2014_LDA_DSL_offsite	0.00E+00	5.87E-02	0.00E+00	2.88E+02	0.00E+00
2014_LDT1_GAS_offsite	3.59E-02	2.33E-02	3.28E-02	3.91E+02	4.76E+02
2014_LDT1_DSL_offsite	0.00E+00	1.02E-01	0.00E+00	3.10E+02	0.00E+00
2014_T7 Single_DSL_offsite	2.99E-01	2.28E-01	2.75E-01	1.72E+03	2.86E+03
2014_worker_vehicle_exhaust_gas&dsl_offsite	1.36E-02	5.08E-02	1.25E-02	3.30E+02	2.25E+02

CAAP trucks exhaust & idling

	8.81E-03	1.03E-01	8.11E-03	1.15E+03	7.38E+02
	8.81E-03	1.00E-01	8.11E-03	1.15E+03	7.38E+02
	8.81E-03	9.72E-02	8.11E-03	1.15E+03	7.38E+02
	8.81E-03	9.38E-02	8.11E-03	1.11E+03	7.38E+02
	8.81E-03	9.04E-02	8.11E-03	1.11E+03	7.38E+02
	8.81E-03	8.68E-02	8.11E-03	1.11E+03	7.38E+02
	8.81E-03	8.22E-02	8.11E-03	1.11E+03	7.38E+02
	8.81E-03	7.98E-02	8.11E-03	1.11E+03	7.38E+02
2013_T6 instate construction heavy_DSL_offsite_CAAP	8.81E-03	9.17E-02	8.11E-03	1.13E+03	7.38E+02
	8.81E-03	1.06E-01	8.11E-03	1.15E+03	7.35E+02
	8.81E-03	1.03E-01	8.11E-03	1.15E+03	7.35E+02
	8.81E-03	1.00E-01	8.11E-03	1.15E+03	7.35E+02
	8.81E-03	9.72E-02	8.11E-03	1.11E+03	7.35E+02

	Area	CalYr	Season	Veh	Fuel	MdlYr	Speed (Miles/hr)	Pop (Vehicles)	VMT (Miles/day)	Trips (Trips/day)	
	Los Angele	2014	Annual	T6 instate	DSL	2011	AllSpeeds	62.38732509	5147.020211		0
	Los Angele	2014	Annual	T6 instate	DSL	2012	AllSpeeds	70.54384852	5929.008995		0
	Los Angele	2014	Annual	T6 instate	DSL	2013	AllSpeeds	81.00211928	6778.709103		0
	Los Angele	2014	Annual	T6 instate	DSL	2014	AllSpeeds	78.50253128	6569.529638		0
	Los Angele	2014	Annual	T6 instate	DSL	2015	AllSpeeds	20.9694141	731.1823007		0
2014_T6 instate construction heavy_DSL_offsite_CAAP											

onsite

EMFAC 2011
2013 Estimated Annual Emission Rates
EMFAC 2011 Vehicle Categories
Los Angeles COUNTY
South Coast AIR BASIN
South Coast AQMD

	Area	CalYr	Season	Veh	Fuel	MdlYr	Speed (Miles/hr)	Pop (Vehicles)	VMT (Miles/day)	Trips (Trips/day)	
2011_LDA_GAS_onsite	Los Angele	2011	Annual	LDA	GAS	2011		5	0	34452.93	0
2011_LDA_DSL_onsite	Los Angele	2011	Annual	LDA	DSL	2011		5	0	172.8671	0
2011_LDA_gas&dsl_onsite											
2011_T7 Single_DSL_onsite	Los Angele	2011	Annual	T7 Single	DSL	AllMYr		5	0	489.9065679	0
2013_LDA_GAS_onsite	Los Angele	2013	Annual	LDA	GAS	AllMYr		5	0	303629.9859	0
2013_LDA_DSL_onsite	Los Angele	2013	Annual	LDA	DSL	AllMYr		5	0	993.9952693	0
2013_LDA_gas&dsl_onsite											
2013_LDT2_gas_onsite	Los Angele	2013	Annual	LDT2	gas	AllMYr		5	0	101625.826	0
2013_LDT2_DSL_onsite	Los Angele	2013	Annual	LDT2	DSL	AllMYr		5	0	45.49551442	0
2013_T6 instate construction heavy_DSL_onsite	Los Angele	2013	Annual	T6 instate	DSL	AllMYr		5	0	143.1688616	0
2014_LDA_GAS_onsite	Los Angele	2014	Annual	LDA	GAS	2014		5	0	32888.64	0
2014_LDA_DSL_onsite	Los Angele	2014	Annual	LDA	DSL	2014		5	0	125.3281	0
2014_LDA_gas&dsl_onsite											
2014_LDT2_GAS_onsite	Los Angele	2014	Annual	LDT2	GAS	AllMYr		5	0	101919.6164	0
2014_LDT2_DSL_onsite	Los Angele	2014	Annual	LDT2	DSL	AllMYr		5	0	47.56098712	0
2014_T6 instate construction heavy_DSL_onsite	Los Angele	2014	Annual	T6 instate	DSL	AllMYr		5	0	157.7604523	0
2014_T7 Single_DSL_onsite	Los Angele	2014	Annual	T7 Single	DSL	AllMYr		5	0	602.0534038	0

CAAP trucks on-site exhaust

	Los Angele	2013	Annual	T6 instate	DSL	2007		5	0	9.65849812	0
	Los Angele	2013	Annual	T6 instate	DSL	2008		5	0	8.611150749	0
	Los Angele	2013	Annual	T6 instate	DSL	2009		5	0	5.651680649	0
	Los Angele	2013	Annual	T6 instate	DSL	2010		5	0	5.699885048	0
	Los Angele	2013	Annual	T6 instate	DSL	2011		5	0	6.935026891	0
	Los Angele	2013	Annual	T6 instate	DSL	2012		5	0	8.103077506	0
	Los Angele	2013	Annual	T6 instate	DSL	2013		5	0	7.647444312	0
	Los Angele	2013	Annual	T6 instate	DSL	2014		5	0	0.864166403	0
2013_T6 instate construction heavy_DSL_onsite_CAAP											

	ROG_RUNEX (gms/mile)	ROG_IDLEX (gms/vehicle/day)	ROG_STREX (gms/vehicle/day)	ROG_DIURN (gms/vehicle/day)	ROG_HTSK (gms/vehicle/day)	ROG_RUNLS (gms/mile)	ROG_RESTL (gms/vehicle/day)	TOG_RUNEX (gms/mile)
	0.087390047	0.20990721	0	0	0	0	0	0.099486916
	0.080745928	0.20990721	0	0	0	0	0	0.091923092
	0.069273436	0.20990721	0	0	0	0	0	0.078862534
	0.064885656	0.20990721	0	0	0	0	0	0.07386738
	0.060497879	0.20990721	0	0	0	0	0	0.06887223
2014_T6 instate construction heavy_DSL_offsite_CAAP								

onsite

	ROG_RUNEX (gms/mile)	ROG_IDLEX (gms/vehicle/day)	ROG_STREX (gms/vehicle/day)	ROG_DIURN (gms/vehicle/day)	ROG_HTSK (gms/vehicle/day)	ROG_RUNLS (gms/mile)	ROG_RESTL (gms/vehicle/day)	TOG_RUNEX (gms/mile)
2011_LDA_GAS_onsite	0.038596702	0	0	0	0	0	0	0.071833346
2011_LDA_DSL_onsite	0.009834191	0	0	0	0	0	0	0.011195573
2011_LDA_gas&dsl_onsite								
2011_T7 Single_DSL_onsite	7.503438479	0	0	0	0	0	0	8.542093537
2013_LDA_GAS_onsite	0.251807213	0	0	0	0	0	0	0.349239318
2013_LDA_DSL_onsite	0.181601347	0	0	0	0	0	0	0.20674105
2013_LDA_gas&dsl_onsite								
2013_LDT2_gas_onsite	0.323847154	0	0	0	0	0	0	0.460395769
2013_LDT2_DSL_onsite	0.242800958	0	0	0	0	0	0	0.276412751
2013_T6 instate construction heavy_DSL_onsite	4.120689918	0	0	0	0	0	0	4.6910918
2014_LDA_GAS_onsite	0.038617659	0	0	0	0	0	0	0.071872348
2014_LDA_DSL_onsite	0.009834193	0	0	0	0	0	0	0.011195575
2014_LDA_gas&dsl_onsite								
2014_LDT2_GAS_onsite	0.28272364	0	0	0	0	0	0	0.408860724
2014_LDT2_DSL_onsite	0.183059975	0	0	0	0	0	0	0.208401616
2014_T6 instate construction heavy_DSL_onsite	2.460156085	0	0	0	0	0	0	2.800700433
2014_T7 Single_DSL_onsite	4.238270302	0	0	0	0	0	0	4.824948116
CAAP trucks on-site exhaust								
	2.00672733	0	0	0	0	0	0	2.284506311
	1.864388582	0	0	0	0	0	0	2.122464481
	1.714027266	0	0	0	0	0	0	1.951289569
	1.065532019	0	0	0	0	0	0	1.213027094
	0.984521402	0	0	0	0	0	0	1.120802673
	0.901990655	0	0	0	0	0	0	1.0268477
	0.791139799	0	0	0	0	0	0	0.900652438
	0.737640381	0	0	0	0	0	0	0.839747424
2013_T6 instate construction heavy_DSL_onsite_CAAP								

	TOG_IDLEX (gms/vehicle/day)	TOG_STREX (gms/vehicle/day)	TOG_DIURN (gms/vehicle/day)	TOG_HTSK (gms/vehicle/day)	TOG_RUNLS (gms/mile)	TOG_RESTL (gms/vehicle/day)	CO_RUNEX (gms/mile)	CO_IDLEX (gms/vehicle/day)
	0.23896338	0	0	0	0	0	0.364285864	2.48216654
	0.23896338	0	0	0	0	0	0.336589819	2.48216654
	0.23896338	0	0	0	0	0	0.288766678	2.48216654
	0.23896338	0	0	0	0	0	0.270476194	2.48216654
	0.23896338	0	0	0	0	0	0.252185724	2.48216654
2014_T6 instate construction heavy_DSL_offsite_CAAP								

onsite

	TOG_IDLEX (gms/vehicle/day)	TOG_STREX (gms/vehicle/day)	TOG_DIURN (gms/vehicle/day)	TOG_HTSK (gms/vehicle/day)	TOG_RUNLS (gms/mile)	TOG_RESTL (gms/vehicle/day)	CO_RUNEX (gms/mile)	CO_IDLEX (gms/vehicle/day)
2011_LDA_GAS_onsite	0	0	0	0	0	0	0.647138759	0
2011_LDA_DSL_onsite	0	0	0	0	0	0	0.0592833	0
2011_LDA_gas&dsl_onsite								
2011_T7 Single_DSL_onsite	0	0	0	0	0	0	12.34848472	0
2013_LDA_GAS_onsite	0	0	0	0	0	0	3.263291674	0
2013_LDA_DSL_onsite	0	0	0	0	0	0	1.141978023	0
2013_LDA_gas&dsl_onsite								
2013_LDT2_gas_onsite	0	0	0	0	0	0	4.425175348	0
2013_LDT2_DSL_onsite	0	0	0	0	0	0	1.520311058	0
2013_T6 instate construction heavy_DSL_onsite	0	0	0	0	0	0	5.570528479	0
2014_LDA_GAS_onsite	0	0	0	0	0	0	0.647622918	0
2014_LDA_DSL_onsite	0	0	0	0	0	0	0.059283314	0
2014_LDA_gas&dsl_onsite								
2014_LDT2_GAS_onsite	0	0	0	0	0	0	3.946218822	0
2014_LDT2_DSL_onsite	0	0	0	0	0	0	1.221877512	0
2014_T6 instate construction heavy_DSL_onsite	0	0	0	0	0	0	3.351749768	0
2014_T7 Single_DSL_onsite	0	0	0	0	0	0	7.162978363	0

CAAP trucks on-site exhaust

	0	0	0	0	0	0	3.558495834	0
	0	0	0	0	0	0	3.306088925	0
	0	0	0	0	0	0	3.039455731	0
	0	0	0	0	0	0	1.889490013	0
	0	0	0	0	0	0	1.745835248	0
	0	0	0	0	0	0	1.599484863	0
	0	0	0	0	0	0	1.402914903	0
	0	0	0	0	0	0	1.308045285	0
2013_T6 instate construction heavy_DSL_onsite_CAAP								

	CO_STREX (gms/vehicle/day)	NOX_RUNEX (gms/mile)	NOX_IDLEX (gms/vehicle/day)	NOX_STREX (gms/vehicle/day)	CO2_RUNEX (gms/mile)	CO2_IDLEX (gms/vehicle/day)	CO2_STREX (gms/vehicle/day)	CO2_RUNEX(Pavley (gms/mile)
	0	1.054982838	3.750044245	0	1124.086393	745.7841238	0	1107.225097
	0	0.805223416	3.750044245	0	1124.086393	745.7841238	0	1107.225097
	0	0.654954413	3.750044245	0	1121.499313	745.7841238	0	1104.676823
	0	0.575487777	3.750044245	0	1121.499313	745.7841238	0	1104.676823
	0	0.496021202	3.750044245	0	1121.499313	745.7841238	0	1104.676823
2014_T6 instate construction heavy_DSL_offsite_CAAP								

onsite

	CO_STREX (gms/vehicle/day)	NOX_RUNEX (gms/mile)	NOX_IDLEX (gms/vehicle/day)	NOX_STREX (gms/vehicle/day)	CO2_RUNEX (gms/mile)	CO2_IDLEX (gms/vehicle/day)	CO2_STREX (gms/vehicle/day)	CO2_RUNEX(Pavley (gms/mile)
2011_LDA_GAS_onsite	0	0.064194429	0	0	1104.667744	0	0	943.2316003
2011_LDA_DSL_onsite	0	0.178405956	0	0	504.8271338	0	0	431.0516965
2011_LDA_gas&dsl_onsite								
2011_T7 Single_DSL_onsite	0	40.99602707	0	0	4016.345792	0	0	4006.304928
2013_LDA_GAS_onsite	0	0.227813639	0	0	1099.707019	0	0	1012.903916
2013_LDA_DSL_onsite	0	0.899898311	0	0	450.966046	0	0	397.8090313
2013_LDA_gas&dsl_onsite								
2013_LDT2_gas_onsite	0	0.482308484	0	0	1500.756997	0	0	1421.373632
2013_LDT2_DSL_onsite	0	1.255175844	0	0	428.5302508	0	0	389.9831936
2013_T6 instate construction heavy_DSL_onsite	0	24.27505775	0	0	2609.627767	0	0	2583.531489
2014_LDA_GAS_onsite	0	0.064120997	0	0	1104.978519	0	0	774.9435348
2014_LDA_DSL_onsite	0	0.178386018	0	0	504.8272652	0	0	354.0454576
2014_LDA_gas&dsl_onsite								
2014_LDT2_GAS_onsite	0	0.429040572	0	0	1500.584579	0	0	1391.669197
2014_LDT2_DSL_onsite	0	1.057009594	0	0	442.160883	0	0	389.2062957
2014_T6 instate construction heavy_DSL_onsite	0	22.91338942	0	0	2619.433558	0	0	2580.142055
2014_T7 Single_DSL_onsite	0	33.60276748	0	0	4028.408563	0	0	3967.982434
CAAP trucks on-site exhaust								
	0	14.25712611	0	0	2654.347215	0	0	2627.803743
	0	12.92022946	0	0	2654.347215	0	0	2627.803743
	0	11.01558019	0	0	2654.347215	0	0	2627.803743
	0	3.782798153	0	0	2565.659164	0	0	2540.002573
	0	3.086224726	0	0	2565.659164	0	0	2540.002573
	0	2.275781386	0	0	2565.659164	0	0	2540.002573
	0	1.866021805	0	0	2559.75431	0	0	2534.156767
	0	1.608351063	0	0	2559.75431	0	0	2534.156767
2013_T6 instate construction heavy_DSL_onsite_CAAP								

	CO2_IDLEX(Pavley (gms/vehicle/day)	CO2_STREX(Pavley (gms/vehicle/day)	PM10_RUNEX (gms/mile)	PM10_IDLEX (gms/vehicle/day)	PM10_STREX (gms/vehicle/day)	PM10_PMTW (gms/mile)	PM10_PMBW (gms/mile)	PM2_5_RUNEX (gms/mile)
	734.5973619	0	0.037995766	0.008813841	0	0.011999937	0.130339319	0.034956104
	734.5973619	0	0.034236065	0.008813841	0	0.011999937	0.130339319	0.03149718
	734.5973619	0	0.027906323	0.008813841	0	0.011999937	0.130339319	0.025673817
	734.5973619	0	0.025342322	0.008813841	0	0.011999937	0.130339319	0.023314936
	734.5973619	0	0.022778323	0.008813841	0	0.011999937	0.130339319	0.020956057
2014_T6 instate construction heavy_DSL_offsite_CAAP								

onsite

	CO2_IDLEX(Pavley (gms/vehicle/day)	CO2_STREX(Pavley (gms/vehicle/day)	PM10_RUNEX (gms/mile)	PM10_IDLEX (gms/vehicle/day)	PM10_STREX (gms/vehicle/day)	PM10_PMTW (gms/mile)	PM10_PMBW (gms/mile)	PM2_5_RUNEX (gms/mile)
2011_LDA_GAS_onsite	0	0	0.003210641	0	0	0	0	0.002978944
2011_LDA_DSL_onsite	0	0	0.006356739	0	0	0	0	0.005848199
2011_LDA_gas&dsl_onsite								
2011_T7 Single_DSL_onsite	0	0	1.984113208	0	0	0	0	1.825384152
2013_LDA_GAS_onsite	0	0	0.01306288	0	0	0	0	0.011938891
2013_LDA_DSL_onsite	0	0	0.13779468	0	0	0	0	0.126771114
2013_LDA_gas&dsl_onsite								
2013_LDT2_gas_onsite	0	0	0.014258432	0	0	0	0	0.013071621
2013_LDT2_DSL_onsite	0	0	0.199442308	0	0	0	0	0.183486934
2013_T6 instate construction heavy_DSL_onsite	0	0	1.082128378	0	0	0	0	0.995558108
2014_LDA_GAS_onsite	0	0	0.008560523	0	0	0	0	0.007942752
2014_LDA_DSL_onsite	0	0	0.006356738	0	0	0	0	0.005848199
2014_LDA_gas&dsl_onsite								
2014_LDT2_GAS_onsite	0	0	0.013145887	0	0	0	0	0.012072142
2014_LDT2_DSL_onsite	0	0	0.146582358	0	0	0	0	0.134855774
2014_T6 instate construction heavy_DSL_onsite	0	0	0.607334846	0	0	0	0	0.558748058
2014_T7 Single_DSL_onsite	0	0	0.971000387	0	0	0	0	0.893320356
CAAP trucks on-site exhaust								
	0	0	0.050112501	0	0	0	0	0.046103501
	0	0	0.046715905	0	0	0	0	0.042978633
	0	0	0.043127869	0	0	0	0	0.039677639
	0	0	0.039367158	0	0	0	0	0.036217785
	0	0	0.035471757	0	0	0	0	0.032634016
	0	0	0.031503261	0	0	0	0	0.028983
	0	0	0.026257009	0	0	0	0	0.024156449
	0	0	0.023600467	0	0	0	0	0.02171243
2013_T6 instate construction heavy_DSL_onsite_CAAP								

	PM2_5_IDLEX (gms/vehicle/day)	PM2_5_STREX (gms/vehicle/day)	PM2_5_PMTW (gms/mile)	PM2_5_PMBW (gms/mile)	SOX_RUNEX (gms/mile)	SOX_IDLEX (gms/vehicle/day)	SOX_STREX (gms/vehicle/day)	ROG (gms/mile)
	0.008108734	0	0.002999984	0.055859708	0.01072431	0.007115129	0	8.74E-02
	0.008108734	0	0.002999984	0.055859708	0.01072431	0.007115129	0	8.07E-02
	0.008108734	0	0.002999984	0.055859708	0.010699628	0.007115129	0	6.93E-02
	0.008108734	0	0.002999984	0.055859708	0.010699628	0.007115129	0	6.49E-02
	0.008108734	0	0.002999984	0.055859708	0.010699628	0.007115129	0	6.05E-02
2014_T6 instate construction heavy_DSL_offsite_CAAP								1.06E-01

onsite

	PM2_5_IDLEX (gms/vehicle/day)	PM2_5_STREX (gms/vehicle/day)	PM2_5_PMTW (gms/mile)	PM2_5_PMBW (gms/mile)	SOX_RUNEX (gms/mile)	SOX_IDLEX (gms/vehicle/day)	SOX_STREX (gms/vehicle/day)	
2011_LDA_GAS_onsite	0	0	0	0	0	0	0	3.86E-02
2011_LDA_DSL_onsite	0	0	0	0	0	0	0	9.83E-03
2011_LDA_gas&dsl_onsite								2.42E-02
2011_T7 Single_DSL_onsite	0	0	0	0	0	0	0	7.50E+00
2013_LDA_GAS_onsite	0	0	0	0	0	0	0	2.52E-01
2013_LDA_DSL_onsite	0	0	0	0	0	0	0	1.82E-01
2013_LDA_gas&dsl_onsite								2.17E-01
2013_LDT2_gas_onsite	0	0	0	0	0	0	0	3.24E-01
2013_LDT2_DSL_onsite	0	0	0	0	0	0	0	2.43E-01
2013_T6 instate construction heavy_DSL_onsite	0	0	0	0	0	0	0	4.12E+00
2014_LDA_GAS_onsite	0	0	0	0	0	0	0	3.86E-02
2014_LDA_DSL_onsite	0	0	0	0	0	0	0	9.83E-03
2014_LDA_gas&dsl_onsite								2.42E-02
2014_LDT2_GAS_onsite	0	0	0	0	0	0	0	2.83E-01
2014_LDT2_DSL_onsite	0	0	0	0	0	0	0	1.83E-01
2014_T6 instate construction heavy_DSL_onsite	0	0	0	0	0	0	0	2.46E+00
2014_T7 Single_DSL_onsite	0	0	0	0	0	0	0	4.24E+00

CAAP trucks on-site exhaust

	0	0	0	0	0	0	0	2.01E+00
	0	0	0	0	0	0	0	1.86E+00
	0	0	0	0	0	0	0	1.71E+00
	0	0	0	0	0	0	0	1.07E+00
	0	0	0	0	0	0	0	9.85E-01
	0	0	0	0	0	0	0	9.02E-01
	0	0	0	0	0	0	0	7.91E-01
	0	0	0	0	0	0	0	7.38E-01
2013_T6 instate construction heavy_DSL_onsite_CAAP								1.26E+00

	ROG (gms/vehicle/day)	CO (gms/mile)	CO (gms/vehicle/day)	NOx (gms/mile)	NOx (gms/vehicle/day)	SOx (gms/mile)	SOx (gms/vehicle/day)	PM10 (gms/mile)
	2.10E-01	3.64E-01	2.48E+00	1.05E+00	3.75E+00	1.07E-02	7.12E-03	1.80E-01
	2.10E-01	3.37E-01	2.48E+00	8.05E-01	3.75E+00	1.07E-02	7.12E-03	1.77E-01
	2.10E-01	2.89E-01	2.48E+00	6.55E-01	3.75E+00	1.07E-02	7.12E-03	1.70E-01
	2.10E-01	2.70E-01	2.48E+00	5.75E-01	3.75E+00	1.07E-02	7.12E-03	1.68E-01
	2.10E-01	2.52E-01	2.48E+00	4.96E-01	3.75E+00	1.07E-02	7.12E-03	1.65E-01
2014_T6 instate construction heavy_DSL_offsite_CAAP	2.10E-01	4.40E-01	2.48E+00	1.88E+00	3.75E+00	1.08E-02	7.12E-03	1.80E-01
onsite								
2011_LDA_GAS_onsite	0.00E+00	6.47E-01	0.00E+00	6.42E-02	0.00E+00	0.00E+00	0.00E+00	3.21E-03
2011_LDA_DSL_onsite	0.00E+00	5.93E-02	0.00E+00	1.78E-01	0.00E+00	0.00E+00	0.00E+00	6.36E-03
2011_LDA_gas&dsl_onsite	0.00E+00	3.53E-01	0.00E+00	1.21E-01	0.00E+00	0.00E+00	0.00E+00	4.78E-03
2011_T7 Single_DSL_onsite	0.00E+00	1.23E+01	0.00E+00	4.10E+01	0.00E+00	0.00E+00	0.00E+00	1.98E+00
2013_LDA_GAS_onsite	0.00E+00	3.26E+00	0.00E+00	2.28E-01	0.00E+00	0.00E+00	0.00E+00	1.31E-02
2013_LDA_DSL_onsite	0.00E+00	1.14E+00	0.00E+00	9.00E-01	0.00E+00	0.00E+00	0.00E+00	1.38E-01
2013_LDA_gas&dsl_onsite	0.00E+00	2.20E+00	0.00E+00	5.64E-01	0.00E+00	0.00E+00	0.00E+00	7.54E-02
2013_LDT2_gas_onsite	0.00E+00	4.43E+00	0.00E+00	4.82E-01	0.00E+00	0.00E+00	0.00E+00	1.43E-02
2013_LDT2_DSL_onsite	0.00E+00	1.52E+00	0.00E+00	1.26E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-01
2013_T6 instate construction heavy_DSL_onsite	0.00E+00	5.57E+00	0.00E+00	2.43E+01	0.00E+00	0.00E+00	0.00E+00	1.08E+00
2014_LDA_GAS_onsite	0.00E+00	6.48E-01	0.00E+00	6.41E-02	0.00E+00	0.00E+00	0.00E+00	8.56E-03
2014_LDA_DSL_onsite	0.00E+00	5.93E-02	0.00E+00	1.78E-01	0.00E+00	0.00E+00	0.00E+00	6.36E-03
2014_LDA_gas&dsl_onsite	0.00E+00	3.53E-01	0.00E+00	1.21E-01	0.00E+00	0.00E+00	0.00E+00	7.46E-03
2014_LDT2_GAS_onsite	0.00E+00	3.95E+00	0.00E+00	4.29E-01	0.00E+00	0.00E+00	0.00E+00	1.31E-02
2014_LDT2_DSL_onsite	0.00E+00	1.22E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-01
2014_T6 instate construction heavy_DSL_onsite	0.00E+00	3.35E+00	0.00E+00	2.29E+01	0.00E+00	0.00E+00	0.00E+00	6.07E-01
2014_T7 Single_DSL_onsite	0.00E+00	7.16E+00	0.00E+00	3.36E+01	0.00E+00	0.00E+00	0.00E+00	9.71E-01
CAAP trucks on-site exhaust								
	0.00E+00	3.56E+00	0.00E+00	1.43E+01	0.00E+00	0.00E+00	0.00E+00	5.01E-02
	0.00E+00	3.31E+00	0.00E+00	1.29E+01	0.00E+00	0.00E+00	0.00E+00	4.67E-02
	0.00E+00	3.04E+00	0.00E+00	1.10E+01	0.00E+00	0.00E+00	0.00E+00	4.31E-02
	0.00E+00	1.89E+00	0.00E+00	3.78E+00	0.00E+00	0.00E+00	0.00E+00	3.94E-02
	0.00E+00	1.75E+00	0.00E+00	3.09E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-02
	0.00E+00	1.60E+00	0.00E+00	2.28E+00	0.00E+00	0.00E+00	0.00E+00	3.15E-02
	0.00E+00	1.40E+00	0.00E+00	1.87E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-02
	0.00E+00	1.31E+00	0.00E+00	1.61E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-02
2013_T6 instate construction heavy_DSL_onsite_CAAP	0.00E+00	2.23E+00	0.00E+00	6.35E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-02

	PM10 (gms/vehicle/day)	PM2.5 (gms/mile)	PM2.5 (gms/vehicle/day)	CO2 (gms/mile)	CO2 (gms/vehicle/day)
	8.81E-03	9.38E-02	8.11E-03	1.11E+03	7.35E+02
	8.81E-03	9.04E-02	8.11E-03	1.11E+03	7.35E+02
	8.81E-03	8.45E-02	8.11E-03	1.10E+03	7.35E+02
	8.81E-03	8.22E-02	8.11E-03	1.10E+03	7.35E+02
	8.81E-03	7.98E-02	8.11E-03	1.10E+03	7.35E+02
2014_T6 instate construction heavy_DSL_offsite_CAAP	8.81E-03	9.31E-02	8.11E-03	1.12E+03	7.35E+02

onsite

2011_LDA_GAS_onsite	0.00E+00	2.98E-03	0.00E+00	9.43E+02	0.00E+00
2011_LDA_DSL_onsite	0.00E+00	5.85E-03	0.00E+00	4.31E+02	0.00E+00
2011_LDA_gas&dsl_onsite	0.00E+00	4.41E-03	0.00E+00	6.87E+02	0.00E+00
2011_T7 Single_DSL_onsite	0.00E+00	1.83E+00	0.00E+00	4.01E+03	0.00E+00
2013_LDA_GAS_onsite	0.00E+00	1.19E-02	0.00E+00	1.01E+03	0.00E+00
2013_LDA_DSL_onsite	0.00E+00	1.27E-01	0.00E+00	3.98E+02	0.00E+00
2013_LDA_gas&dsl_onsite	0.00E+00	6.94E-02	0.00E+00	7.05E+02	0.00E+00
2013_LDT2_gas_onsite	0.00E+00	1.31E-02	0.00E+00	1.42E+03	0.00E+00
2013_LDT2_DSL_onsite	0.00E+00	1.83E-01	0.00E+00	3.90E+02	0.00E+00
2013_T6 instate construction heavy_DSL_onsite	0.00E+00	9.96E-01	0.00E+00	2.58E+03	0.00E+00
2014_LDA_GAS_onsite	0.00E+00	7.94E-03	0.00E+00	7.75E+02	0.00E+00
2014_LDA_DSL_onsite	0.00E+00	5.85E-03	0.00E+00	3.54E+02	0.00E+00
2014_LDA_gas&dsl_onsite	0.00E+00	6.90E-03	0.00E+00	5.64E+02	0.00E+00
2014_LDT2_GAS_onsite	0.00E+00	1.21E-02	0.00E+00	1.39E+03	0.00E+00
2014_LDT2_DSL_onsite	0.00E+00	1.35E-01	0.00E+00	3.89E+02	0.00E+00
2014_T6 instate construction heavy_DSL_onsite	0.00E+00	5.59E-01	0.00E+00	2.58E+03	0.00E+00
2014_T7 Single_DSL_onsite	0.00E+00	8.93E-01	0.00E+00	3.97E+03	0.00E+00

CAAP trucks on-site exhaust

	0.00E+00	4.61E-02	0.00E+00	2.63E+03	0.00E+00
	0.00E+00	4.30E-02	0.00E+00	2.63E+03	0.00E+00
	0.00E+00	3.97E-02	0.00E+00	2.63E+03	0.00E+00
	0.00E+00	3.62E-02	0.00E+00	2.54E+03	0.00E+00
	0.00E+00	3.26E-02	0.00E+00	2.54E+03	0.00E+00
	0.00E+00	2.90E-02	0.00E+00	2.54E+03	0.00E+00
	0.00E+00	2.42E-02	0.00E+00	2.53E+03	0.00E+00
	0.00E+00	2.17E-02	0.00E+00	2.53E+03	0.00E+00
2013_T6 instate construction heavy_DSL_onsite_CAAP	0.00E+00	3.41E-02	0.00E+00	2.57E+03	0.00E+00

Area	CalYr	Season	Veh	Fuel	MdlYr	Speed (Miles/hr)	Pop (Vehicles)	VMT (Miles/day)	Trips (Trips/day)	
Los Angele	2014	Annual	T6 instate	DSL	2007	5	0	8.551835725	0	
Los Angele	2014	Annual	T6 instate	DSL	2008	5	0	8.256214649	0	
Los Angele	2014	Annual	T6 instate	DSL	2009	5	0	6.072158295	0	
Los Angele	2014	Annual	T6 instate	DSL	2010	5	0	6.042968011	0	
Los Angele	2014	Annual	T6 instate	DSL	2011	5	0	7.30316334	0	
Los Angele	2014	Annual	T6 instate	DSL	2012	5	0	8.412735789	0	
Los Angele	2014	Annual	T6 instate	DSL	2013	5	0	9.618384577	0	
Los Angele	2014	Annual	T6 instate	DSL	2014	5	0	9.321577544	0	
Los Angele	2014	Annual	T6 instate	DSL	2015	5	0	1.037482573	0	

2014_T6 instate construction heavy_DSL_onsite_CAAP

ROG_RUNEX (gms/mile)	ROG_IDLEX (gms/vehicle/day)	ROG_STREX (gms/vehicle/day)	ROG_DIURN (gms/vehicle/day)	ROG_HTSK (gms/vehicle/day)	ROG_RUNLS (gms/mile)	ROG_RESTL (gms/vehicle/day)	TOG_RUNEX (gms/mile)
2.140866063	0	0	0	0	0	0	2.437213047
2.00672733	0	0	0	0	0	0	2.284506311
1.864388582	0	0	0	0	0	0	2.122464481
1.14374157	0	0	0	0	0	0	1.302062714
1.065532019	0	0	0	0	0	0	1.213027094
0.984521402	0	0	0	0	0	0	1.120802673
0.844639257	0	0	0	0	0	0	0.9615575
0.791139799	0	0	0	0	0	0	0.900652438
0.737640381	0	0	0	0	0	0	0.839747424

2014_T6 instate construction heavy_DSL_onsite_CAAP

TOG_IDLEX (gms/vehicle/day)	TOG_STREX (gms/vehicle/day)	TOG_DIURN (gms/vehicle/day)	TOG_HTSK (gms/vehicle/day)	TOG_RUNLS (gms/mile)	TOG_RESTL (gms/vehicle/day)	CO_RUNEX (gms/mile)	CO_IDLEX (gms/vehicle/day)
0	0	0	0	0	0	3.796361792	0
0	0	0	0	0	0	3.558495834	0
0	0	0	0	0	0	3.306088925	0
0	0	0	0	0	0	2.028177694	0
0	0	0	0	0	0	1.889490013	0
0	0	0	0	0	0	1.745835248	0
0	0	0	0	0	0	1.497784593	0
0	0	0	0	0	0	1.402914903	0
0	0	0	0	0	0	1.308045285	0

2014_T6 instate construction heavy_DSL_onsite_CAAP

CO_STREX (gms/vehicle/day)	NOX_RUNEX (gms/mile)	NOX_IDLEX (gms/vehicle/day)	NOX_STREX (gms/vehicle/day)	CO2_RUNEX (gms/mile)	CO2_IDLEX (gms/vehicle/day)	CO2_STREX (gms/vehicle/day)	CO2_RUNEX(Pavley (gms/mile)
0	14.5900795	0	0	2654.347215	0	0	2614.532007
0	13.26489298	0	0	2654.347215	0	0	2614.532007
0	11.36996836	0	0	2654.347215	0	0	2614.532007
0	4.10579221	0	0	2565.659164	0	0	2527.174277
0	3.420786779	0	0	2565.659164	0	0	2527.174277
0	2.610940687	0	0	2565.659164	0	0	2527.174277
0	2.123692744	0	0	2559.75431	0	0	2521.357995
0	1.866021805	0	0	2559.75431	0	0	2521.357995
0	1.608351063	0	0	2559.75431	0	0	2521.357995

2014_T6 instate construction heavy_DSL_onsite_CAAP

CO2_IDLEX(Pavley (gms/vehicle/day)	CO2_STREX(Pavley (gms/vehicle/day)	PM10_RUNEX (gms/mile)	PM10_IDLEX (gms/vehicle/day)	PM10_STREX (gms/vehicle/day)	PM10_PMTW (gms/mile)	PM10_PMBW (gms/mile)	PM2_5_RUNEX (gms/mile)
0	0	0.053313422	0	0	0	0	0.049048348
0	0	0.050112501	0	0	0	0	0.046103501
0	0	0.046715905	0	0	0	0	0.042978633
0	0	0.043127869	0	0	0	0	0.039677639
0	0	0.039367158	0	0	0	0	0.036217785
0	0	0.035471757	0	0	0	0	0.032634016
0	0	0.028913554	0	0	0	0	0.026600469
0	0	0.026257009	0	0	0	0	0.024156449
0	0	0.023600467	0	0	0	0	0.02171243

2014_T6 instate construction heavy_DSL_onsite_CAAP

	PM2_5_IDLEX (gms/vehicle/day)	PM2_5_STREX (gms/vehicle/day)	PM2_5_PMTW (gms/mile)	PM2_5_PMBW (gms/mile)	SOX_RUNEX (gms/mile)	SOX_IDLEX (gms/vehicle/day)	SOX_STREX (gms/vehicle/day)	ROG (gms/mile)
	0	0	0	0	0	0	0	2.14E+00
	0	0	0	0	0	0	0	2.01E+00
	0	0	0	0	0	0	0	1.86E+00
	0	0	0	0	0	0	0	1.14E+00
	0	0	0	0	0	0	0	1.07E+00
	0	0	0	0	0	0	0	9.85E-01
	0	0	0	0	0	0	0	8.45E-01
	0	0	0	0	0	0	0	7.91E-01
	0	0	0	0	0	0	0	7.38E-01
2014_T6 instate construction heavy_DSL_onsite_CAAP								1.29E+00

	ROG (gms/vehicle/day)	CO (gms/mile)	CO (gms/vehicle/day)	NOx (gms/mile)	NOx (gms/vehicle/day)	SOx (gms/mile)	SOx (gms/vehicle/day)	PM10 (gms/mile)
	0.00E+00	3.80E+00	0.00E+00	1.46E+01	0.00E+00	0.00E+00	0.00E+00	5.33E-02
	0.00E+00	3.56E+00	0.00E+00	1.33E+01	0.00E+00	0.00E+00	0.00E+00	5.01E-02
	0.00E+00	3.31E+00	0.00E+00	1.14E+01	0.00E+00	0.00E+00	0.00E+00	4.67E-02
	0.00E+00	2.03E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-02
	0.00E+00	1.89E+00	0.00E+00	3.42E+00	0.00E+00	0.00E+00	0.00E+00	3.94E-02
	0.00E+00	1.75E+00	0.00E+00	2.61E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-02
	0.00E+00	1.50E+00	0.00E+00	2.12E+00	0.00E+00	0.00E+00	0.00E+00	2.89E-02
	0.00E+00	1.40E+00	0.00E+00	1.87E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-02
	0.00E+00	1.31E+00	0.00E+00	1.61E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-02
2014_T6 instate construction heavy_DSL_onsite_CAAP	0.00E+00	2.28E+00	0.00E+00	6.11E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-02

	PM10 (gms/vehicle/day)	PM2.5 (gms/mile)	PM2.5 (gms/vehicle/day)	CO2 (gms/mile)	CO2 (gms/vehicle/day)
	0.00E+00	4.90E-02	0.00E+00	2.61E+03	0.00E+00
	0.00E+00	4.61E-02	0.00E+00	2.61E+03	0.00E+00
	0.00E+00	4.30E-02	0.00E+00	2.61E+03	0.00E+00
	0.00E+00	3.97E-02	0.00E+00	2.53E+03	0.00E+00
	0.00E+00	3.62E-02	0.00E+00	2.53E+03	0.00E+00
	0.00E+00	3.26E-02	0.00E+00	2.53E+03	0.00E+00
	0.00E+00	2.66E-02	0.00E+00	2.52E+03	0.00E+00
	0.00E+00	2.42E-02	0.00E+00	2.52E+03	0.00E+00
	0.00E+00	2.17E-02	0.00E+00	2.52E+03	0.00E+00
2014_T6 instate construction heavy_DSL_onsite_CAAP	0.00E+00	3.55E-02	0.00E+00	2.55E+03	0.00E+00

EMFAC 2011

CAAP trucks on-site

	CY	Vehicle_Cl	Model_Yea	MY_Range	HC (g/hr-veh)	CO (g/hr-veh)	NOX (g/hr-veh)	PM10 (g/hr-veh)	PM2.5 (g/hr-veh)	CO2 (g/hr-veh)	CO2 (with Pavley+L	TOG (g/hr-veh)	ROG (g/hr-veh)	Sox (g/hr-veh)
2013_T6 instate construction heavy_DSL_onsite_idling_CAAP	2013	T6 instate c	2007+	2007-2040	1.69766721	25.42301325	38.40895563	0.090273717	0.08305182	7638.520361	7562.135157	2.447526817	2.149925755	0.072875055
2014_T6 instate construction heavy_DSL_onsite_idling_CAAP	2014	T6 instate c	2007+	2007-2040	1.69766721	25.42301325	38.40895563	0.090273717	0.08305182	7638.520361	7523.942555	2.447526817	2.149925755	0.072875055

NonCAAP idling

	2011	T7 single	1967	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1968	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1969	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1970	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1971	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1972	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1973	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1974	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1975	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1976	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1977	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1978	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1979	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1980	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1981	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1982	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1983	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1984	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1985	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1986	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	6073.947543	36.54430698	32.10079098	0.058093533
	2011	T7 single	1987	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6409.506194	21.40074047	18.79856956	0.061302943
	2011	T7 single	1988	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6409.506194	21.40074047	18.79856956	0.061302943
	2011	T7 single	1989	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6409.506194	21.40074047	18.79856956	0.061302943
	2011	T7 single	1990	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6409.506194	21.40074047	18.79856956	0.061302943
	2011	T7 single	1991	1991-1993	11.84432943	54.19452849	100.3961819	2.407636174	2.21502528	6572.744966	6556.313104	17.07596974	14.99965879	0.06270706
	2011	T7 single	1992	1991-1993	11.84432943	54.19452849	100.3961819	2.407636174	2.21502528	6572.744966	6556.313104	17.07596974	14.99965879	0.06270706
	2011	T7 single	1993	1991-1993	11.84432943	54.19452849	100.3961819	2.407636174	2.21502528	6572.744966	6556.313104	17.07596974	14.99965879	0.06270706
	2011	T7 single	1994	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6703.120014	13.65789819	11.99719933	0.064111176
	2011	T7 single	1995	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6703.120014	13.65789819	11.99719933	0.064111176
	2011	T7 single	1996	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6703.120014	13.65789819	11.99719933	0.064111176
	2011	T7 single	1997	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6703.120014	13.65789819	11.99719933	0.064111176
	2011	T7 single	1998	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6891.871755	10.24866465	9.002503238	0.06591647
	2011	T7 single	1999	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6891.871755	10.24866465	9.002503238	0.06591647
	2011	T7 single	2000	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6891.871755	10.24866465	9.002503238	0.06591647
	2011	T7 single	2001	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6891.871755	10.24866465	9.002503238	0.06591647
	2011	T7 single	2002	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6891.871755	10.24866465	9.002503238	0.06591647
	2011	T7 single	2003	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2004	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2005	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2006	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2007	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2008	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2009	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2010	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2011	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
	2011	T7 single	2012	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	7017.706249	8.419581673	7.395823147	0.067119998
2011_T7 single_DSL_onsite_idling					15.95018778	58.00047322	77.72759667	3.634959508	3.344162748	6499.614608	6483.365571	22.99538573	20.19931781	0.062009362
	2014	T7 single	1970	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
	2014	T7 single	1971	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533

CAAP trucks on-site

CY	Vehicle_Cl	Model_Yea	MY_Range	HC (g/hr-veh)	CO (g/hr-veh)	NOX (g/hr-veh)	PM10 (g/hr-veh)	PM2.5 (g/hr-veh)	CO2 (g/hr-veh)	CO2 (with Pavley+L	TOG (g/hr-veh)	ROG (g/hr-veh)	Sox (g/hr-veh)
2014	T7 single	1972	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1973	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1974	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1975	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1976	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1977	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1978	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1979	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1980	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1981	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1982	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1983	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1984	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1985	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1986	1965-1986	25.34806616	71.44536556	58.47063987	6.454933928	5.938539214	6089.170469	5997.832912	36.54430698	32.10079098	0.058093533
2014	T7 single	1987	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6329.186568	21.40074047	18.79856956	0.061302943
2014	T7 single	1988	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6329.186568	21.40074047	18.79856956	0.061302943
2014	T7 single	1989	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6329.186568	21.40074047	18.79856956	0.061302943
2014	T7 single	1990	1987-1990	14.84410104	58.90268215	89.81775652	3.219520311	2.961958686	6425.570119	6329.186568	21.40074047	18.79856956	0.061302943
2014	T7 single	1991	1991-1993	11.84432943	54.19452849	100.3961819	2.407636174	2.21502528	6572.744966	6474.153792	17.07596974	14.99965879	0.06270706
2014	T7 single	1992	1991-1993	11.84432943	54.19452849	100.3961819	2.407636174	2.21502528	6572.744966	6474.153792	17.07596974	14.99965879	0.06270706
2014	T7 single	1993	1991-1993	11.84432943	54.19452849	100.3961819	2.407636174	2.21502528	6572.744966	6474.153792	17.07596974	14.99965879	0.06270706
2014	T7 single	1994	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6619.121016	13.65789819	11.99719933	0.064111176
2014	T7 single	1995	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6619.121016	13.65789819	11.99719933	0.064111176
2014	T7 single	1996	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6619.121016	13.65789819	11.99719933	0.064111176
2014	T7 single	1997	1994-1997	9.473467566	49.87911671	109.1590641	1.807634775	1.663023993	6719.919813	6619.121016	13.65789819	11.99719933	0.064111176
2014	T7 single	1998	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6805.507447	10.24866465	9.002503238	0.06591647
2014	T7 single	1999	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6805.507447	10.24866465	9.002503238	0.06591647
2014	T7 single	2000	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6805.507447	10.24866465	9.002503238	0.06591647
2014	T7 single	2001	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6805.507447	10.24866465	9.002503238	0.06591647
2014	T7 single	2002	1998-2002	7.108735975	44.83176762	117.8791509	1.250442578	1.150407172	6909.144617	6805.507447	10.24866465	9.002503238	0.06591647
2014	T7 single	2003	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2004	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2005	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2006	2003-2006	5.840037229	41.72448379	122.2778332	0.969796514	0.892212793	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2007	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2008	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2009	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2010	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2011	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2012	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2013	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2014	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014	T7 single	2015	2007-2040	5.840037229	41.72448379	38.40895563	0.107755168	0.099134755	7035.294485	6929.765068	8.419581673	7.395823147	0.067119998
2014_T7 single_DSL_onsite_idlin				14.67792503	56.06215484	76.41922595	3.221013068	2.963332022	6561.318348	6462.898573	21.16116451	18.58812425	0.062598044

GHG emission factors (kg/gal)

	CO2	CH4	N2O
offroad construction equipment[1],[2]	10.21	0.00058	0.00026
onroad trucks[3]	10.21	0.0051	0.0048

[1] CO2 emission factors: 2011 Climate Registry Default Emission Factors, Table 13.1.
[2]N2O and CH4 emission factors: 2011 Climate Registry Default Emission Factors, Table 13.6 for diesel equipment (Other Large Utility Non-Highway Vehicles).
[3] GHG emission factors are from the 2011 Climate Registry Default Emission Factors. Table 13.1 for CO2 and Table 13.4 for N2O and CH4.

Fuel density

Diesel (lb/gal)	7.04

Global Warming Potentials (GWP):

CO2	CH4	N2O
1	21	310