Section 3.2
Air Quality, Meteorology, and Greenhouse Gases

SECTION SUMMARY

This section describes the existing air quality environment within the Port and potential impacts on air quality associated with construction and operation of the proposed Project. An analysis of potential impacts on air quality associated with the alternatives is detailed in Chapter 6, Analysis of Alternatives.

Section 3.2, Air Quality, Meteorology, and Greenhouse Gases, provides the following:

- A description of existing air quality in the Port area;
- A discussion on the methodology used to determine whether the proposed Project results in an impact to air quality from Project-generated emissions and greenhouse gases;
- An impact analysis of the proposed Project; and
- A description of any mitigation measures proposed to reduce any potential impacts, as applicable.

Key Points of Section 3.2:

The proposed Project would redevelop the existing ALBS and its operations would be consistent with other uses in the Project area.

Construction Impacts

The proposed Project would result in significant air quality and greenhouse gas (GHG) emissions impacts during construction. The construction-related emissions would lead to significant ambient air concentrations. The following construction-related mitigation measures would reduce potentially significant impacts:

- **MM AQ-1: Harbor Craft Used during Construction.**
    1. As of January 1, 2011: All harbor craft with USEPA designated Category 1 (C1) or Category 2 (C2) marine engines must utilize a USEPA Tier-3 engine, or cleaner.
    2. Three exception conditions from this measure may apply
    3. A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement.
    4. A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.

5. A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

- **MM AQ-2: On-Road Trucks.**
  1. Trucks hauling material such as debris or any fill material will be fully covered while operating off Port property.
  2. USEPA Standards:
     a. For On-road trucks except for Import Haulers and Earth Movers: Comply with the most recent (i.e., 2007) on-road emission standards for PM_{10} and NOx.
     b. For Import Haulers: Comply with the most recent (i.e., 2004) on-road emission standards for PM_{10} and NOx.
     c. For Earth Movers: Comply with the most recent (i.e., 2004) on-road emission standards for PM_{10} and NOx.

- **MM AQ-3: Construction Equipment.**
  1. All dredging equipment shall at a minimum meet Tier 3 standards. Construction equipment will incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards.
  2. Idling will be restricted to a maximum of 5 minutes when not in use.
  3. Equipment Engine Specifications:
     a. Meet Tier 2, 3, or 4 standards depending on timing.
     b. Two categories of exceptions exist.
        i. Requirements do not apply to equipment less than 50hp.
        ii. Requirements do not apply to marine vessels and harbor craft.

- **MM AQ-4: Best Management Practices.** BMPs shall be implemented to reduce air emissions from construction activities, including:
  1. Use of diesel oxidation catalysts and catalyzed diesel particulate traps.
  2. Maintain equipment according to manufacturers' specifications.
  3. Install high-pressure fuel injectors on construction equipment vehicles.
  4. Re-route construction trucks away from congested streets or sensitive receptor areas.

- **MM AQ-5: Additional Fugitive Dust Controls.** The project construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels. The project construction contractor shall specify the dust-control methods that will achieve this control level in the Dust Control Plan submitted to the South Coast Air Quality Management District (SCAQMD) for review and approval in compliance with SCAQMD Rule 403. These measures shall also apply, as appropriate, during holiday and weekend periods when work may not be in progress.

The following measures to reduce dust shall be included in this plan, at a minimum:

- SCAQMD's Best Available Control Technology (BACT) measures must be followed on all projects. They are outlined on Table 1 in Rule 403. Large construction projects (on a property which contains 50 or more disturbed acres) shall also follow Rule 403 Tables 2 and 3.
- Active grading sites shall be watered three times per day.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.
- Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
- Stabilize the materials while loading, unloading and transporting to reduce fugitive dust emissions.
- Belly-dump truck seals should be checked regularly to remove trapped rocks to prevent possible spillage.
- Comply with track-out regulations and provide water while loading and unloading to reduce visible dust plumes.
- Waste materials should be hauled off-site immediately.

- **MM AQ-6: General Mitigation Measure**. For any of the above mitigation measures (MM AQ-1 through MM AQ-5), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of emissions performance than the existing measure, the technology shall replace the existing measure pending approval by the LAHD.

Operational Impacts

The proposed Project's peak daily emissions would not exceed baseline emissions for any criteria pollutants in 2014. In addition, the 10 tons per year volatile organic compounds (VOC) threshold would not be exceeded, assuming 304 boats serviced per year. However, the proposed Project operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance for Federal 1-hour NO_2, peak day and annual PM_{10}, and peak day $PM_{2.5}$. Feasible mitigation measures were not identified to reduce emissions; therefore, ambient air pollutant concentrations would remain significant and unavoidable for 1-hour NO_2, 24-hour and annual PM_{10}, and 24-hour $PM_{2.5}$:

Health Risk Impacts

The combined toxic air contaminant (TAC) emissions (in particular diesel particulate matter for cancer [long-term] risk and formaldehyde for acute [short-term] risk) from construction would result in significant residential cancer risk and acute residential and occupation hazard index impacts. The chronic (long-term) health risk impacts would be less than SCAQMD significance thresholds. Mitigation measures **MM AQ-1 through MM AQ-6** would reduce impacts; however, the residential cancer-related health risk impact and the acute residential and occupational hazard index impact would remain significant and unavoidable after mitigation. The initial screening assessment of emissions associated with proposed Project operations determined that the proposed Project would result in a minimal increase in operational TACs over baseline, and thus no significant short and long-term health risks would occur as a result of operations.

Odor

Construction and operation of the proposed Project would not create an objectionable odor at the nearest sensitive receptor; and would not conflict with or obstruct implementation of an applicable air quality plan.

Greenhouse Gas Emissions

The proposed Project would emit significant levels of GHGs. The following mitigation measures would be applied to the operation of the proposed Project to further reduce GHG emissions:

- **MM AQ-7: Compact Fluorescent Light Bulbs.** All interior buildings on the premises shall exclusively use compact fluorescent light bulbs, fluorescent light bulbs, or a technology with similar energy-saving capabilities for ambient lighting within all on-site buildings. Instructions on proper disposal of used bulbs and clean-up of broken bulbs in compliance with U.S. Environmental Protection Agency recommendations shall be posted in a readily visible location within each building to reduce potential exposure to mercury vapor. Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's greenhouse gas emissions by less than 0.1 percent.
- **MM AQ-8: Energy Audit.** The tenant shall conduct a third party energy audit every 5 years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.

  This mitigation measure primarily targets large on-site electricity consumers such as lighting and electric machine shop equipment. These sources and other building energy uses consume the majority of on-site electricity, and account for about 30 percent of overall Project greenhouse gas (GHG) emissions. Therefore, implementation of power saving technology on-site could minimally reduce overall Project GHG emissions. The effectiveness of this mitigation measure was not quantified.
- **MM AQ-9: Recycling.** The tenant shall ensure a minimum of 40 percent of all waste generated in all on-site buildings is recycled by 2014 and 60 percent of all waste generated in all on-site buildings is recycled by 2016. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and; (j) all plastic bottles.

  In general, products made with recycled materials require less energy and raw materials to produce than products made with un-recycled materials. This savings in energy and raw material

use translates into greenhouse gas emission reductions. The effectiveness of this mitigation measure was not quantified due to the lack of a standard emission estimation approach.

- **MM AQ-10: Tree Planting.** The applicant shall plant shade trees where appropriate/feasible around on-site buildings, and the tenant shall maintain all trees through the life of the lease.

  Trees act as insulators from weather, thereby decreasing energy requirements. On-site trees also provide carbon storage. Although not quantified, implementation of this measure is expected to reduce Project greenhouse gas emissions by less than 0.1 percent.

3.2.1 Introduction

Emissions from construction and operation of the proposed Project would affect air quality in the immediate Project area and the surrounding region. This section includes a description of the affected air quality environment, predicted impacts of the proposed Project, and mitigation measures that would reduce significant impacts.

3.2.2 Environmental Setting

The Project site is located in the Harbor District of the City of Los Angeles, within the South Coast Air Basin (SCAB). The SCAB consists of the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties and all of Orange County. The air basin covers an area of approximately 6,000 square miles and is bounded on the west by the Pacific Ocean; on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains; and on the south by the San Diego County line.

3.2.2.1 Regional Climate and Meteorology

The climate of the Project region is classified as Mediterranean, characterized by warm, rainless summers and mild, wet winters. The major influence on the regional climate is the Eastern Pacific High (a strong persistent area of high atmospheric pressure over the Pacific Ocean), topography, and the moderating effects of the Pacific Ocean. Seasonal variations in the position and strength of the High are a key factor in the weather changes in the area.

The Eastern Pacific High attains its greatest strength and most northerly position during the summer, when the High is centered west of northern California. In this location, the High effectively shelters Southern California from the effects of polar storm systems. Large-scale atmospheric subsidence associated with the High produces an elevated temperature inversion along the West Coast. The base of this subsidence inversion is generally from 1,000 to 2,500 feet (300 to 800 meters) above mean sea level (msl) during the summer. Vertical mixing is often limited to the base of the inversion, and air pollutants are trapped in the lower atmosphere. The mountain ranges that surround the Los Angeles Basin constrain the horizontal movement of air and also inhibit the dispersion of air pollutants out of the region. These two factors, combined with the air pollution sources of over 15 million people, are responsible for the high pollutant concentrations that can occur in the SCAB. In addition, the warm temperatures and high solar radiation during the summer months promote the formation of ozone (O_3), which has its highest levels during the summer.

The proximity of the Eastern Pacific High and a thermal low pressure system in the desert interior to the east produce a sea breeze regime that prevails within the Project region for most of the year, particularly during the spring and summer months. Sea breezes at the Port typically increase during the morning hours from the southerly direction and reach a peak in the afternoon as they blow from the southwest. These winds generally subside after sundown. During the warmest months of the year, however, sea breezes could persist well into the nighttime hours. Conversely, during the colder months of the year, northerly land breezes increase by sunset and into the evening hours. Sea breezes transport air pollutants away from the coast and towards the interior regions in the afternoon hours for most of the year.

During the fall and winter months, the Eastern Pacific High can combine with high pressure over the continent to produce light winds and extended inversion conditions in the region. These stagnant atmospheric conditions often result in elevated pollutant concentrations in the SCAB. Excessive buildup of high pressure in the Great Basin region can produce a "Santa Ana" condition, characterized by warm, dry, northeast winds in the basin and offshore regions. Santa Ana winds often ventilate the SCAB of air pollutants.

The Palos Verdes Hills have a major influence on wind flow in the Port. For example, during afternoon southwest sea breeze conditions, the Palos Verdes Hills often block this flow and create a zone of lighter winds in the inner Harbor area of the Port. During strong sea breezes, this flow can bend around the north side of the Hills and end up as a northwest breeze in the inner Harbor area. This topographic feature also deflects northeasterly land breezes that flow from the coastal plains to a more northerly direction through the Port.

3.2.2.2 Criteria Pollutants and Air Monitoring

Criteria Pollutants

Air quality at a given location can be characterized by the concentration of various pollutants in the air. Units of concentration are generally expressed as parts per million by volume (ppmv) or micrograms per cubic meter ($\mu g/m^3$) of air. The significance of a pollutant concentration is determined by comparing the concentration to an appropriate national or state ambient air quality standard. These standards represent the allowable atmospheric concentrations at which the public health and welfare are protected. They include a reasonable margin of safety to protect the more sensitive individuals in the population.

Pollutants for which ambient air quality standards have been adopted are known as criteria pollutants. These pollutants can harm human health and the environment, and cause property damage. These pollutants are called "criteria" air pollutants because they are regulated by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called the primary standards. Another set of limits intended to prevent environmental and property damage is called the secondary standards. The criteria pollutants of greatest concern in this air quality assessment are ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns (µm) in diameter (PM_{10}), and particulate matter less than 2.5 µm in diameter ($PM_{2.5}$). Nitrogen oxides (NO_X) and sulfur oxides (SO_X) refer to generic groups of compounds that include NO_2 and SO_2, respectively, because NO_2 and SO_2 are naturally highly reactive and may change composition when exposed to oxygen, other pollutants, and/or sunlight in the atmosphere. These oxides are produced during combustion.

USEPA establishes the National Ambient Air Quality Standards (NAAQS), and defines how to demonstrate whether an area meets the NAAQS. The California Air Resources Board (CARB) establishes the California Ambient Air Quality Standards (CAAQS), which must be equal to or more stringent than the NAAQS when initially adopted. CARB defines how to demonstrate whether an area meets the CAAQS.

As discussed above, one of the main concerns with criteria pollutants is that they contribute directly to regional human health problems. The known adverse effects associated with these criteria pollutants are shown in Table 3.2-1.

Table 3.2-1: Adverse Effects Associated with the Criteria Pollutants

Pollutant	Adverse Effects
Ozone (O_3)	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals and (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide (CO)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide ($N0_2$)	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide (SO_2)	(a) Broncho-constriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma
Suspended Particulate Matter less than 10 Microns (PM_{10})	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma) [a]
Suspended Particulate Matter less than 2.5 microns ($PM_{2.5}$)	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma)[a]
Lead [b]	(a) Increased body burden; (b) impairment of blood formation and nerve conduction, and neurotoxin.
Sulfates [c]	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardiopulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage

Source: SCAQMD, 2007a.

[a]More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: OEHHA, *Particulate Matter Health Effects and Standard Recommendations* (www.oehha.ca.gov/air/toxic_contaminants/PM_{10}notice.html#may), May 9, 2002; and USEPA, *Air Quality Criteria for Particulate Matter*, October 2004.

[b] Lead emissions were evaluated in the health risk assessment of this study. Screening calculations have shown that lead emissions would be below the SCAQMD emission thresholds for the proposed Project.

[c]Sulfate emissions were evaluated in the health risk assessment of this study. The SCAQMD has not established an emissions threshold for sulfates, nor does it require dispersion modeling against the localized significance thresholds (LSTs).

Note: California Ambient Air Quality Standards have also been established for hydrogen sulfide, vinyl chloride, and visibility reducing particles. They are not shown in this table because they are not pollutants of concern for the proposed Project.

Of the criteria pollutants of concern, ozone is unique because it is not directly emitted from Project-related sources. Rather, ozone is a secondary pollutant, formed from the precursor pollutants volatile organic compounds (VOC) and nitrogen oxides (NOx). VOC and NOx react to form ozone in the presence of sunlight through a complex series of photochemical reactions. As a result, unlike inert pollutants, ozone levels usually peak several hours after the precursors are emitted and many miles downwind of the source. Because of the complexity and uncertainty in predicting photochemical pollutant concentrations, ozone impacts are indirectly addressed in this study by comparing Project-generated emissions of VOC and NOx to daily emission thresholds set by the South Coast Air Quality Management District (SCAQMD). These emission thresholds are discussed in Section 3.2.4.2 (Thresholds of Significance).

Generally, concentrations of photochemical pollutants, such as ozone, are highest during the summer months and coincide with the season of maximum solar insolation. Concentrations of inert pollutants, such as CO, tend to be the greatest during the winter months and are a product of light wind conditions and surface-based temperature inversions that are frequent during that time of year. These conditions limit atmospheric dispersion. However, in the case of PM_{10} impacts from fugitive dust sources, maximum concentrations may occur during high wind events or near man-made ground-disturbing activities, such as vehicular activities on roads and earth moving during construction activities.

Approximately nine percent of Project-related emissions consist of diesel particulate matter (DPM). DPM is one of the components of ambient PM_{10} and $PM_{2.5}$. DPM is also classified as a toxic air contaminant by the CARB. As a result, DPM is evaluated in this study both as a criteria pollutant (as a component of PM_{10} and $PM_{2.5}$) and as a toxic air contaminant.

Local Air Monitoring Levels

USEPA designates all areas of the United States according to whether they meet the NAAQS. A nonattainment designation means that analyzing measured pollutant concentrations demonstrates that a primary NAAQS has been met in a given area. States with nonattainment areas must prepare a State Implementation Plan (SIP) that demonstrates how those areas will come into attainment. USEPA currently designates the SCAB as a nonattainment area for ozone, PM_{10}, $PM_{2.5}$ and lead. The SCAB is in attainment of the NAAQS for CO, SO_2 and NO_2. The severity of the nonattainment has been classified by USEPA for several of these pollutants. On May 5, 2010, USEPA approved the reclassification of the SCAB from "severe-17" to "extreme"[1] for the 8-hour ozone NAAQS due to higher levels of ozone. This down-grading of the classification went in to effect on June 4, 2010. The SCAB continues to be classified as a "serious" nonattainment area for PM_{10}. On January 24, 2011 CARB submitted a letter to USEPA recommending that California be designated as in attainment of the federal 1-hour NO_2 standard of 100 ppb. In response, USEPA issued a letter to the State recommending that all of California be classified as unclassifiable/attainment, although an official designation has not yet been made (USEPA, 2011a).

[1] For 8-hour ozone, a classification of *extreme* means that the area has a design value of 0.187 ppm or greater. The classification of *severe-17* designates an area with a design value of 0.127 ppm up to but not including 0.187 ppm. Therefore, a classification of *extreme* designates an area of higher ozone concentration than an area classified as *severe-17*.

The CARB also designates areas of the state according to whether they meet the CAAQS. A nonattainment designation means that a CAAQS has been exceeded more than once in three years. The CARB currently designates the SCAB as a nonattainment area for ozone, $PM_{10,}$ $PM_{2.5}$, NO_2 and lead. The air basin is in attainment of the CAAQS for CO, SO_2, and sulfates, and is unclassified for hydrogen sulfide and visibility reducing particles.

The Port has been conducting its own air quality monitoring program since February 2005. The main objective of the program is to estimate ambient levels of DPM near the Port. The secondary objective of the program is to estimate ambient particulate matter levels within adjacent communities due to Port emissions. To achieve these objectives, the program measures ambient concentrations of PM_{10}, $PM_{2.5}$, and elemental carbon $PM_{2.5}$ (which indicates fossil fuel combustion sources) at four locations in the Port vicinity (POLA and POLB, 2006). The station locations are:

- *Wilmington Station* – Located at the Saints Peter and Paul School. This station measures aged urban emissions during offshore flows and a combination of marine aerosols, aged urban emissions, and fresh emissions from Port operations during onshore flows. This station also provides information on the relative strengths of these source combinations. Meteorological data from this site and the Berth 47 site (described below) were used in this air quality analysis to model human health risks and criteria pollutant impacts associated with the proposed Project.
- *Coastal Boundary Station* – Located at Berth 47 in the Port Outer Harbor. This station measures aged urban and Port emissions and marine aerosols during onshore flows and aged urban emissions and fresh Port emissions during offshore flows. Meteorological data from this site and the Wilmington site (described above) were used in this air quality analysis to model human health risks and criteria pollutant impacts associated with the proposed Project.
- *Source-Dominated Station* – Located at the Terminal Island Water Reclamation Plant. This site is surrounded by three terminals and has a potential to receive emissions from off-road equipment, on-road trucks, and rail. During onshore flows, this station measures marine aerosols and fresh emissions from several nearby diesel-fired sources (trucks, trains, and ships). During offshore flows, this station measures aged urban emissions and Port emissions.
- *San Pedro Station* – Located at the Liberty Hill Plaza Building, adjacent to the Port administrative property on Palos Verdes Street. This location is near the western edge of Port operational emission sources and adjacent to residential areas in San Pedro. During onshore flows, aged urban emissions, marine aerosols, and fresh Port emissions have the potential to affect this site. During nighttime offshore flows, this site measures aged urban emissions and Port emissions.

As discussed below, the Port has collected PM_{10} data for six years at its Wilmington station and for over two years at the Coastal Boundary station and has collected $PM_{2.5}$ data at all four of its stations for six years. Though the Port operates monitoring stations in the vicinity of the proposed Project, three years of complete data from these stations were not available and therefore these data are not used in this analysis. Of the SCAQMD monitoring stations, the most representative station for the Project vicinity is the North Long Beach station because it is the closest SCAQMD station to the Project site with both gaseous and particulate measurements. Table 3.2-2 shows the highest pollutant

concentrations recorded at the North Long Beach station for 2007 to 2009, the most recent complete three-year period of data available.

Table 3.2-2: Maximum Pollutant Concentrations Measured at the North Long Beach Monitoring Station

Pollutant	Averaging Period	National Standard	State Standard	Highest Monitored Concentration[d]		
				2007	2008	2009
Ozone (ppm)	1 hour[a]	na	0.09	0.099	0.093	0.089
	8 hours[a]	0.075	0.070	0.074	0.074	0.067
CO (ppm)	1 hour[e]	35	20	3	4	3
	8 hours	9	9.0	2.6	2.5	2.2
NO_2 (ppm)	1 hour	0.100[h]	0.18	0.107	0.125	0.111
	Annual	0.053	0.030	0.020	0.021	0.021
SO_2 (ppm)[g]	1 hour[e]	0.075[f]	0.25	0.02	0.02	0.02
	24 hours	n/a	0.04	0.010	0.012	0.005
PM_{10} ($\mu g/m^3$)	24 hours[b]	150	50	232.0	62.0	62.0
	Annual	na	20	33.5	29.1	30.2
$PM_{2.5}$ ($\mu g/m^3$)	24 hours[c]	n/a	n/a	82.8	57.2	63.0
	24 hour (98th percentile)	35	n/a	40.7	38.8	34.2
	Annual	15	12	14.6	14.1	12.9
Lead ($\mu g/m^3$)	30 days[e]	n/a	1.5	0.02	0.01	0.0
	Calendar[e] quarter	1.5	n/a	0.01	0.01	0.0
	Rolling 3-Month average[e]	0.15	n/a	NA	NA	NA
Sulfates ($\mu g/m^3$)	24 hours[e]	n/a	25	10.5	14.0	13.6

Source: CARB, 2011a. (http://www.arb.ca.gov/adam/welcome.html)

[a] The state 1-hour ozone standard was exceeded on 1 day in 2007, and 0 days in 2008 and 2009. The state 8-hour ozone standard was exceeded on 1 day in 2007, 1 day in 2008, and was not exceeded in 2009. The national 8-hour ozone standard was not exceeded.

[b] The state 24-hour PM_{10} standard was exceeded on 6 sampled days in 2007, on 1 sampled day in 2008, and on 3 sampled days in 2009. The national 24-hour PM_{10} standard was exceeded on 1 sampled day in 2007 and was not exceed in 2008 or 2009.

[c] The national 24-hour $PM_{2.5}$ standard was exceeded on 12 days in 2007, 8 days in 2008, and 6 days in 2009.

[d] Data reflects California measurement techniques (unless state measurements are the only available data), which may vary somewhat from Federal measurement techniques.

[e] Source: SCAQMD (www.aqmd.gov) from Southwest Coastal LA County Site 1. The data shown is for the most recent available years: 2007, 2008, and 2009.

[f] Final rule signed June 2, 2010 and effective August 23, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

[g] USEPA revoked both the 24-hour and annual SO_2 standards effective August 23, 2010.

[h] Final rule was effective April 12, 2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb.

$\mu g/m^3$ micrograms per cubic meter ppm parts per million

As shown in the table, the following standards were exceeded at the North Long Beach station over the three-year period: ozone (state 1-hour and 8-hour standards), PM_{10} (24-hour standards and state annual standards), and $PM_{2.5}$ (national 24-hour standard and annual standards). No standards were exceeded for CO, NO_2, SO_2, lead, and sulfates; although some data were not available for SO_2, lead, and sulfates in 2006 and 2008.

Pollutant sampling data for February 2005 through July 2010 from the Port monitoring program are available. Samples are collected as 24-hour averages every 3 days and averaged over each month. The Port compiles the data on an annual basis, from May through April. The data from May 2009 to April 2010, the data from the most recent Port monitoring report (POLA, 2010), are summarized in Table 3.2-3. Data collected concurrently at the SCAQMD North Long Beach monitoring station are also presented for comparison.[2] The table shows that for both PM_{10} and $PM_{2.5}$, 24-hour and annual concentrations at the Wilmington station are lower than the North Long Beach station. For elemental carbon $PM_{2.5}$, the Source-Dominated station has the highest concentrations. Elemental carbon $PM_{2.5}$ was not measured at the North Long Beach station. In addition, beginning in November 2007, the Port began monitoring gaseous pollutants, specifically ozone, CO, NOx, and SOx. With the exception of annual SO_2 and 8-hour CO, all gaseous pollutants measured at the Port are lower than at the same pollutants measured at the North Long Beach station.

Air quality within the SCAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by the SCAQMD. This trend towards cleaner air has occurred in spite of continued population growth.

[2] While the baseline period for the proposed Project is September 2009 through August 2010, ambient air quality data is not available for this exact time period from the Port monitoring stations and the SCAQMD Long Beach site. The Port compiles data on an annual basis from May to April of each year, and SCAQMD data is compiled from January to December of each year.

Table 3.2-3: Maximum Pollutant Concentrations Measured for the Port Air Quality Monitoring Program

Pollutant	Averaging Period	Port of Los Angeles Monitoring Sites May 2009 to April 2010				CARB Monitoring Site[a]
		Wilmington Community Site	Coastal Boundary Site	San Pedro Community Site	Source-Dominated Site	North Long Beach
PM_{10} ($\mu g/m^3$) [c,d,e]	24-hour	71.0	53.6	NA	NA	232
	Annual	23.5	24.0	NA	NA	33.5
$PM_{2.5}$ ($\mu g/m^3$) [d]	State 24-hour	34.1	22.4	21.7	28.0	82.8
	Federal 24-hour	15.4	17.5	21.0	21.1	40.7
	Annual	8.3	7.3	8.6	9.3	14.6
Elemental Carbon ($\mu g/m^3$)	24-hour	3.5	3.4	4.4	4.8	NA[b]
	Annual	0.8	0.6	1.0	1.2	NA[b]
Ozone (ppm)	1-hour	0.085	0.097	0.081	0.101	0.099
	8-hour	0.058	0.067	0.061	0.058	0.074
NO_2 (ppm)	Annual	0.020	0.011	0.020	0.022	0.021
	1-hour	0.180	0.125	0.160	0.190	0.125
	1-hour NAAQS	0.071	0.066	0.082	0.087	NA[b]
SO_2 (ppm)	Annual	0.003	0.003	0.003	0.005	0.002
	24-hour	0.007	0.015	0.010	0.025	0.012
	1-hour	0.022	0.023	0.030	0.059	NA[b]
CO (ppm)	1-hour	4.5	2.2	2.7	4.9	NA[b]
	8-hour	2.8	2.1	1.4	1.6	2.59

Source: POLA, 2010 and CARB, 2010.

[a] Data shown for the North Long Beach station is the maximum of the data collected for 2007, 2008, and 2009 as shown in Table 3.2-2. The Port elemental carbon, PM_{10}, $PM_{2.5}$, CO, NO_x, SO_x, and ozone data were collected between May 2009 and April 2010.

[b] The National standard 1-hour NO_2 and 1-hour SO_2 and 1-hour CO are not available from the CARB North Long Beach site. Elemental carbon $PM_{2.5}$ is not measured at the CARB North Long Beach site

[c] Prior to August 2008, PM_{10} measurements were only made with filter-based monitors at the Wilmington Community station. On August 31, 2008 a second PM_{10} monitor was installed at the Coastal Boundary station.

[d] For PM_{10}, the SCAQMD North Long Beach monitoring site measures a 24-hour sample every six days, compared to every three days for the Port monitoring sites. Therefore, only one-half of the Port monitoring site samples (every other sample) has a corresponding sample from the North Long Beach site. For $PM_{2.5}$, all monitoring sites measure a 24-hour sample every three days.

[e] PM_{10} is not measured at the San Pedro Community site or Source-Dominated site. PM_{10} is measured at the Coastal Boundary site as of September 2008.

Toxic Air Contaminants

Toxic air contaminants (TACs) include air pollutants that can produce adverse human health effects, including carcinogenic effects, premature deaths, and asthma and other respiratory ailments, after short-term (acute) or long-term (chronic) exposure. Examples of TAC sources within the SCAB include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources.

The SCAQMD determined in the *Multiple Air Toxics Exposure Study III* (MATES III) that about 84 percent of the background airborne cancer risk in the SCAB is due to diesel exhaust (SCAQMD, 2008). The highest modeled air toxics risk was near the ports. In addition to the ports, areas of elevated risk were found near Central Los Angeles and transportation corridors and freeways. Compared to the MATES II study, the MATES III study found a decreasing risk for air toxics exposure, with the population-weighted risk down by 8 percent from the analysis in MATES II.

Furthermore, a recently released CARB report titled *Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach* indicates that the Ports contributed approximately 21 percent of the total diesel PM emissions in the air basin during 2002 (CARB, 2006a). These emissions are reported to result in elevated cancer risk levels over the entire 20-mile by 20-mile study area.

As discussed in Section 1.7.2.1, the Port of Los Angeles, in conjunction with the Port of Long Beach, has developed the San Pedro Bays Clean Air Action Plan (CAAP) that targets all emissions related to the Port. In five years under the Plan, diesel PM from all Port-related sources would be reduced by 47 percent. NOx emissions would be reduced by 45 percent and SOx emissions would be reduced by 52 percent. For the first time ever, the ports have established uniform air quality standards at the program level, project specific level, and the source specific level.

Secondary $PM_{2.5}$ Formation

Within the SCAB, $PM_{2.5}$ particles both are directly emitted into the atmosphere (e.g., primary particles) and are formed through atmospheric chemical reactions from precursor gases (e.g., secondary particles). Primary $PM_{2.5}$ includes diesel soot, combustion products, road dust, and other fine particles. Secondary $PM_{2.5}$, which includes products such as sulfates, nitrates, and complex carbon compounds, are formed from reactions with directly emitted NO_X, SO_X, VOCs, and ammonia (SCAQMD, 2006). Project-generated emissions of NO_X, SO_X, and VOCs would contribute toward secondary $PM_{2.5}$ formation some distance downwind of the emission sources. However, the air quality analysis in this EIR focuses on the effects of direct $PM_{2.5}$ emissions generated by the proposed Project and their ambient impacts. This approach is consistent with the recommendations of the SCAQMD (SCAQMD, 2006).

Ultrafine Particles

Although USEPA and the State of California currently monitor and regulate PM_{10} and $PM_{2.5}$, new research is being done on ultrafine particles (UFP), particles classified as less than 0.1 micron in diameter. UFPs are formed usually by a combustion cycle, independent of fuel type. With diesel fuel, UFPs can be formed directly from the fuel during combustion. With gasoline and natural gas (liquefied or compressed), the UFPs are derived mostly from the lubricant oil. UFPs are emitted directly from the tailpipe as

solid particles (soot - elemental carbon and metal oxides) and semi-volatile particles (sulfates and hydrocarbons) that coagulate to form particles.

The research regarding UFPs is at its infancy but suggests the UFPs might be more dangerous to human health than the larger PM_{10} and $PM_{2.5}$ particles (termed fine particles) due to size and shape. Because of the smaller size, UFPs are able to travel more deeply into the lung (the alveoli) and are deposited in the deep lung regions more efficiently than fine particles. UFPs are inert; therefore, normal bodily defense does not recognize the particle. UFPs might have the ability to travel across cell layers and enter into the bloodstream and/or into individual cells. With a large surface area-to-volume ratio, other entities might attach to the particle and travel into the cell as a kind of "hitchhiker."

Current UFP research primarily involves roadway exposure. Preliminary studies suggest that over 50 percent of an individual's daily exposure is from driving on highways. Levels appear to drop off rapidly as one moves away from major roadways. Little research has been done directly on ships and off-road vehicles. CARB is currently measuring and studying UFPs at the Port Complex. Work is being done on filter technology, including filters for ships, which appears promising. The Port actively participates in the CARB testing at the Port and will comply with all future regulations regarding UFPs. In addition, measures included in the CAAP aim to reduce all emissions Port-wide.

Atmospheric Deposition

The fallout of air pollutants to the surface of the earth is known as atmospheric deposition. Atmospheric deposition occurs in both a wet and dry form. Wet deposition occurs in the form of precipitation or cloud water and is associated with the conversion in the atmosphere of directly emitted pollutants into secondary pollutants such as acids. Dry deposition occurs in the form of directly emitted pollutants or the conversion of gaseous pollutants into secondary PM. Atmospheric deposition can produce watershed acidification, aquatic toxic pollutant loading, deforestation, damage to building materials, and respiratory problems.

The CARB and California Water Resources Control Board are in the process of examining the need to regulate atmospheric deposition for the purpose of protecting both fresh and saltwater bodies from pollution. Port emissions deposit into both local waterways and regional land areas. Emission sources from the proposed Project would produce DPM, which contains trace amounts of toxic chemicals. Through the CAAP, the Port will reduce air pollutants from its future operations, which will work towards the goal of reducing atmospheric deposition for purposes of water quality protection. The CAAP will reduce air pollutants that generate both acidic and toxic compounds, including emissions of NO_X, SO_X, and DPM.

Greenhouse Gases and Climate Change

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs). GHGs are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be about 61°F cooler (AEP, 2007). However, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels (IPCC, 2007). According to the Intergovernmental Panel on Climate Change (IPCC), the atmospheric concentration of CO_2 in 2005 was 379 ppm compared to the pre-industrial levels of 280 ppm. In addition, the Fifth U.S. Climate Action Report concluded, in assessing current trends, that carbon dioxide emissions increased by 20 percent from 1990 to 2007, while methane and nitrous oxide emissions decreased by 5 percent and 1 percent, respectively.

There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures (IPCC, 2007). For example, the California Climate Change Center reports that by the end of this century, average global surface temperatures could rise by 4.7 to10.5ºF due to increased GHG emissions. Scientific evidence indicates a trend of increasing global temperatures near the earth's surface over the past century due to increased human-induced levels of GHGs (IPCC, 2007).

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees (IPCC, 2007). Other, longer term environmental impacts of global warming may include sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack. (For example, estimates include a 30 to 90 percent reduction in snowpack in the Sierra Nevada mountain range). Current data suggest that in the next 30 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods (Cal/EPA, 2010). More specifically, the *2009 Climate Action Team Biennial Report* predicted that California could witness the following events (California Environmental Protection Agency, 2009):

- Temperature rises between 0.9 to 3.6ºF by 2030
- 11 to 18 inches or more of sea level rise by 2050
- More frequent, longer, and more intense heat waves
- 0.8 to 3.2 percent increase in heat-related deaths
- 20 percent less runoff from snowmelt
- Increase in the number, size, and duration of wildfires

Findings from an assessment conducted by USEPA on potential impacts associated with climate change on a regional level in the United States have indicated that an increase in GHGs could result in damaging effects on health due to increases in the frequency of extreme pollution events (USEPA, 2009).

As indicated above, temperature increases anticipated to occur in conjunction with climate change would lead to environmental impacts in a wide variety of areas, including: sea level rise, reduced snow pack resulting in changes to existing water resources, increased risk of wildfires, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality. Of these potential climate change-related impacts, sea level rise is most relevant to the proposed Project. Sea level rise, including potential impacts of sea level rise on the proposed Project, is discussed in greater detail in Section 3.5, Geology.

The U.S. Supreme Court ruled that the harms associated with climate change are serious and well recognized, that the USEPA must regulate GHGs as pollutants, and unless the agency determines that GHGs do not contribute to climate change, it must promulgate regulations for GHG emissions from new motor vehicles (*Massachusetts et al. Environmental Protection Agency* [case No. 05-1120], 2007). In response, in December 2009 the Federal government released an 'endangerment finding' that GHGs endanger public health and welfare.

As required by the Supreme Court ruling, on May 7, 2010 the USEPA in conjunction with the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) finalized the Light-Duty Vehicle Rule (LDVR) that establishes a national program consisting of GHG emissions standards and Corporate Average Fuel Economy (CAFE) standards for light-duty vehicles. On May 13, 2010 the USEPA finalized the *Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule* (Tailoring Rule) that requires new facilities that emit over 100,000 tons of GHGs per year or modifications to facilities that increase GHG emissions by over 75,000 tons per year to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions. The permitting requirements under the Tailoring Rule went into effect on January 2, 2011, the same date the LDVR standards first apply to new cars and trucks starting with model year 2012.

In addition, to evaluate the sources of greenhouse gas emissions in the U.S. economy, the USEPA finalized a Mandatory Greenhouse Gas Reporting Rule (MRR) on December 29, 2009. The MRR covers suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines, and facilities that emit over 25,000 metric tons of GHGs per year. The first emissions reports from covered facilities are due in September of 2011. Information collected from this rule is expected to be used to inform future policy decisions.

Additional control of GHGs exist at the state level and include setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increasing energy efficiency, and developing statewide action plans. To date, 23 states including California have set state GHG emission targets. Executive Order S-3-05 and the passage of Assembly Bill (AB) 32, *the California Global Warming Solutions Act of 2006*, promulgated the California target to achieve 1990 GHG levels by the year 2020. A companion bill, Senate Bill (SB) 1368, *Emissions Performance Standards*, similarly addresses global warming, but from the perspective of electricity generators selling power into the state. The legislation requires that imported power meet the same greenhouse gas standards that power plants in California meet. SB 1368 also sets standards for CO_2 for any long-term power production of electricity at 1,100 pounds per megawatt hour.

Mobile source engine and transportation fuel GHG emissions are regulated by CARB. On September 24, 2009 CARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The USEPA granted California the authority to implement GHG emission reduction standards for new passenger cars, pick-up trucks, and sport utility vehicles on June 30, 2009. The Pavley regulations are expected to reduce GHG emissions from these sources by 22 percent in 2012 and 30 percent in 2016. In addition, CARB passed a Low-Carbon Fuel Standard (LCFS) pursuant to AB32 and the Governor's Executive Order S-01-07. The LCFS calls for a 10 percent reduction in the carbon intensity of California's transportation fuels by 2020. The full regulation went into effect on January 1, 2011.

The World Resources Institute's GHG Protocol Initiative identifies six GHGs generated by human activity believed to be contributors to global warming (WRI/WBCSD, 2007):

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

These are the same six GHGs that are identified in AB32 and by the USEPA. Appendix C4 contains descriptions of the natural and man-made sources of emissions for each of these GHGs.

The different GHGs have varying global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. By convention, CO_2 is assigned a GWP of 1. By comparison, CH_4 has a GWP of 21, which means that it has a global warming effect 21 times greater than CO_2on an equal-mass basis. N_2O has a GWP of 310, which means that it has a global warming effect 310 times greater than CO_2 on an equal-mass basis. To account for their GWPs, GHG emissions are often reported as a CO_2equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its GWP, and adding the results together to produce a single, combined emission rate representing all GHGs. Appendix C4 lists the GWP for each GHG.

Sustainability and Port Climate Action Plan

In May 2007, the City of Los Angeles Mayor's Office released the Green LA initiative, which is an action plan to lead the nation in fighting global warming. The Green LA Plan presents a citywide framework for confronting global climate change to create a cleaner, greener, sustainable Los Angeles. The Green LA Plan directs the Port to develop an individual Climate Action Plan, consistent with the goals of Green LA, to examine opportunities to reduce GHG emissions from operations.

In accordance with this directive, the Sustainability and Climate Action Plan of the Port would cover all currently listed GHG emissions related to Port activities (such as Port buildings and Port workforce operations). The Port completes annual GHG inventories of the Port and reports these to the appropriate climate registry. The 2006-2009 data were reported to the California Climate Action Registry (CCAR) and future data will be

reported to The Climate Registry (TCR) (TCR, 2011). The Port, as a Department of the City of Los Angeles and as a Port associated with a major City, is a participant in Clinton Climate Initiative as a C40 City. The Port is also a signatory to the California Sustainable Goods Movement Program and is participating in the University of Southern California Sustainable Cities Program, which is looking at GHGs associated with international goods movement.

3.2.2.3 Sensitive Receptors

The impact of air emissions on sensitive members of the population is a special concern. Sensitive receptor groups include children, the elderly, and the acutely and chronically ill. The locations of these groups include residences, schools, daycare centers, convalescent homes, and hospitals. The nearest sensitive receptors to the Project site include residents (two liveaboard tenants) in Fish Harbor (at the Al Larson Marina) approximately 280 ft to the south of the nearest onshore portion of the Project (Phase 3 area) and 100 ft south of the limits of proposed Project dredging (Phase 2). Also located at the southwestern tip of Terminal Island (south of the Al Larson Marina) are Fire Station 111, the US Coast Guard and the Federal prison at Reservation Point. The nearest shore-bound residents are in San Pedro, roughly one mile west of the site's western boundary. Additionally, the Port of Los Angeles Charter High School, 15th Street Elementary School, and Barton Hill Elementary School on Pacific Avenue in San Pedro are approximately 0.9, 1.0, and 1.4 miles away, respectively, from the northwest edge of the proposed Project site. The nearest daycare center is the World of Tots LA Daycare Center, about 0.8 mile northwest of the proposed Project site. The nearest convalescent home is the Harbor View House, about 0.7 miles west of the proposed Project site. The nearest hospitals are the San Pedro Peninsula Hospital and Little Company of Mary San Pedro Hospital, both about 2.1 miles west of the proposed Project site.

3.2.2.4 Al Larson Boat Shop Baseline Emissions

For purposes specific to this Draft EIR, the baseline for determining the significance of potential Project impacts is the period prior to September 2010. In the baseline year (September 1, 2009 through August 31, 2010), the proposed Project site was used for ship repair and includes the following facilities: office and workshop complex, paint shed, wood, welding and machine shops, docks, piers, walls and marine railways, marine, and other ancillary buildings and structures.

The existing ALBS has the capacity to accommodate five vessels with four marine railways, one floating dry dock, and dock space for dockside repairs. Wood, welding, and machine shops, storage areas, and crew quarters support the shipyard. Existing equipment includes portable and fixed cranes, portable forklifts, welders and sand blasting equipment. The facility services on average 120 to 140 ships/vessels per year and has between 70 and 100 employees on-site.

The baseline conditions normally include environmental conditions in the vicinity of the proposed Project site, or the area affected by the proposed Project, during the baseline period. However, to ensure a conservative description of baseline conditions and to avoid understating Project impacts, this document describes baseline conditions as including only activities that occurred on the site of the proposed Project (that is, the existing ALBS) during the baseline period.

Table 3.2-4 summarizes the peak daily emissions associated with baseline year operations. Baseline peak daily emissions are compared to future Project peak daily emissions to determine significance for the proposed Project. For the proposed Project, peak daily and average daily emissions are not anticipated to differ significantly; therefore average daily emissions are not presented in this analysis.

Table 3.2-4: Baseline (September 2009 - August 2010) Peak Daily Operational Emissions

Emission Source	Peak Daily Emissions (lb/day)[a,b]					
	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Machine Shops[c]	35	4	17	<1	16	5
Off-road Mobile Equipment	1	4	5	<1	<1	<1
Harbor Craft Transit[d]	6	25	95	<1	4	3
Worker Trips	4	38	4	<1	2	1
Total – Baseline[e]	**46**	**71**	**122**	**<1**	**22**	**9**

[a] Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day ALBS operations.

[b] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

[c] Machine shops include the Welding Shop (Building C1), Paint Shop (Building B), and Machine Shop (Building C2).

[d] Based on information provided by ALBS for current operations, approximately 60 percent of the harbor craft serviced at ALBS are assumed to be local (operating within the San Pedro Bay Complex) and the remaining 40 percent travel over 24 nm from outside the Port of Los Angeles/Port of Long Beach area to be serviced. [e] Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.

Greenhouse Gas Emissions

Table 3.2-5 presents an estimate of the GHG emissions generated within California borders from the baseline year operations.[3] As discussed further in Section 3.2.3.2, the analysis of GHG emissions within the State of California is consistent with the goals of the California Climate Action Registry (CCAR) and The Climate Registry (TCR). The emission sources for which baseline GHG emissions were calculated include off-road equipment, vessel transit, machine shop fuel usage, worker trips, and ALBS electricity usage. The GHG emission calculation methodology is described in Appendix C4. In keeping with international convention, the GHG emissions in this report are expressed in metric units (metric tons in this case).

[3] In the case of electricity consumption, the GHG emissions may also be generated by out-of-state power plants.

Table 3.2-5: Annual Operational GHG Emissions – Al Larson Boat Shop – Baseline (September 2009 - August 2010)

Source Type	Metric Tons[a] Per Year			
	CO_2	CH_4	N_2O	CO_2e[b]
Machine Shop Operations	74	0.00	0.00	75
Building Operations	280	0.01	0.00	281
Off-road Equipment	74	0.00	0.00	75
Harbor Craft Transit[c]	3,370	0.11	0.16	3,422
Worker Trips	519	0.02	0.01	523
Baseline Total	**4,318**	**0.14**	**0.18**	**4,375**

[a] 1 metric ton equals 1,000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

[b] CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.

[c] Based on information provided by ALBS for current operations, approximately 60 percent of the harbor craft serviced at ALBS are assumed to be local (operating within the San Pedro Bay Complex) and the remaining 40 percent travel over 24 nm from outside the Port of Los Angeles/Port of Long Beach area to be serviced.

3.2.3 Applicable Regulations

The Federal Clean Air Act of 1969 and its subsequent amendments established air quality regulations and the NAAQS, and delegated enforcement of these standards to the states. In California, the CARB is responsible for enforcing air pollution regulations. The CARB has, in turn, delegated the responsibility of regulating stationary emission sources to the local air agencies. In the South Coast Air Basin, the local air agency is the SCAQMD.

The following is a summary of the key federal, state, and local air quality rules, policies, and agreements that potentially apply to the proposed Project and its related activities:

3.2.3.1 Federal Regulations

State Implementation Plan

In federal nonattainment areas, the Federal Clean Air Act (CAA) requires preparation of a SIP, detailing how the state will attain the NAAQS within mandated timeframes. In response to this requirement, the SCAQMD and the Southern California Association of Governments (SCAG) have jointly developed the *2007 Air Quality Management Plan (AQMP)*. The 2007 AQMP was adopted by the SCAQMD on June 1, 2007. The focus of the 2007 AQMP is to demonstrate compliance with the new NAAQS for $PM_{2.5}$ and 8-hour ozone and other planning requirements, including compliance with the NAAQS for PM_{10} (SCAQMD, 2007b). The Final Plan proposes attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of SO_X, directly emitted $PM_{2.5}$, and NO_X supplemented with VOCs by 2015. The 8-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NOx and VOC reductions to meet the standard by 2024. Since it will be more difficult to achieve the 8-hour ozone NAAQS compared to

the 1-hour NAAQS, the *2007 AQMP* contains substantially more emission reduction measures compared to the *2003 AQMP*.

On November 22, 2010, the USEPA released a partial approval and partial disapproval of the 2007 South Coast State Implementation Plan for 1997 Fine Particulate Matter Standards as part of the South Coast 2007 AQMP. Specifically, USEPA is proposing to approve the emissions inventories and commitments by the SCAQMD and CARB as well as the air quality modeling demonstration as meeting the requirements of the CAA and USEPA guidance. However, USEPA is proposing to disapprove the attainment demonstration because it does not provide sufficient emissions reductions from adopted and USEPA-approved measures to provide for attainment of the NAAQS. As a result, USEPA is also proposing to disapprove the reasonably available control measures/technology and reasonable further progress demonstrations and proposing not to grant California's request to extend the April 5, 2015 deadline for the South Coast nonattainment area to attain the 1997 $PM_{2.5}$ NAAQS. Finally, USEPA is proposing to disapprove the assignment of 10tpd of NOx to the federal government, $PM_{2.5}$ contingency measures, and the motor vehicle emissions budgets for the area's RFP years and attainment year. To the extent that the State can remedy the shortfall in emissions reductions for the attainment demonstration, which is the basis for the proposed disapproval, USEPA believes that many of the noted deficiencies could be addressed. On May 19, 2011 CARB submitted revisions to the $PM_{2.5}$ and ozone SIP to USEPA. These revisions include an update of the control measures to meet the $PM_{2.5}$ attainment date, revised control measure adoption schedule, and modified emissions reduction commitment to reflect improvements to the off-road emissions estimates for 2014.

IMO MARPOL Annex VI

The International Maritime Organization (IMO) MARPOL ("Marine Pollution") Annex VI, which came into force in May 2005, set new international NO_X emission limits on marine engines over 130 kilowatts (kW) installed on new vessels retroactive to the year 2000. In April 2008, the Marine Environment Projection Committee of the IMO approved a recommendation for new MARPOL Annex VI sulfur limits for fuel and NOx limits for engines. In October 2008 the IMO adopted these amendments under MARPOL Annex VI which place a global limit on marine fuel sulfur content of 3.5 percent by 2012, reduced to 0.5 percent sulfur by 2020 or 2025 pending a technical review in 2018. On July 21, 2008 the United States signed the Maritime Pollution Protection Act of 2008, ratifying MARPOL Annex VI and the requirements became enforceable in January 2009.

On March 26, 2010 the IMO amended MARPOL designating specific portions of U.S. waters including the Pacific coast as an Emission Control Area (ECA). The requirements for an ECA are 1 percent sulfur by 2010 and 0.1 percent sulfur by 2015. In addition, as of 2016 ships will be required to comply with Tier 3 standards (after treatment-forcing) to reduce NOx emissions. All ships associated with the construction and operations of the proposed Project are assumed to comply with these requirements.

Emissions Standards for Marine Compression Ignition Engines

On March 14, 2008, USEPA finalized a program to reduce emissions from marine diesel engines below 30 liters per cylinder displacement. These include marine propulsion engines on vessels and marine auxiliary engines. The regulations introduce new standards, Tier 3 and Tier 4, which apply to both new and remanufactured diesel engines. Tier 3 standards apply to new engines used in commercial, recreation, and auxiliary power applications beginning in 2009. Tier 4 standards apply to new engines above 600 kW on commercial vessels beginning in 2014. For remanufactured engines, standards apply only to commercial marine diesel engines above 600kW when the engines are remanufactured and as soon as certified systems are available.

Emission Standards for Marine Diesel Engines

In January 2003, USEPA adopted Tier 1 standards for marine diesel engines above 30 liters per cylinder (Category 3), which went into effect in 2004. In December 2009, USEPA finalized emission standards for Category 3 marine diesel engines installed on U.S. flagged vessels as well as marine fuel sulfur limits which are equivalent to the amendments recently adapted to MARPOL Annex VI. The final regulation would establish stricter standards for NOX, in addition to standards for HC and CO. Tier 2 NOx standards for newly built engines will apply beginning in 2011 and Tier 3 standards will apply beginning in 2016 in emission control areas (ECAs).

Emission Standards for Nonroad Diesel Engines

To reduce emissions from off-road diesel equipment, USEPA established a series of increasingly strict emission standards for new off-road diesel engines. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards were phased in from 2006 to 2008. Tier 4 standards, which likely will require add-on emission control equipment to attain them, will be phased in from 2008 to 2015. These standards apply to construction equipment and other heavy-duty mobile equipment. Marine vessels are exempt (DieselNet, 2005).

Emission Standards for Marine Diesel Engines

To reduce emissions from Category 1 (at least 50 horsepower [hp] but < 5 liters per cylinder displacement) and Category 2 (5 to 30 liters per cylinder displacement) marine diesel engines, USEPA established emission standards for new engines, referred to as Tier 2 marine engine standards. The Tier 2 standards have been phased in from 2004 to 2007 (year of manufacture), depending on the engine size (USEPA, 1999). For the proposed Project, this rule is assumed to affect harbor craft used during proposed Project construction.

Emission Standards for On-Road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, USEPA established a series of increasingly strict emission standards for new engines, starting in 1988. The USEPA promulgated the final and cleanest standards with the *2007 Heavy-Duty Highway Rule* (USEPA, 2001). The PM emission standard of 0.01 gram per horsepower-hour (g/hp-hr) is required for new vehicles beginning with model year 2007. Also, the NO_X and nonmethane hydrocarbon (NMHC) standards of 0.20 g/hp-hr and 0.14 g/hp-hr, respectively, would be phased in together between 2007 and 2010 on a percent of sales

basis: 50 percent from 2007 to 2009 and 100 percent in 2010.Currently, the strictest standards will be phased in starting in 2007 (USEPA, 2001). On-road trucks are used during proposed Project construction as well as operations, although the proposed Project is not anticipated to significantly increase the use of on-road trucks during operations.

Nonroad Diesel Fuel Rule

With this rule, USEPA set sulfur limitations for nonroad diesel fuel, including nonroad diesel engines and marine vessels. For the proposed Project, the California Diesel Fuel Regulations (described below) generally pre-empt this rule for sources such as construction equipment and harbor craft.

Highway Diesel Fuel Rule

With this rule, USEPA set sulfur limitations for on-road diesel fuel to 15 ppm starting June 1, 2006 (USEPA, 2006).

General Conformity Rule

Section 176(c) of the CAA states that a federal agency cannot support an activity unless the agency determines that the activity will conform to the most recent USEPA-approved SIP. This means that projects using federal funds or requiring federal approval must not: (1) cause or contribute to any new violation of a NAAQS; (2) increase the frequency or severity of any existing violation; or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone.

On December 20, 2007, the USEPA proposed revisions to the General Conformity Regulations. The proposed revisions would clarify, streamline, and improve conformity determination and review processes, and provide transition tools for making conformity determinations for new NAAQS standards. The proposed revisions would also allow federal facilities to negotiate a facility-wide emission budget with the applicable air pollution control agencies, and to allow the emissions of one precursor pollutant to be offset by the emissions of another precursor pollutant. These revisions have not yet been promulgated.

On April 5, 2010 USEPA streamlined requirements for federal agencies to demonstrate they are complying with state and tribal plans to improve air quality. These requirements amend 40 CFR parts 51 and 93, and became effective on July 6, 2010.

Based on the current General Conformity rule and attainment status of the South Coast Air Basin, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$ (or any of the $PM_{2.5}$ precursors: NOx, SOx, VOC or ammonia), 70 tons of PM_{10}, or 10 tons of NO_X or VOC. These *de minimis* thresholds apply to both proposed Project construction and operations. (For proposed Project operations, the thresholds are compared to the net change in emissions relative to the No Federal Action Alternative [NEPA baseline]). If the proposed action exceeds one or more of the *de minimis* thresholds, a more rigorous conformity determination is the next step in the conformity evaluation process.

Conformity Statement

Section 176 (c) of the CAA (42 U.S.C. Section 7506(c)) requires any entity of the Federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110 (a) of the CAA (42 U.S.C. Section 7410(a)) before the action is otherwise approved. In this context, conformity means that such Federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of NAAQS and achieving expeditious attainment of those standards. Each Federal agency (including the USACE) must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable SIP before the action is taken.

The general conformity regulations incorporate a stepwise process, beginning with an applicability analysis. According to USEPA guidance (USEPA, 1993), before any approval is given for a Federal action to go forward, the regulating Federal agency must apply the applicability requirements found at 40 C.F.R. Section 51.853(b) to the Federal action and/or determine the regional significance of the Federal action pursuant to 40 C.F.R. Section 51.853(j) to evaluate whether, on a pollutant-by-pollutant basis, a determination of general conformity is required. The guidance states that the applicability analysis can be (but is not required to be) completed concurrently with any analysis required under the NEPA. If the regulating Federal agency determines that the general conformity regulations do not apply to the Federal action, no further analysis or documentation is required. If the general conformity regulations do apply to the Federal action, the regulating Federal agency must next conduct a conformity evaluation in accord with the criteria and procedures in the implementing regulations, publish a draft determination of general conformity for public review, and then publish the final determination of general conformity.

As part of the environmental review of the Federal action, the USACE conducted a general conformity evaluation pursuant to SCAQMD Rule 1901 and 40 C.F.R. Part 51 Subpart W. The general conformity regulations apply at this time to any action at POLA requiring USACE approval because the SCAB where Port is situated is a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$; and a maintenance area for NO_2 and CO. The USACE conducted the general conformity evaluation following all regulatory criteria and procedures and in coordination with USEPA, CARB, and SCAQMD. Although this Draft EIR is in compliance with CEQA, the proposed Project includes elements requiring Federal action; therefore, a draft general conformity determination has been prepared and is presented in Appendix C5 of this Draft EIR. The USACE proposes that the Federal action as designed will conform to the approved SIP, based on the findings below:

- The Federal action is not subject to a general conformity determination for CO, VOC (as an ozone and PM2.5 precursor), NOx (as a PM2.5 precursor), PM10, PM2.5, or SOx (as a PM2.5 precursor) because the net emissions associated with the Federal action are less than the general conformity de minimis thresholds and they are not regionally significant.
- The Federal action, along with all of the Port of Los Angeles projects, was included in the 2007 AQMP, which represents a SIP revision incorporating the Project. The 2007 AQMP includes all of the necessary elements for the requested redesignation to "extreme" nonattainment classification for the 8-hour ozone NAAQS (74 FR

43654). Therefore, the Federal action conforms to the approved SIP through the 2007 AQMP SIP revision and satisfies the conformity demonstration requirement under 40 CFR 51.858(a)(5)(i)(B).

Therefore, USACE herewith concludes that the Federal action as designed conforms to the purpose of the approved SIP and it is consistent with all applicable requirements.

3.2.3.2 State Regulations and Agreements

California Clean Air Act

The California Clean Air Act of 1988, as amended in 1992, outlines a program to attain the CAAQS by the earliest practical date. Because the CAAQS are more stringent than the NAAQS, attainment of the CAAQS will require more emissions reductions than what would be required to show attainment of the NAAQS. Consequently, the main focus of attainment planning in California has shifted from the federal to state requirements. Similar to the federal system, the state requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region.

Heavy Duty Diesel Truck Idling Regulation

This CARB rule (13 CCR Section2485) affects heavy-duty diesel trucks in California beginning in 2008. The rule requires that heavy-duty trucks be equipped with a non-programmable engine shutdown system that shuts down the engine after five minutes or optionally meet a stringent NOx idling emission standard.

California Diesel Fuel Regulations

With this rule, the CARB set sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles. Harbor craft and intrastate locomotives were originally excluded from the rule, but were later included by a 2004 rule amendment (CARB, 2005b). Under this rule, diesel fuel used in motor vehicles except harbor craft and intrastate locomotives has been limited to 500-ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm on September 1, 2006. The phase-in period was from June 1, 2006, to September 1, 2006. (A federal diesel rule similarly limited sulfur content nationwide to 15 ppm by October 15, 2006.). Diesel fuel used in harbor craft in the SCAQMD was limited to 500-ppm sulfur starting January 1, 2006, and 15-ppm sulfur starting September 1, 2006. Diesel fuel used in intrastate locomotives (switch locomotives) was limited to 15-ppm sulfur starting January 1, 2007.

On July 24, 2008 CARB adopted low sulfur fuel requirements for marine engines, auxiliary engines, and auxiliary boilers within 24 nautical miles (nm) of the California coastline starting July 1, 2009. The regulation required the use of marine gas oil (MGO) with a sulfur content less than 1.5 percent or marine diesel oil (MDO) with a sulfur content of equal to or less than 0.5 percent. By January 1, 2012 all engines and boilers must use MGO or MDO with a sulfur content of equal to or less than 0.1 percent. On May 4, 2011, CARB proposed amendments to this regulation extending the deadline of January 1, 2012 to January 1, 2014 for engines and boilers to comply. The proposed amendments have not yet been adopted.

Statewide Portable Equipment Registration Program

The Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB, 2005a). Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts. The PERP generally would apply to proposed dredging and barge equipment.

AB 1493 – Vehicular Emissions of Greenhouse Gases

California AB 1493 (Pavley), enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB (13 CCR Section1961.1) applies to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from light duty passenger vehicle fleet by 18 percent in 2020 and 27 percent in 2030.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, statewide GHG emission reduction targets as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020.

AB 32 – California Global Warming Solutions Act of 2006

The purpose of AB 32 is to reduce statewide GHG emissions to 1990 levels by 2020. This enactment instructs the CARB to adopt regulations that reduce emissions from significant sources of GHGs and establish a mandatory GHG reporting and verification program by January 1, 2008. AB 32 requires the CARB to adopt GHG emission limits and emission reduction measures by January 1, 2011, both of which are to become effective on January 1, 2012. CARB adopted a cap-and-trade rule on December 15, 2010 to regulate sources that emit over 25,000 $MTCO_2e$. The rule has not yet been finalized in the Public Register, which is expected to occur by the end of 2011. The cap-and-trade program will begin on January 1, 2012.

On October 24, 2008 CARB released a preliminary draft proposal, "Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under CEQA." CARB suggests the following threshold for industrial projects: the project, with mitigation, will emit no more than 7,000 metric tons CO2e per year from non-transportation-related sources such as stationary combustion, process losses, purchased electricity, and water usage and wastewater discharge. For transportation and construction sources, CARB is developing performance standards against which significance may be evaluated.

Executive Order S-01-07

Executive Order S-01-07 was enacted by the Governor on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) that a low-carbon fuel standard (LCFS) for transportation fuels be established for California.

CARB established a LCFS on January 18, 2007 which calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. CARB adopted the final regulation on November 25, 2009 and the regulation became effective January 12, 2010. Reporting and recordkeeping requirements are required starting in 2010 and carbon intensity standards go into effect in 2011.

Executive Order S-13-08

Given the serious threat of sea level rise to California's water supply and coastal resources and the impact it would have on our state's economy, population and natural resources, Governor Arnold Schwarzenegger issued an Executive Order S-13-08 in 2008 to enhance the state's management of climate impacts from sea level rise, increased temperatures, shifting precipitation and extreme weather events.

There are four key actions in the EO including: (1) initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies by early 2009; (2) request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts; (3) issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects; and (4) initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

In response to Executive Order S-13-08, the Natural Resources Agency prepared the Climate Change Adaptation Strategy in 2009 to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events (California Natural Resources Agency, 2009). The adaptation strategy will be updated as new data continues becomes available.

Other actions that have taken place in response to Executive Order S-13-08 include preparation of a Sea Level Rise Report by the California State Lands Commission in December 2009 to address concerns on the issue of sea level rise, a summary of the efforts of California, federal agencies, and other coastal states related to sea level rise, and included recommendations to reduce the impacts of sea level rise in California. The Coastal and Ocean Climate Working Group of the California Climate Action Team (CO-CAT), which is a forum for state agencies to share information and coordinate on actions to implement the California Climate Adaptation Strategy developed a Sea-Level Rise Interim Guidance Document in October 2010 as a guide to assist state agencies in incorporating sea level rise projections into planning and decision making for new construction projects (CO-CAT, 2009).

SB 1368 GHG Standard for Electrical Generation

Senate Bill 1368, passed in September 2006, authorized the California Public Utilities Commission (CPUC), in consultation with the California Energy Commission (CEC) and CARB, to establish GHG emissions standards for baseload generation for investor owned utilities (IOUs). It required the CEC to adopt a similar standard for local publicly owned or municipal utilities. The CPUC adopted rulemaking implementing the legislation in January 2007(Article 1, Section 2900 Public Utilities Code) (California Energy Commission [CEC], 2007). The CEC adopted rulemaking establishing a performance standard for baseload generation facilities in early 2007. SB 1368 would affect the emissions intensity of all electricity purchased from LADWP by ALBS.

Renewable Portfolio Standard (RPS) / Renewable Electricity Standard (RES)

Established in 2002 under Senate Bill 1078 and accelerated in 2006 under Senate Bill 107, California's Renewable Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources by at least 1 percent of their retail sales annually, until they reach 20 percent by 2010.

Governor Schwarzenegger directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. ARB may consider different approaches that would achieve the objectives of the Executive Order. This could include increasing the target and accelerating and expanding the time frame based on a thorough assessment of technical feasibility, system reliability, cost, greenhouse gas emissions, environmental protection, and other relevant factors. The Executive Order commits ARB staff to work with the Public Utilities Commission, the California Energy Commission, the California Independent System Operators and others in the development of the regulation. A Renewable Electricity Standard to achieve these goals was approved by CARB on September 23, 2010. These standards would apply to electricity usage associated with the proposed Project. The final regulation has not been published at this time.

California Climate Action Registry/The Climate Registry

Established by the California Legislature in 2000, the CCAR was a nonprofit public-private partnership that maintains a voluntary registry for GHG emissions. Since 2009, CCAR has transitioned into two programs, the Climate Action Reserve (CAR) and The Climate Registry (TCR). CAR tracks and registers voluntary projects that reduce emissions of GHGs. TCR has taken over the voluntary registry for GHG emissions from CCAR. The purpose of TCR is to help companies, organizations, and local agencies establish GHG emissions baselines for purposes of complying with future GHG emission reduction requirements. LAHD became a voluntary member of CCAR on March 29, 2006 and TCR on March, 3, 2008, and has made the following commitments:

- Identify sources of GHG emissions including direct emissions from vehicles, on-site combustion, fugitive and process emissions; and indirect emissions from electricity, steam and co-generation
- Calculate GHG emissions follow the Registry's accepted protocol.
- Report final GHG emissions estimates on the Registry website.

3.2.3.3 Local Regulations and Agreements

SCAQMD Rules and Regulations

Through the attainment planning process, the SCAQMD develops the *SCAQMD Rules and Regulations* to regulate sources of air pollution in the SCAB. The most pertinent SCAQMD rules to the proposed Project are listed below. With the possible exception of dredging equipment during construction, the emission sources associated with the construction of the proposed Project are considered mobile sources. Therefore, the sources are not subject to the SCAQMD rules that apply to stationary sources, such as

Regulation XIII (New Source Review), Rule 1401 (New Source Review of Toxic Air Contaminants), or Rule 431.2 (Sulfur Content of Liquid Fuels). However, proposed Project operations include abrasive blasting and vessel coating operations which are regulated by SCAQMD Rule 301 (Permitting and Associated Fees), Rule 1140 (Abrasive Blasting) and Rule 1106 and 1106.1 (Marine Coating Operations and Pleasure Craft Coating Operations).

SCAQMD Rule 402 – Nuisance. This rule prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 – Fugitive Dust. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During proposed Project construction, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site prewatering and rewatering as necessary to maintain sufficient soil moisture content. Additional requirements apply to construction projects on property with 50 or more acres of disturbed surface area, or for any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cy or more three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor.

SCAQMD Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities. The purpose of this Rule is to limit emissions of asbestos, a toxic air contaminant, from structural demolition/renovation activities. The Rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials (ACMs). The Rule also includes notification requirements for any intent to disturb ACM; emission control measures; and ACM removal, handling, and disposal techniques. All proposed structural demolition activities associated with proposed Project construction would need to comply with the requirements of Rule 1403.

SCAQMD Rule 301 – Permitting and Associated Fees. The South Coast Air Quality Management District's (AQMD's) Annual Emission Reporting (AER) program was developed to track emissions of air contaminants from permitted facilities. Fees for emissions of air contaminants are assessed based on the reported data. These fees help to cover the costs of evaluating, planning, inspecting, and monitoring air quality efforts. Fee revenues are used toward air pollution control efforts.

SCAQMD Rule 1106 – Marine Coating Operations. This rule limits the VOC content of marine coatings and applies to all coating operations of boats, ships, buoys, and oil drilling rigs. Coating operations of recreational vessels are subject to Rule 1106.1 – Pleasure Craft Coating Operations. In general, coatings that are baked may have a VOC content of no more than 275 g/L. Coatings that are air-dried may have a VOC content up to 340 g/L. Additional requirements apply to specialty coatings. Similarly, Rule 1106.1 restricts the VOC content of specified pleasure craft coatings.

SCAQMD Rule 1140 – Abrasive Blasting. The purpose of this rule is to limit discharge into the atmosphere from abrasive blasting activities and sets standards for the abrasives that may be used in different blasting operations. The rule includes a visible emission evaluation to determine the impact of abrasive blasting operations on visibility in both daytime and nighttime operations. Abrasive blasting is part of the paint shop capabilities at ALBS.

City of Los Angeles Green LA and Climate LA

In May 2007, the City of Los Angeles introduced Green LA - An Action Plan to Lead the Nation in Fighting Global Warming (City of Los Angeles, 2007). Green LA presents a framework targeted to reduce the City's GHG emissions by 35 percent below 1990 levels by 2030 through actions such as increasing renewable energy, energy efficiency, water conservation, tree planting, recycling, and infrastructure improvements. In 2008, the City of Los Angeles followed up Green LA with an implementation plan called Climate LA – Municipal Program Implementing the Green LA Climate Action Plan (City of Los Angeles, 2008), which includes steps that can be taken to achieve the City's GHG emission reduction goal, such as reducing energy use at City facilities.

CalGreen

CalGreen is a statewide mandatory green building code all cities in California were required to adopt by January 1, 2011. CalGreen requires new standards in materials reuse, locally-sourced materials, water/energy efficiency, and indoor air quality. To meet the CalGreen requirements, the City of Los Angeles adopted the Green Building Standards Code (LA Green Code) which establishes mandatory sustainable design standards. All new buildings are required to meet this new code, and additions/expansions valued at over $200,000 are also subject to the LA Green Code.

Solid Waste Recycling

Construction of future development projects would be required to comply with the requirements of the California Integrated Waste Management Act of 1989 (Assembly Bill 939 – "AB 939"), which requires the implementation of aggressive solid waste management programs that focus on diverting waste from being disposed of in landfills (such as source reduction, recycling, and composting). In 2009 to 2010, the City of Los Angeles had a diversion rate of 65 percent (City of Los Angeles Department of Public Works, Bureau of Sanitation, 2010), surpassing the State's requirement for a 50 percent waste diversion rate after 2000, and has set a goal of achieving a 70 percent diversion by 2013.

Beginning January 1, 2011, a new Citywide Construction and Demolition (C&D) Waste Recycling Ordinance (Ordinance Number 181519) became effective that requires all mixed C&D waste generated within City limits be taken to City certified C&D waste processors to enhance recycling and reuse efforts to help meet City and state landfill diversion requirements.

3.2.3.4 San Pedro Bay Ports Clean Air Action Plan (CAAP)

The Ports of Los Angeles and Long Beach, with the participation and cooperation of the staff of the USEPA, CARB and SCAQMD, the San Pedro Bay Ports Clean Air Action Plan (CAAP), a planning and policy document that sets goals and implementation strategies to reduce air emissions and health risks associated with port operations while

allowing port development to continue. In addition, the CAAP sought the reduction of criteria pollutant emissions to the levels that assure port-related sources decrease their "fair share" of regional emissions to enable the Basin to attain state and federal ambient air quality standards. Each individual CAAP measure is a proposed strategy for achieving these emissions reductions goals. The Ports approved the first CAAP in November, 2006. Specific strategies to significantly reduce the health risks posed by air pollution from port-related sources include:

- Aggressive milestones with measurable goals for air quality improvements
- Specific goals set forth as standards for individual source categories to act as a guide for decision-making
- Recommendations to eliminate emissions of ultrafine particulates
- Technology advancement programs to reduce greenhouse gases
- Public participation processes with environmental organizations and the business communities

The CAAP focuses primarily on reducing DPM, along with NOx and SOx. This reduces emissions and health risk and thereby allows for future port growth while progressively controlling the impacts associated with growth. The CAAP includes emission control measures as proposed strategies that are designed to further these goals expressed as Source-Specific Performance Standards which may be implemented through the environmental review process, or could be included in new leases or Port-wide tariffs, Memoranda of Understanding (MOU), voluntary action, grants or incentive programs.

The CAAP Update, adopted in November, 2010 includes updated and new emission control measures as proposed strategies which support the goals expressed as the Source-Specific Performance Standards and the Project-Specific Standards (POLA and POLB, 2010). In addition, the CAAP Update includes the recently developed San Pedro Bay Standards which establish emission and health risk reduction goals to assist the ports in their planning for adopting and implementing strategies to significantly reduce the effects of cumulative port-related operations.

The goals set forth as the San Pedro Bay Standards are the most significant addition to the CAAP and include both a Bay-wide health risk reduction standard and a Bay-wide mass emission reduction standard. Ongoing Port-wide CAAP progress and effectiveness will be measured against these Bay-wide Standards which consist of the following reductions as compared to 2005 (base year) emissions levels:

- By 2014, reduce port-related emissions by 22 percent for NOx, 93 percent for SOx, and 72 percent for DPM.
- By 2023, reduce port-related emissions by 59 percent for NOx, 92 percent for SOx, and 77 percent for DPM.
- By 2020, reduce potential cancer risk due to DPM by 85 percent in the port region and in the communities adjacent to the ports.

This Draft EIR analysis assumes Project compliance with the CAAP Update insofar as that document regulates Port-wide activities. Project mitigation measures applied to reduce air emissions and public health impacts are largely consistent with the emission-reduction

strategies of the CAAP Update. Project mitigations also would extend beyond the 5-year CAAP time-frame to the end of the lease period in 2041.

3.2.4 Impacts and Mitigation Measures

This section presents a discussion of the potential air quality impacts associated with the construction and operation of the proposed Project. Mitigation measures are provided where feasible for impacts found to be significant.

3.2.4.1 Methodology

Air pollutant emissions of CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ were estimated for construction and operation of the proposed Project. To determine their significance, the emissions were compared to significance thresholds AQ-1 and AQ-3 identified in Section 3.2.4.2. The criteria pollutant emission calculations are presented in Appendix C1 for construction and Appendix C2 for operation.

Dispersion modeling of NO_X, PM_{10}, and $PM_{2.5}$ emissions was performed to estimate maximum off-site pollutant concentrations in the air from emission sources attributed to the proposed Project site. The predicted ambient concentrations associated with construction and operation of the proposed Project were compared to significance thresholds AQ-2 and AQ-4, respectively. The complete dispersion modeling report is presented in Appendix C1.

The potential for proposed Project-generated odors at sensitive receptors in the Project vicinity was assessed qualitatively and compared to Significance Criterion AQ-5.

A health risk assessment (HRA) of toxic air contaminant emissions associated with construction and operation of the proposed Project was conducted in accordance with a protocol prepared by the Port and reviewed and approved by both CARB and SCAQMD (POLA and POLB, 2009). Maximum predicted health risk values in the communities adjacent to the Project site were compared to Significance Criterion AQ-6. The HRA analyzed Project emissions and human exposure to the emissions during the 70-year period from approximately 2011 to 2080 for residential risk.[4] Occupational risk is based on a 40-year exposure period, for this project from approximately 2011 to 2040.[5]

The consistency of the proposed Project with the AQMP was addressed in accordance with Significance Criterion AQ-7. GHG emissions were addressed in Significance Criterion AQ-8.

Finally, mitigation measures were applied to proposed Project activities that would exceed a significance criterion prior to mitigation, and then evaluated as to their effectiveness in reducing proposed Project impacts.

The emission estimates, dispersion modeling, and health risk estimates presented in this document were calculated using the latest available data, assumptions, and emission

[4] The health risk assessment was based on 2011 emission factors. Although construction is anticipated to begin in 2012, using 2011 factors and data is considered conservative as the emissions in future years are anticipated to be lower as technology improves.

[5] *Ibid.*

factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available for this study.

The numerical results presented in the tables of this report were rounded, often to the nearest whole number, for presentation purposes. As a result, the sum of tabular data in the tables could differ slightly from the reported totals. For example, if emissions from Source A equal 1.2 pound per day (lb/day), and emissions from Source B equal 1.4 lb/day, the total emissions from both sources would be 2.6 lb/day. However, in a table, the emissions would be rounded to the nearest lb/day, such that Source A would be reported as 1 lb/day, Source B would be reported as 1 lb/day, and the total emissions from both sources would be reported as 3 lb/day. Although the rounded numbers create an apparent discrepancy in the table, the underlying addition is accurate.

3.2.4.1.1 Methodology for Determining Construction Emissions

Proposed Project construction activities would involve the use of off-road construction equipment, on-road trucks, tugboats, and dredging equipment. Because these sources would primarily use diesel fuel, they would generate emissions of diesel exhaust in the form of VOC, CO, NO_X, SO_X, PM_{10} and $PM_{2.5}$. In addition, off-road construction equipment traveling over unpaved surfaces and performing earthmoving activities such as site clearing or grading would generate fugitive dust emissions in the form of PM_{10} and $PM_{2.5}$. Building demolition activities would also generate fugitive dust emissions. Site paving activities would generative fugitive emissions of VOCs. Worker commute trips would generate vehicle exhaust and paved road dust emissions.

The equipment usage and scheduling data needed to calculate emissions for the proposed construction activities were obtained from the project applicant and Port staff, which are included in Appendix C1.

To estimate peak daily construction emissions for comparison to SCAQMD emission thresholds, emissions were first calculated for the individual construction activities (for example, pier construction, building demolition, or dredging activities). Peak daily emissions then were determined by summing emissions from overlapping construction activities as indicated in the proposed construction schedule (Table 2-2). The SCAQMD emission thresholds are discussed in Section 3.2.4.2.

The specific approaches to calculating emissions for the various emission sources during construction of the proposed Project are discussed below. Table 3.2-6 includes a synopsis of the regulations and agreements that were assumed as part of the Project in the construction calculations. The construction emission calculations are presented in Appendix C1.

Table 3.2-6: Regulations and Agreements Assumed in the Unmitigated Construction Emissions

Off-Road Construction Equipment	On-Road Trucks	Tugboats	Dredging Equipment	Fugitive Dust
Emission Standards for Nonroad Diesel Engines – Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal construction equipment fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur	**Emission Standards for On-road Trucks** – Tiered standards gradually phased in over all years due to normal truck fleet turnover. **California Diesel Fuel Regulations** – 15-ppm **Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling** – Diesel trucks are subject to idling limits	**California Diesel Fuel Regulations** – 15-ppm sulfur.	No regulations or agreements are assumed to affect unmitigated general cargo ship emissions during Project construction.	**SCAQMD Rule 403 Compliance** – 75 percent reduction in fugitive dust due to watering three times per day.

Note: This table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the emission calculations for the proposed Project. A description of each regulation or agreement is provided in Section 3.2.3.

Off-Road Construction Equipment

Emissions of VOC, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ from diesel-powered construction equipment were calculated using emission factors derived from the CARB OFFROAD 2007 Emissions Model (CARB, 2006b). Emission factors were calculated based on each type of equipment, horsepower rating of the equipment, and the corresponding equipment activity levels. The OFFROAD model output shows that, on a per-horsepower-hour basis, emission factors will steadily decline in future years as older equipment is replaced with newer, cleaner equipment that meets the already-adopted future state and federal off-road engine emission standards.

On-Road Trucks

Emissions from on-road, heavy-duty diesel trucks during proposed Project construction were calculated using emission factors generated by the EMFAC2007 on-road mobile source emission factor model for a truck fleet representative of the SCAB (CARB, 2007b). The EMFAC2007 model output shows that, on a per-mile basis, emission factors will steadily decline in future years as older trucks are replaced with newer, cleaner trucks that meet the required state and federal on-road engine emission standards. In addition, similar to off-road construction equipment, the sulfur limit in on-road diesel fuel was reduced to 15 ppm.

The average round-trip travel distances for haul trucks were assumed to be 86 miles for demolition debris (average distance to nearby landfills in Los Angeles County), 60 miles for concrete and paving trucks, 320 miles for trucks hauling contaminated soils, and 30 miles for all other supply and dump trucks.

Tugboats

During construction, tugboats would be used to assist barges used for dredging activities. Tugboat main and auxiliary engine sizes and emissions (with the exception of sulfur emissions) were determined by using *The Port of Los Angeles 2009 Inventory of Air Emissions* (Starcrest, 2010).

The diesel fuel used in tugboats is assumed to have an average sulfur content of 15 ppm. The fuel sulfur content limits are required for California harbor craft in accordance with California Diesel Fuel Regulations. Emission factors were determined using the CARB *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.*

During dredging activities, a tugboat was assumed to complete two round trips per day hauling a barge for sediment treatment and disposal. The round-trip distance is 2 nm.

Fugitive Emissions

Emissions of fugitive dust (PM_{10}) from grading activities would occur during site grading activities. PM_{10} emissions were calculated using emission factors from CARB in pounds emitted per acre[6]. Fugitive dust from vehicle traffic was also derived from an emission factor equation published by the Midwest Research Institute (MRI, 1996).

Emissions were reduced from uncontrolled levels to reflect required compliance with SCAQMD Rule 403. According to SCAQMD guidance, watering the site three times per day pursuant to Rule 403 would reduce fugitive dust emissions by 75 percent (SCAQMD, 2005b). This and other dust-control methods for the proposed Project would be specified in the dust-control plan that must be submitted to the SCAQMD for review and approval per Rule 403.

Fugitive dust emissions from earth-moving activities are proportional to the surface area of the land being disturbed. Peak daily emissions for site grading were calculated assuming that 20 percent of the total area would be disturbed at any one time during construction.

Fugitive emissions of $PM_{2.5}$ were derived from PM_{10} emissions for grading and vehicle road dust from CARB's particulate size faction data for construction dust and paved road dust (CARB, 2011b).

Fugitive PM_{10} and $PM_{2.5}$ emissions would also occur during building demolition activities. The CARB *California Emissions Estimator Model* (CalEEMod) was used to determine fugitive emissions given the square footages of the buildings to be demolished in each construction phase according to the schedule described in Section 2.5.2 in Chapter 2, Project Description.

Fugitive ROG emissions would occur during paving activities. An emission factor of 2.62 lbs ROG/acre was applied to all areas to be paved (CARB, 2007c[7]). No controls were assumed to apply to site paving activities.

[6] http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-7.pdf

[7] A similarly applicable emission factor is not available from the CalEEMod model.

Potential fugitive emissions from any rock crushing (i.e., cement) and recycling activities that would occur at the Port as a result of ALBS construction activities are assumed to already be accounted for by any SCAQMD permits required to operate such equipment. Such permits for rock crushers have throughput and/or daily emission limits and they would not be able to accept material amounts which would put them over those limits. Therefore, emissions from this activity are not considered as part of this CEQA document.

Worker Commute Trips

Emissions from worker trips during proposed Project construction were calculated using EMFAC2007, which calculates emissions from vehicle exhaust, tire wear, and brake wear using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds.

3.2.4.1.2 Methodology for Determining Operational Emissions

For all operations at the machine shop, including welding, coating, and abrasive blasting operations, information on fuel usage and emissions was taken from the Annual Emission Reports (AERs) submitted to SCAQMD for 2008, 2009, and 2010. To obtain a conservative estimate of baseline operations, given the variable nature of ship repairs, a three-year average for all activities was used to calculate baseline emissions. Additional information on operational activities including mobile off-road equipment, boat repairs, and worker trips was obtained from ALBS.

The proposed Project is expected to increase the maximum annual number of vessels serviced from 130 vessels per year to 304 vessels per year. The ALBS will continue to operate 15 hours per day, and 6 days per week after completion of the proposed Project. Usage of vessel servicing equipment (machine shop, welding shop etc) is anticipated to increase proportional to the increase in annual vessels serviced.

Marine Boat Hoists

A new 600-ton mobile boat hoist will be installed to replace three of the four existing marine railways. The boat hoist would meet Federal Tier 3 emissions standards per the manufacturer's specifications (Marine Travel Lift, 2011a) and use approximately 135 lbs of diesel fuel per hour of operation for the anticipated 400hp engine. The boat hoist is assumed to operate for 1 hour per ship visit, and handle no more than 2 ships per day. The boat hoist is assumed to operate for 260 days per year and use ultra low-sulfur diesel (ULSD). Emission factors for VOC and NOx were taken from CARB's Carl Moyer Program Guidelines, Table B-26, and for NOx, particulates, and CO from CARB Executive Order U-R-004-0376.

In addition, a second 100-ton mobile boat hoist would be installed. This boast hoist is would meet Federal Tier 3 emissions standards per the manufacturer's specifications (Marine Travel Lift, 2011b) and use approximately 43 lbs of diesel fuel per hour of operation for the anticipated 115hp engine. The boat hoist is assumed to operate similarly to the 600-ton boat hoist described above; approximately 1 hour of operation per ship visit, and no more than 2 ships per day. The 100-ton boat hoist would also operate for 260 days per year, and use ULSD. Due to the smaller engine size, USEPA Tier 3 emission factors for engines between 100 and 175 hp for the most conservative estimate of emissions.

Machine Shop (Building C2) and Carpenter Shop (Building Complex A)

The machine shop includes equipment such as lathes, drill presses, shapers, overhead cranes, milling machines, and metal spray machines. The carpenter shop houses saws, joiners, planers, shapers, and a cabinetry shop. Most machine shop and carpenter shop equipment is exempt from requiring permits under SCAQMD Rule 219. In addition, the majority of this equipment is assumed to be electric, while some is fuel powered (diesel, natural gas, propane, etc). Emissions of greenhouse gases from site electricity usage are discussed in the Greenhouse Gases methodology section below. Increased criteria pollutant emissions from machine shop and carpenter shop activities are anticipated to be negligible and are not quantified for the purposes of this analysis.

Welding Shop (Building C1)

Fugitive emissions from welding equipment electrode usage are calculated for the welding shop. The electrode usage for the welding equipment is assumed to be 6 lbs per hour per welder, with a maximum of 2 welders used per ship, and 3 hours per welder per ship serviced. In addition, a maximum of 3 ships were assumed to need welding work on peak day. Emission factors for welding operations were taken from USEPA's AP-42, Table 12.19.

Paint Shop (Building B)

Diesel-powered air compressors are used to operate spray coating equipment. The air compressors' diesel usage was obtained from the AERs submitted to SCAQMD for the facility. The three-year average of fuel usage in 2008, 2009, and 2010 was used to determine baseline emissions. Fuel usage was increased by the anticipated maximum increase in ships serviced after the completion of the proposed Project to determine future operational emissions. The diesel emission factors for criteria pollutants with the exception of SO_2 were obtained from USEPA's AP-42, Table 3.3-1 (Emission Factors for Uncontrolled Diesel Industrial Engines). The SO_2 emission factor is derived from the fuel sulfur content, assumed to be ULSD as required by SCAQMD Rule 431.2.

The paint shop also uses sandblasting equipment to prepare materials for spray coating. The quantity of abrasive used was determined in the same manner as for the air compressors described above. Current practice at ALBS to control dust and sandblast grit during abrasive blasting operations is to wrap vessels in plastic, effectively sealing them from the environmental and collecting the residual waste for disposal. The PM_{10} emission factor was taken from the Bay Area AQMD's Permit Handbook[8] for controlled abrasive blasting, and the $PM_{2.5}$ emission factor was determined from AP-42, Section 13.2.6. No other emissions of criteria pollutants would occur from abrasive blasting.

The assumption was made that approximately 10 percent of vessel coating would be done by hand, and the remainder would be done using spray coating equipment.

[8] Bay Area AQMD values were used because they are more general, whilst the SCAQMD method requires detailed information that was not available.

Mobile Equipment

Emissions of VOC, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ from diesel-powered off-road mobile equipment were calculated using emission factors derived from the CARB OFFROAD 2007 Emissions Model (CARB, 2007). Using the SCAB fleet information, the OFFROAD model was run for the first year of proposed Project operations, 2014. Off-road diesel-powered mobile equipment used at ALBS includes forklifts and cranes. Emissions from on-road trucks are not anticipated to increase as a result of the proposed Project and therefore emissions from these sources are not quantified.

Office Utilities

For the quantification of GHG emissions, baseline ALBS energy usage was determined from utility records provided by LADWP. Emission factors for CO_2, N_2O, and CH_4 were taken from The Climate Registry (TCR) default emission factors for 2011 released on January 14, 2011.

Harbor Craft Transit to ALBS

ALBS has the ability to maintain and repair tugboats, government vessels, barges, offshore oil equipment, ferries, fireboats, working boats, research vessels, and yachts in addition to other marine equipment. According to *The Port of Los Angeles 2009 Inventory of Air Emissions (2009 EI)* (Starcrest, 2010), over 30 percent of harbor craft emissions are from assist tugs, which are typically the vessels with the highest emissions. Therefore this analysis will assume that the worst-case peak day at ALBS includes an additional tug arriving at ALBS. The average engine size and model year for assist tugs from the 2009 EI will be used to estimate emissions.

Based on information provided by ALBS for current operations, approximately 60 percent of the harbor craft serviced at ALBS are assumed to be local (operating within the San Pedro Bay Complex) and the remaining 40 percent travel over 24 nm from outside the Port of Los Angeles/Port of Long Beach area to be serviced. The peak day analysis will conservatively assume that visiting harbor craft are coming from outside the SCAB (approximately 40nm).

The diesel fuel used in tugboats is assumed to have an average sulfur content of 15 ppm as required for California harbor craft in accordance with California Diesel Fuel Regulations. Emission factors were determined using the CARB *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.*

Worker Commute Trips

Emissions from worker trips during proposed Project construction were calculated using EMFAC2007, which calculates emissions from vehicle exhaust, tire wear, and brake wear using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds. After completion of the proposed Project, a maximum of 130 employees a day are anticipated.

Greenhouse Gases

GHG emissions associated with the proposed Project were calculated based on methodologies provided in the *California Climate Action Registry General Reporting Protocol, Version 3.1* (CCAR, 2009). The CCAR General Reporting Protocol is the guidance document that the Port and other CCAR members were required to use to prepare annual Port-wide GHG inventories for the CCAR. Therefore, for consistency, the General Reporting Protocol also was used in this study. In addition, because voluntary reporting has been transitioned to TCR, the most recent emission factors published by TCR in January 2011 were used to calculate emissions.[9] However, to adapt the Protocol for CEQA purposes, a modification to the Protocol operational and geographical boundaries was necessary to make the GHG analysis more consistent with CEQA. This modification is discussed in the following section. The Project-related construction sources for which GHG emissions were calculated include:

- Off-road diesel construction equipment
- On-road trucks
- Dredging equipment and tugboats
- Worker commute vehicles

The Project-related operational emission sources for which GHG emissions were calculated include:

- Off-road mobile equipment
- Machine shop fuel usage
- Harbor craft transit to ALBS
- On-site electricity consumption
- Worker commute vehicles

The adaptation of the General Reporting Protocol methodologies to these Project-specific emission sources is described in Appendix C4. Default emission factors published in the CCAR and TCR reporting protocols change over time as new information is released on electricity generation, fuels etc. Updated emission factors from The Climate Registry were applied to the GHG methodology adapted from CCAR, as these reflect the most current GHG factors for the Project-related construction and operational emission sources. The most recent update was released by TCR on January 14, 2011.

Modification to Protocol Operational and Geographical Boundaries

Under CCAR General Reporting Protocol, emissions associated with Project construction and operations would be divided into three categories:

- Scope 1: Direct emissions from sources owned or operated by the Port
- Scope 2: Indirect emissions from purchased and consumed electricity
- Scope 3: Indirect emissions from sources not owned or operated by the Port

[9] Year 2011 emission factors and data were used in the analysis. Although construction is anticipated to begin in 2012, using 2011 factors and data is considered conservative as the emissions in future years are anticipated to be lower as technology improves.

Scope 1 sources for LAHD or the proposed Project tenant would include off-road mobile equipment such as forklifts and cranes. Scope 2 emissions would be indirect GHG emissions from electricity consumption on-site. Because the proposed Project tenant and/or Port generally do not own on-road trucks, or construction equipment, these mobile sources would be considered Scope 3 emissions.

CCAR does not require Scope 3 emissions to be reported because they are considered to belong to another reporting entity (i.e., whoever owns, leases, or operates the sources), and that entity would report these emissions as Scope 1 emissions in its own inventory. Virtually all trucks, tugboats, and construction equipment fall under this category. As a result, when used for CEQA purposes, the CCAR definition of operational boundaries would omit a large portion of the GHG emission sources associated with the proposed Project. Therefore, the operational boundaries were determined differently from the General Reporting Protocol to make the GHG analysis more consistent with CEQA and to avoid the omission of a significant number of mobile sources.

For the purposes of this CEQA document, GHG emissions were calculated for all Project-related sources (Scopes 1, 2, and 3). In the case of electricity consumption, all GHG emissions were included regardless of whether they are generated by in-state or out-of-state power plants.

3.2.4.2 Thresholds of Significance

The following thresholds were used in this study to determine the significance of the air quality impacts of the proposed Project. They were based on the standards established by the City of Los Angeles in the *L.A. CEQA Thresholds Guid*e (City of Los Angeles, 2006).

3.2.4.2.1 Construction Thresholds

The *L.A. CEQA Thresholds Guid*e references the SCAQMD *CEQA Air Quality Handbook* (SCAQMD, 1993) and USEPA *AP-42* for calculating and determining the significance of construction emissions. Each lead city department has the responsibility to determine the appropriate standards. Proposed Project-related factors to be used in a case-by-case evaluation of significance include the following:

- Combustion emissions from construction equipment
    - Type, number of pieces, and usage for each type of construction equipment
    - Estimated fuel usage and type of fuel (diesel, gasoline, natural gas) for each type of equipment
    - Emission factors for each type of equipment
- Fugitive Dust
    - Grading, excavation, and hauling; Amount of soil to be disturbed on-site or moved off-site; Emission factors for disturbed soil; Duration of grading, excavation, and hauling activities; Type and number of pieces of equipment to be used
- Other mobile source emissions
    - Number and average length of construction worker trips to the proposed Project site, per day
    - Duration of construction activities

For the purposes of this study, the air quality thresholds of significance for construction activities are based on emissions and concentration thresholds established by the SCAQMD (2005b). Construction-related air emissions would be considered significant if:

AQ-1 The Project would result in construction-related peak daily emissions that exceed any of the SCAQMD thresholds of significance in Table 3.2-7. For determining significance, these thresholds are compared to the peak daily Proposed Project construction emissions.

Table 3.2-7: SCAQMD Thresholds for Construction Emissions

Air Pollutant	Emission Threshold (pounds/day)
Volatile organic compounds (VOC)	75
Carbon monoxide (CO)	550
Nitrogen oxides (NOX)	100
Sulfur oxides (SOX)	150
Particulates (PM10)	150
Particulates (PM2.5)	55

Source: SCAQMD, 2011

AQ-2 The Project would result in off-site construction-related emissions exceeding the SCAQMD thresholds for ambient air quality concentrations in Table 3.2-8[10] with the exception of the 1-hour Federal ambient air quality standard for NO_2. The analysis replaced use of the current state NO_2 threshold with the revised and more stringent 1-hour Federal ambient air quality standard of 188 µg/m3 (0.100 ppm).

[10]These ambient concentration thresholds target those pollutants the SCAQMD has determined are most likely to cause or contribute to an exceedance of the NAAQS or CAAQS. Although the thresholds represent the levels at which the SCAQMD considers the impacts to be significant, the thresholds are not necessarily the same as the NAAQS or CAAQS.

Table 3.2-8: SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Construction

Air Pollutant[c]	Ambient Concentration Threshold
Nitrogen Dioxide (NO_2)	
1-hour average (federal)[d]	0.100 ppm (188 µg/m^3)
1-hour average (state)[a]	0.18 ppm (339 µg/m^3)
Annual average (state)[a]	0.030 ppm (57 µg/m^3)
Annual average (federal)[a]	0.0534 ppm (100 µg/m^3)
Particulates (PM_{10} or $PM_{2.5}$)[b]	
24-hour average	10.4 µg/m^3
Annual average (PM10 only)	1.0 µg/m^3
Carbon Monoxide (CO)[a]	
1-hour average	20 ppm (23,000 µg/m^3)
8-hour average	9.0 ppm (10,000 µg/m^3)

Source: SCAQMD, 2011; USEPA, 2010a and 2010b.
[a] The CO, annual NO_2 and state 1-hour NO_2 thresholds are absolute thresholds; the maximum predicted impact from construction activities is added to the background concentration for the Project vicinity and compared to the threshold.
[b] The PM_{10} and $PM_{2.5}$ thresholds are incremental thresholds; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.
[c] The SCAQMD has also established a threshold for sulfates, but is currently not requiring a quantitative comparison to these thresholds (pers. comm., Koizumi, 2005).
[d] To attain the Federal 1-hour NO_2 standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at a receptor must not exceed 0.100 ppm.

3.2.4.2.2 Operation Thresholds

The *L.A. CEQA Thresholds Guide* provides specific significance thresholds for operational air quality impacts that also are based on SCAQMD standards. For the purposes of this study, a project would create a significant impact if it would result in one or more of the following:

AQ-3 Operational emissions that would exceed 10 tons per year of VOCs or any of the SCAQMD peak day emission thresholds of significance in Table 3.2-9. For determining significance, these thresholds are compared to the net change in Project emissions relative to baseline conditions.

Table 3.2-9: SCAQMD Thresholds for Operational Emissions

Air Pollutant	Peak Day Emission Threshold (pounds/day)
Volatile organic compounds (VOC)	55
Carbon monoxide (CO)	550
Nitrogen oxides (NO_X)	55
Sulfur oxides (SO_X)	150
Particulates (PM_{10})	150
Particulates ($PM_{2.5}$)	55

Source: SCAQMD, 2011; City of Los Angeles, 2006

AQ-4 Project operations would result in off-site ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance in Table 3.2-10.[11] However, to evaluate Project impacts to ambient NO_2 levels, the analysis replaced the use of the current SCAQMD NO_2 thresholds with the more stringent revised 1-hour Federal ambient air quality standards of 188 µg/m^3.

AQ-5 The Project would create an objectionable odor at the nearest sensitive receptor.

AQ-6 The Project would expose receptors to significant levels of toxic air contaminants. The determination of significance shall be made as follows:

- Maximum Incremental Cancer Risk for Residential Receptors $\geq$ 10 in 1 million
- Noncancer Hazard Index >1.0 (project increment)

Table 3.2-10: SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Operations

Air Pollutant[c]	Ambient Concentration Thresholds[c]
Nitrogen Dioxide (NO_2)	
1-hour average (federal)[d]	0.100 ppm (188 µg/m^3)
1-hour average (state)[a]	0.18 ppm (339 µg/m^3)
Annual average (state)[a]	0.030 ppm (57 µg/m^3)
Annual average (federal)[a]	0.0534 ppm (100 µg/m^3)
Particulates (PM_{10} or $PM_{2.5}$)[b]	
24-hour average	10.4 µg/m^3
Annual average (PM10 only)	1.0 µg/m^3
Carbon Monoxide (CO)	
1-hour average	20 ppm (23,000 µg/m^3)
8-hour average	9.0 ppm (10,000 µg/m^3)
Sulfur Dioxide (SO_2)	
1-hour average (state)[a]	0.25 ppm (655 µg/m^3)
1-hour average (federal)[e]	0.075 ppm (196 µg/m^3) (99th percentile)
24-hour average (state)[a]	0.04 ppm (105 µg/m^3)

Source: SCAQMD, 2011; USEPA, 2010a and 2010b.

[a] The CO thresholds, annual average NO_2 thresholds, and State SO_2 and 1-hour NO_2 thresholds are absolute thresholds; the maximum predicted impact from proposed Project operations is added to the background concentration for the Project vicinity and compared to the threshold.

[b] The PM_{10} and $PM_{2.5}$ thresholds are incremental thresholds. For significance, the maximum increase in concentration relative to the baseline is compared to the threshold. For NEPA significance, the maximum increase in concentration relative to the NEPA baseline is compared to the threshold.

[c] Sulfates and lead emissions were evaluated in the health risk assessment of this study. Screening calculations have shown that lead emissions would be below the SCAQMD emission thresholds for the proposed Project (see Appendix C3).

[d] To attain the Federal 1-hour NO_2 standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at a receptor must not exceed 0.100 ppm.

[e] To attain the SO_2 Federal 1-hour standard, the 3-year average of the 99th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.075 ppm.

[11] These ambient concentration thresholds target those pollutants the SCAQMD has determined are most likely to cause or contribute to an exceedance of the NAAQS or CAAQS. Although the thresholds represent the levels at which the SCAQMD considers the impacts to be significant, the thresholds are not necessarily the same as the NAAQS or CAAQS.

AQ-7 The Project would conflict with or obstruct implementation of an applicable AQMP.

AQ-8 The Project would produce GHG emissions that exceed thresholds. The Office of Planning and Research (OPR)'s determination of significance is whether the project would:

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

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

The SCAQMD adopted an interim GHG significance threshold of 10,000 metric tons of CO_2e per year for stationary sources. In addition, the CARB adopted an interim GHG significance threshold of 7,000 tons per year for industrial sources, excluding transportation and construction emissions.

To date, there is little guidance and no local, regional, state, or federal regulations to establish a numerical 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. In the absence of an established numerical threshold, LAHD is utilizing the following as its threshold of significance for this project**:**

The proposed Project would result in a significant impact if CO_2e emissions exceed baseline emissions.

3.2.4.3 Impact Determination

Impact AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-7.

Table 3.2-11 presents the maximum daily criteria pollutant emissions associated with construction of the proposed Project, before mitigation. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that overlap in the proposed construction schedule.

Table 3.2-11: Peak Daily Emissions Associated with Proposed Project Construction Activities – Proposed Project Without Mitigation

Emission Source	Peak Daily Emissions (lb/day)[c]					
	VOC	CO	NO_X	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
Phase 1 Construction						
Marine Construction	19	73	200	<1	2	7
Civil Construction	6	25	57	0	9	3
Building Demolition	0	0	0	0	0	0
Peak Daily Phase 1– Impact[b,d]	*25*	*98*	***257***	*<1*	*11*	*10*
Thresholds	75	550	100	150	150	55
Significant?	No	No	**Yes**	No	No	No
Phase 2 Construction						
Marine Construction	13	49	126	<1	2	5
Civil Construction	74	287	852	1	73	41
Building Demolition	2	12	18	0	1	1
Peak Daily Phase 2 – Impact[b,d]	***89***	*349*	***996***	*1*	*75*	*47*
Thresholds	75	550	100	150	150	55
Significant?	**Yes**	No	**Yes**	No	No	No
Phase 3 Construction						
Marine Construction	0	0	0	0	0	0
Civil Construction	31	126	303	0	23	15
Building Demolition	0	0	0	0	0	0
Peak Daily Phase 3 – Impact[b,d]	*31*	*126*	***303***	*0*	*23*	*15*
Thresholds	75	550	100	150	150	55
Significant?	No	No	**Yes**	No	No	No

[a] Emissions of PM_{10} and $PM_{2.5}$ assume that fugitive dust is controlled in accordance with SCAQMD Rule 403 by watering disturbed areas 3 times per day.
[b] Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.
[c] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
[d] The impact equals total Project construction emissions minus baseline construction emissions (which are zero).
Exceedances of the thresholds are indicated in **bold.**

1

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Peak daily emissions shown in Table 3.2-11 in Phase 1, Phase 2, and Phase 3 would exceed the SCAQMD NOx threshold for construction emissions; peak daily emissions in Phase 2 would exceed the SCAQMD VOC threshold for construction emissions. Emissions of all other criteria pollutants would not exceed SCAQMD thresholds in any phase.

The largest contributors to peak daily construction emissions are dredging equipment during Phase 1 and 2 dredging activities and CDF construction and heavy duty off-road construction equipment used during Phase 3 building construction, earthmoving, and storm water system installation. Grading activities are the main source of fugitive dust during construction.

Mitigation Measures

Table 3.2-12 summarizes all construction mitigation measures and regulatory requirements assumed in the mitigated emission calculations. Table 3.2-13 presents the maximum daily criteria pollutant emissions associated with construction of the proposed Project, after the application of **MM AQ-1** through **MM AQ-6**. While electric dredging equipment is required by LAHD under the CAAP, there is no existing infrastructure within sufficient distance that would support electric dredging within Fish Harbor. Currently there is a single dredge company in the Port of Los Angeles with the required electrical infrastructure in place, at Berth 174, to support the use of an electric dredge via a 15,000 foot underwater cable. The water distance from Berth 174 to ALBS is 21,000 feet, precluding the use of the electric dredge. Equipment associated with the Alternative Marine Power (AMP) program at the Evergreen Container Terminal is available within 15,000 feet of the ALBS location. However, this equipment supplies shore power to container ships while at berth, as called for in the CAAP, to reduce emission from ship auxiliary generators while at berth. Use of the AMP equipment for the dredge would disrupt container terminal operation by necessitating rescheduling of ships or berthing them at a non-AMP equipped berths at the terminal, leading to increased pollutant emissions from use of the auxiliary generator. Further the equipment within Evergreen's lease-hold is not available for use by others. LAHD will be constructing infrastructure on Terminal Island to supply power to electric dredges, however the construction will not be completed, at the earliest, until the end of 2012, which would be in the middle of the Phase 2 dredging at ALBS. For these reasons, use of an electric dredge was found to be infeasible. Dredging activities and therefore would be required to use dredge equipment with a minimum of Tier 3 engines as electric dredging equipment is not feasible to implement.

Residual Impacts

After mitigation, construction emissions of NOx would be lower in Phases 1, 2 and 3 but would remain significant and unavoidable as shown in Table 3.2-13.

Table 3.2-12: Regulations, Agreements, and Mitigation Measures Assumed in the Construction Emissions with Mitigation

Off-Road Construction Equipment	On-Road Trucks	Tugboats	Dredging Equipment
PART 1. Regulations and Agreements Included in the Mitigated Emission Calculations			
Emission Standards for Nonroad Diesel Engines – off-road construction equipment must meet Tier 2 standards through December 31, 2011, Tier 3 standards from January 1, 2012 to December 31, 2014, and Tier 4 standards after January 1, 2015.	**Emission Standards for On-road Trucks** – Tiered standards gradually phased in over all years due to normal truck fleet turnover. **Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling** – Diesel trucks are subject to idling limits.	**California Diesel Fuel Regulations** –15-ppm sulfur starting September 1, 2006. **CAAP Construction BMPs** – From January 1, 2011 on: All harbor craft with C1 or C2 marine engines must utilize a USEPA Tier 3 engine, or cleaner. *Three exception conditions from this measure may apply*	**CAAP Construction BMPs** – All dredging equipment must utilize a USEPA Tier 3 engine, or cleaner

The following mitigation measures would reduce criteria pollutant emissions associated with Project construction. Mitigation measures **(MM AQ-1 through MM AQ-6**) would apply to all construction activities. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.5.

MM AQ-1: Harbor Craft Used during Construction

1. As of January 1, 2011: All harbor craft with USEPA designated Category 1 (C1) or Category 2 (C2) marine engines must utilize a USEPA Tier-3 engine, or cleaner.
2. Three exception conditions from this measure may apply
    a. A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement.
    b. A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
    c. A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-2: On-Road Trucks

1. Trucks hauling material such as debris or any fill material will be fully covered while operating off Port property.
2. USEPA Standards:
    a. For On-road trucks except for Import Haulers and Earth Movers: Comply with the most recent (i.e., 2007) on-road emission standards for PM_{10} and NOx
    b. For Import Haulers: Comply with the most recent (i.e., 2004) on-road emission standards for PM_{10} and NOx
    c. For Earth Movers: Comply with the most recent (i.e., 2004) on-road emission standards for PM_{10} and NOx

MM AQ-3: Construction Equipment

1. All dredging equipment shall at a minimum meet Tier 3 standards. Construction equipment will incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards.
2. Idling will be restricted to a maximum of 5 minutes when not in use.
3. Equipment Engine Specifications:
    a. If not electric, meet Tier 3, or 4 standards depending on timing.
    b. Two categories of exceptions exist
        i. Requirements do not apply to equipment less than 50hp.
        ii. Requirements do not apply to marine vessels and harbor craft.

MM AQ-4: Best Management Practices

BMPs shall be implemented to reduce air emissions from construction activities, including:

1. Use of diesel oxidation catalysts and catalyzed diesel particulate traps
2. Maintain equipment according to manufacturers' specifications
3. Install high-pressure fuel injectors on construction equipment vehicles
4. Re-route construction trucks away from congested streets or sensitive receptor areas.

MM AQ-5: Additional Fugitive Dust Controls

The project construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels. The project construction contractor shall specify the dust-control methods that will achieve this control level in the Dust Control Plan submitted to the South Coast Air

Quality Management District (SCAQMD) for review and approval in compliance with SCAQMD Rule 403. These measures shall also apply, as appropriate, during holiday and weekend periods when work may not be in progress.

The following measures to reduce dust shall be included in this plan, at a minimum:

- SCAQMD's Best Available Control Technology (BACT) measures must be followed on all projects. They are outlined on Table 1 in Rule 403. Large construction projects (on a property which contains 50 or more disturbed acres) shall also follow Rule 403 Tables 2 and 3.
- Active grading sites shall be watered three times per day.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code. ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.
- Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
- Stabilize the materials while loading, unloading and transporting to reduce fugitive dust emissions.
- Belly-dump truck seals should be checked regularly to remove trapped rocks to prevent possible spillage.
- Comply with track-out regulations and provide water while loading and unloading to reduce visible dust plumes.
- Waste materials should be hauled off-site immediately.

MM AQ-6: General Mitigation Measure

For any of the above mitigation measures (**MM AQ-1 through MM AQ-5**), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of emissions performance than the existing measure, the technology shall replace the existing measure pending approval by the LAHD**.**

Table 3.2-13: Peak Daily Emissions Associated with Proposed Project Construction Activities – Proposed Project With Mitigation

Emission Source	Peak Daily Emissions (lb/day)[c]					
	VOC	CO	NO_X	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
Phase 1 Construction						
Marine Construction	17	73	194	<1	8	7
Civil Construction	1	13	19	<1	1	1
Building Demolition	0	0	0	0	0	0
Peak Daily Phase 1–Impact[b,d]	*19*	*86*	***213***	*<1*	*10*	*8*
Thresholds	75	550	100	150	150	55
Significant?	No	No	**Yes**	No	No	No
Phase 2 Construction						
Marine Construction	12	49	125	<1	6	5
Civil Construction	18	99	264	1	31	10
Building Demolition	2	12	17	<1	1	1
Peak Daily Phase 2 –Impact[b,d]	*32*	*160*	***406***	*1*	*38*	*16*
Thresholds	75	550	100	150	150	55
Significant?	No	No	**Yes**	No	No	No
Phase 3 Construction						
Marine Construction	0	0	0	0	0	0
Civil Construction	12	82	130	<1	9	7
Building Demolition	0	0	0	0	0	0
Peak Daily Phase 3 –Impact[b,d]	*12*	*82*	***130***	*<1*	*9*	*7*
Thresholds	75	550	100	150	150	55
Significant?	No	No	**Yes**	No	No	No

[a] Emissions of PM_{10} and $PM_{2.5}$ assume that fugitive dust is controlled in accordance with SCAQMD Rule 403 by watering disturbed areas 3 times per day.
[b] Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.
[c] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
[d] The impact equals total Project construction emissions minus baseline construction emissions (which are zero).
Exceedances of the thresholds are indicated in **bold**

General Conformity Applicability

As discussed in Section 3.2.3.1, the construction activities requiring a permit from the USACE would be subject to a general conformity applicability determination under Section 176(a) of the CAA. It has been determined that the air emissions attributable to the Federal action would not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Appendix C5 presents the general conformity applicability discussion and air quality analysis. In addition, any later indirect emissions are generally not within the USACE continuing program responsibility and generally cannot be practicably controlled by the USACE. For these reasons, a conformity determination is not required for the elements of the proposed Project requiring a Federal action.

Impact AQ-2: Proposed Project construction would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.

Dispersion modeling of on-site Project construction emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix C1. Table 3.2-14 presents the maximum off-site ground level concentrations of NO_2, CO, PM_{10}, and $PM_{2.5}$ from construction without mitigation.

Table 3.2-14 shows that the maximum off-site annual PM_{10} and NO_2 concentration increments and the maximum 1-hour and 8-hour CO concentrations would not exceed the SCAQMD thresholds. The maximum off-site 24-hour PM_{10} and $PM_{2.5}$ concentration increments would exceed SCAQMD significance thresholds. In addition, the maximum off-site 1-hour NO_2 concentration, including background, would exceed the SCAQMD significance threshold.

Without mitigation, maximum off-site ambient pollutant concentrations associated with the construction of the proposed Project would be significant for PM_{10} (24-hour average), $PM_{2.5}$ (24-hour average) and NO_2 (1-hour average). Therefore, significant impacts would occur.

Table 3.2-14: Maximum Off-site Ambient Concentrations – Proposed Project Construction without Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)	Maximum Concentration (without Background) ($\mu g/m^3$)	Total Ground-Level Concentration ($\mu g/m^3$)	Threshold [a] ($\mu g/m^3$)	Exceed Threshold?
NO_2	Federal 1-hour[a]	147	**405**	**552**	188	**Yes**
	State 1-hour[b]	235	**492**	**727**	338	**Yes**
	Federal annual[c]	40	2	42	100	No
	State annual[c]	40	2	42	57	No
CO[e]	1-hour	4,600	2,155	6,755	23,000	No
	8-hour	2,878	620	3,498	10,000	No
PM_{10}[d]	24-hour	NA	**30.3**	NA	10.4	**Yes**
	Annual	NA	0.2	NA	1.0	No
$PM_{2.5}$[d]	24-hour	NA	**19.4**	NA	10.4	**Yes**

[a] The high 8th highest modeled 1-hour NO_2 was added to the design value background concentration for comparison with the federal 1-hour standard.
[b] The high 1st highest modeled 1-hour NO_2 was added to the background concentration for comparison with the state 1-hour standard.
[c] The 1st highest modeled annual average NO_2 was added to the background concentration for comparison with the Federal and state annual average standards.
[d] The PM_{10} and $PM_{2.5}$ thresholds are incremental thresholds. Therefore, the high 1st highest modeled 24-hour and annual PM_{10} and 24-hour $PM_{2.5}$ were compared to the incremental threshold.
[e] The high 1st highest modeled 1-hour and 8-hour CO values were respectively added to the background concentration for comparison with the federal 1-hour and 8-hour standards.
Exceedances of the thresholds are indicated in **bold**

Mitigation Measures

To reduce the level of impact during construction **MM AQ-1 through MM AQ-6** would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.5. Table 3.2-15 presents the maximum off-site ground level concentrations of NO_2, CO, PM_{10}, and $PM_{2.5}$ from construction after mitigation.

With implementation of these mitigation measures, off-site ambient concentrations from construction activities would be reduced but would remain significant for PM_{10} (24-hour average), $PM_{2.5}$ (24-hour average), and NO_2 (1-hour average), but less than significant for CO.

Residual Impacts

Impacts would be significant and unavoidable during construction for 1-hour NO_2, 24-hour PM_{10} and 24-hour $PM_{2.5}$.

Table 3.2-15: Maximum Off-site Ambient Concentrations – Proposed Project Construction with Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)	Maximum Concentration (without Background) ($\mu g/m^3$)	Total Ground-Level Concentration ($\mu g/m^3$)	Threshold [a] ($\mu g/m^3$)	Exceed Threshold?
NO_2	Federal 1-hour[a]	147	395	**542**	188	**Yes**
	State 1-hour[b]	235	478	**713**	338	**Yes**
	Federal annual[c]	40	2	42	100	No
	State annual[c]	40	2	42	57	No
CO[e]	1-hour	4,600	2,151	6,751	23,000	No
	8-hour	2,878	619	3,496	10,000	No
PM_{10}[d]	24-hour	NA	**17.8**	NA	10.4	**Yes**
	Annual	NA	0.2	NA	1.0	No
$PM_{2.5}$[d]	24-hour	NA	**15.4**	NA	10.4	**Yes**

a The high 8th highest modeled 1-hour NO_2 was added to the design value background concentration for comparison with the federal 1-hour standard.
b The high 1st highest modeled 1-hour NO_2 was added to the background concentration for comparison with the state 1-hour standard.
c The 1st highest modeled annual average NO_2 was added to the background concentration for comparison with the Federal and state annual average standards.
d The PM_{10} and $PM_{2.5}$ thresholds are incremental thresholds. Therefore, the high 1st highest modeled 24-hour and annual PM_{10} and 24-hour $PM_{2.5}$ were compared to the incremental threshold.
e The high 1st highest modeled 1-hour and 8-hour CO values were respectively added to the background concentration for comparison with the federal 1-hour and 8-hour standards.
Exceedances of the thresholds are indicated in **bold**

Impact AQ-3: The proposed Project would not result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-9.

Table 3.2-16 presents the unmitigated peak daily criteria pollutant emissions associated with operation of the proposed Project. Emissions were estimated for the first year of proposed Project operations after all construction phases are complete. Comparisons to the baseline emissions are presented to determine significance.

The operational emissions associated with the proposed Project assume the following activity levels:

- The proposed Project will increase the boat repair capacity to a maximum of 304 vessels annually.
- Machine shop operations are assumed to increase in proportion to the increase in vessels repaired.
- Emissions are estimated for the first year of proposed Project operations in 2014 and are based on the maximum capacity of the ALBS to provide a conservative estimate of proposed Project impacts.

Table 3.2-16: Peak Daily[a] Operational Emissions Without Mitigation – Proposed Project

Emission Source	Peak Daily Emissions (lb/day)[d]					
	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Proposed Project						
Machine Shop Operations	82	9	41	<1	37	11
Off-road Mobile Equipment	2	9	12	<1	1	1
Boat Hoists	<1	1	2	<1	<1	<1
Harbor Craft Transit	10	54	63	<1	1	1
Worker Trips[b]	5	50	5	<1	2	1
Total Peak Daily for Project Year 2014[c]	*100*	*123*	*123*	*<1*	*42*	*14*
Impacts						
Baseline Emissions	46	71	122	<1	22	9
Project minus Baseline	54	52	1	<1	20	5
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

a Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day ALBS operations.
b Truck and worker commute emissions include transport within the South Coast Air Basin.
c Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
d The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Proposed Project unmitigated peak daily emissions would not exceed the threshold for any criteria pollutants for the first year of proposed Project operations. The annual increase in VOC emissions from proposed Project (assuming 304 boats serviced per year) would be 8.4 tons. Therefore, the 10 tons per year VOC threshold would not be exceeded. Therefore, the unmitigated air quality impacts associated with proposed Project operations would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-4: Proposed Project operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-10.

The proposed Project operational emissions do not exceed the SCAQMD's thresholds of significance for any criteria pollutant on a maximum pounds per day basis. Thresholds are presented in Table 3.2-10. However the SCAB is a nonattainment area for NO_2, PM_{10} and $PM_{2.5}$. Dispersion modeling of on-site and off-site Project operational emissions of NOx, PM_{10} and $PM_{2.5}$ was performed to assess the impact of the proposed Project on local ambient air concentrations to assess the potential for proposed Project operations to significantly increase concentrations of these pollutants.

The USEPA dispersion model AERMOD, version 09292, was used to predict maximum ambient pollutant concentrations at or beyond the Project site. A summary of the dispersion modeling results is presented here, and the complete dispersion modeling report is included in Appendix C1.

The analysis modeled peak 1-hour and annual NO_X emissions, peak daily (24-hour) PM_{10} and $PM_{2.5}$ emissions and annual PM_{10}. Emissions from machine shop equipment, on-site mobile off-road equipment, worker vehicle trips, and the boat hoist were modeled and emissions were estimated for all sources for 2014.

The USEPA released a memorandum on the federal 1-hour NO_2 standard on June 28, 2010. The NO_2 standard is attained when the 3-year average of the 98^{th}-percentile of the annual distribution of daily maximum 1-hour concentrations does not exceed 100 ppb. USEPA released clarifications to the memorandum on March 1, 2011 and stated that an acceptable approach to combining the modeled Project impact and ambient background would be to use the monitored NO_2 design value for the federal standard (the 98^{th} percentile of the annual distribution of daily maximum 1-hour values averaged across the most recent three years of monitored data). This approach will be used in the following analysis.

Table 3.2-17: Maximum Off-site NO_2, PM_{10} and $PM_{2.5}$ Concentrations Associated with Operation of the Proposed Project without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project ($\mu g/m^3$)	Background Concentration[b] ($\mu g/m^3$)	Total Ground Level Concentration[a] ($\mu g/m^3$)	Threshold ($\mu g/m^3$)	Exceed Threshold?
NO_2 [c]	Federal 1-hour[d]	65	147	**212**	188	**Yes**
	State 1-hour	72	235	307	339	No
	Federal Annual	10	40	50	100	No
	State Annual	10	40	50	57	No
PM_{10}	24-hour	**110.8**	NA	NA	2.5	**Yes**
	Annual	**30.8**	NA	NA	1.0	**Yes**
$PM_{2.5}$	24-hour	**25.7**	NA	NA	2.5	**Yes**

a Exceedances of the thresholds are indicated in **bold**.
b The background concentrations were obtained from the North Long Beach Monitoring Station. The maximum concentrations during the years of 2007, 2008, and 2009 were used.
c NO_2 concentrations were calculated using the ozone limiting method (OLM) with ozone data from the North Long Beach monitoring station. The Federal 1-hour NO_2 concentration is calculated using the 98th percentile of the daily maximum 1-hour average to compare with the new federal 1-hour NO_2 standard of 0.100 ppm (188 $\mu g/m^3$) (effective January 22, 2010).
d According to USEPA guidance, the modeled design value (98th) for 1-hour NO_2 is added to the background design value (98th) for NO_2. (USEPA, 2011b)

As shown in Table 3.2-17 above, the proposed Project ambient concentration impacts for Federal 1-hour NO_2, peak day and annual PM_{10}, and peak day $PM_{2.5}$ would exceed SCAQMD operational thresholds. Therefore the total ground level concentrations would be significant.

Mitigation Measures

The main source of NOx emissions from the ALBS is the air compressors used during spray coating operations. The air compressors must be portable and cannot feasibly be replaced with electric units and no other feasible methods to reduce emissions were identified. As a result, no mitigation measures are proposed to reduce NO_2 emissions.

Residual Impacts

Impacts would be significant and unavoidable for 1-hour NO_2, 24-hour and annual PM_{10}, and 24-hour $PM_{2.5}$.

Impact AQ-5: The proposed Project would not create an objectionable odor at the nearest sensitive receptor.

Short-term odors from the use of diesel powered heavy equipment, paving and asphalting, and reuse of dredged sediments for CDF construction would likely occur at the proposed Project site during construction. Operation of the proposed improvements of ALBS would be similar to the odors produced from existing operations and related activities.

Some individuals might find diesel combustion emissions to be objectionable in nature, although quantifying the odorous impacts of these emissions to the public is difficult. Construction emissions are short-term and additionally, the distance between proposed Project emission sources and the nearest residents is expected to be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels.

As a result of the above, the potential is low for the proposed Project to produce objectionable odors that would affect a sensitive receptor. Significant odor impacts, therefore, are not anticipated.

Mitigation Measures

Mitigation is not required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: The proposed Project would expose receptors to significant levels of TACs.

Health Risk

Project construction and operations would emit toxic air contaminant (TAC) emissions that could affect public health. The main sources of DPM would occur during proposed Project construction from heavy-duty off-road construction equipment. Increased TAC emissions would occur from the increase in ship repair activity anticipated after completion of the proposed Project. However the increase in DPM would be minimal. Other TACs from welding and sand-blasting would be emitted, but the increase over the baseline operations is minimal, and emissions passed a simple Tier 2 screening assessment for both short and long-term health risks, and thus, no additional analysis of the health risks associated with operations is required. Therefore the health risk assessment (HRA) presented below is focused on addressing potential public health effects from TACs generated by the construction of the proposed Project, in particular DPM.

An HRA spanning years 2011-2080 was conducted pursuant to a Protocol reviewed and approved by both CARB and SCAQMD (POLA, 2010). The period 2011-2080 is the 70-year exposure period during which proposed Project construction would occur. The Hotspots Analysis and Reporting Program (HARP), version 1.4c (CARB, 2009), was used to perform health risk calculations based on output from the AERMOD dispersion model. The complete HRA report is included in Appendix C3 of this EIR.

The main sources of TACs from proposed Project construction would be DPM emissions from off-road equipment, trucks, and dredging equipment. For health effects resulting

from long-term exposure, CARB considers DPM as representative of the total health risks associated with the combustion of diesel fuel. TAC emissions from nondiesel sources (such as gasoline fuel engines) also were evaluated in the HRA, although their impacts were minor in comparison to DPM. Since the Project would generate emissions of DPM, Impact AQ-6 also discusses the effects of ambient PM on increased mortality and morbidity.

The HRA evaluated three different types of health effects: individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index. Individual lifetime cancer risk is the additional chance for a person to contract cancer after a lifetime of exposure to Project emissions. The "lifetime" exposure duration assumed in this HRA is 70 years for a residential receptor and 40 years for an occupational receptor.[12]

The chronic hazard index is a ratio of the long-term average concentrations of TACs in the air to established reference exposure levels. A chronic hazard index below 1.0 indicates that adverse noncancer health effects from long-term exposure are not expected. Similarly, the acute hazard index is a ratio of the short-term average concentrations of TACs in the air to established reference exposure levels (i.e., short-term exposure, which as described above consists of DPM emissions from off-road equipment, trucks, and dredging equipment during construction activities). An acute hazard index below 1.0 indicates that adverse noncancer health effects from short-term exposure are not expected.

For the determination of significance, this HRA determined the increase in health effects values due to the proposed Project construction. The health effects values were compared to the significance thresholds for health risk described in Section 3.2.4.2.

To estimate residential cancer risk impacts, VOC and DPM emissions were calculated for proposed Project construction and averaged over a 70-year period, from approximately 2011 through 2080. Occupational risk was determined over a 40-year period, from approximately 2011 to 2040. Recreational, student, and sensitive receptor risks are determined from the calculated residential and occupational risks and according to receptor-type locations. Where applicable, emission factors were allowed to change with time in accordance with normal fleet turnover rates (for trucks and off-road equipment), and existing regulations and agreements listed in Table 3.2-8.

Table 3.2-18 presents the maximum predicted health impacts associated with the proposed Project without mitigation. The table includes estimates of individual lifetime cancer risk (long-term), chronic noncancer hazard index (long-term), and acute noncancer hazard index (short-term) at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. For each receptor type, the various health values in Table 3.2-18 often occur at different locations. Figure 3.2-1 shows the maximum concentration locations associated with unmitigated emissions, while Figure 3.2-2 shows the maximum concentration locations associated with mitigated emissions.

[12] The 40-year exposure period for the assessment of occupational cancer risk is 2011-2051 for the proposed Project.

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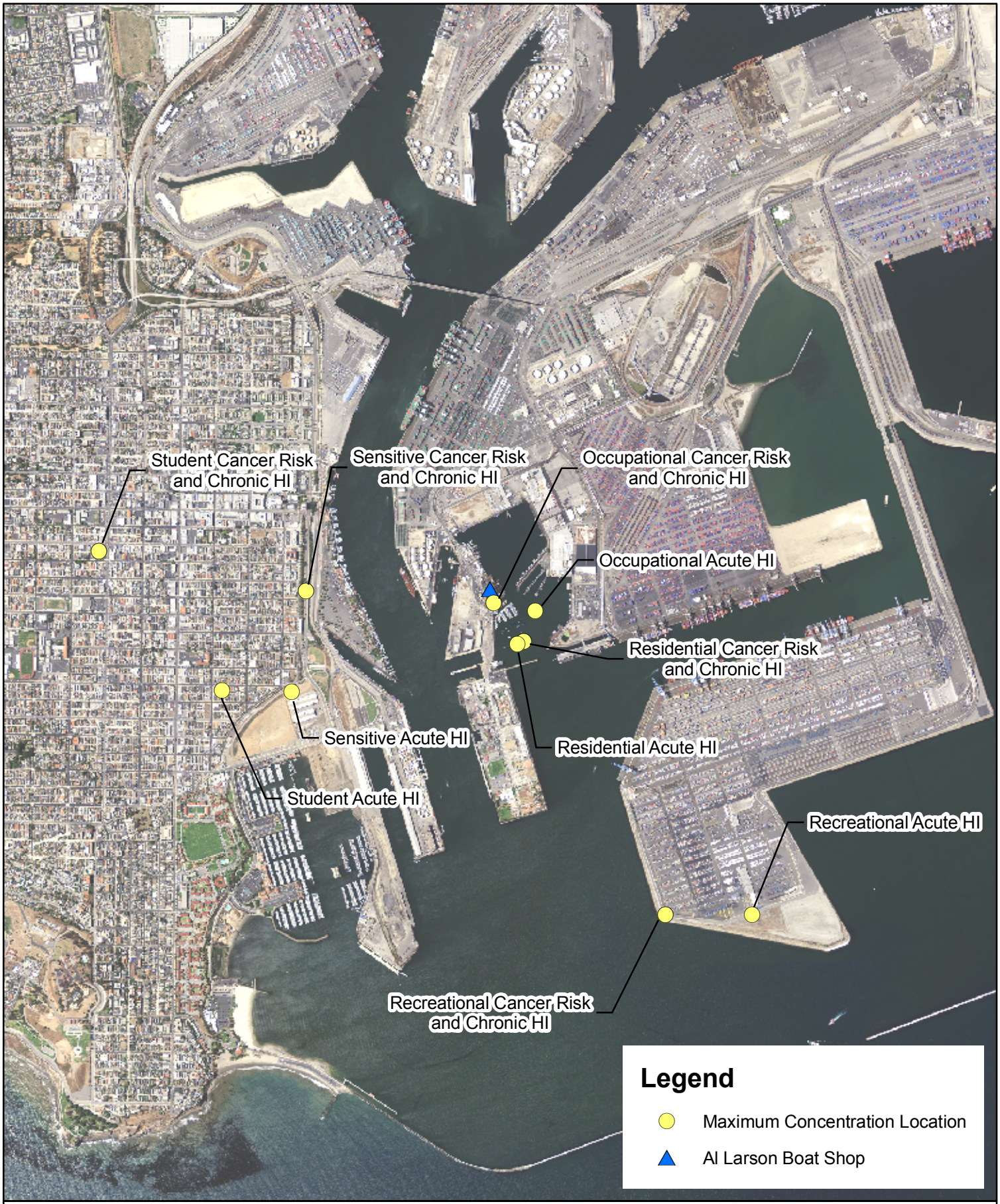
Table 3.2-18: Maximum Health Impacts Associated With the Construction of the Proposed Project Without Mitigation, 2011 – 2080

Health Impact	Receptor Type	Maximum Predicted Impact[a,b] Increment[c]	Significance Threshold
Cancer Risk	Residential[d]	**29×10^{-06} (29 in a million)**	10×10^{-6} 10 in a million
	Occupational	9×10^{-06} (9 in a million)	
	Sensitive	5×10^{-07} (0.5 in a million)	
	Student	3×10^{-09} (0.003 in a million)	
	Recreational	3×10^{-07} (0.3 in a million)	
Chronic Hazard Index	Residential	0.03	1.0
	Occupational	0.03	
	Sensitive	0.0004	
	Student	0.00001	
	Recreational	0.0002	
Acute Hazard Index	Residential	**3.5**	1.0
	Occupational	**4.2**	
	Sensitive	0.4	
	Student	0.03	
	Recreational	0.2	

[a] Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.
[b] Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.
[c] The increment represents Project minus baseline.
[d] The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

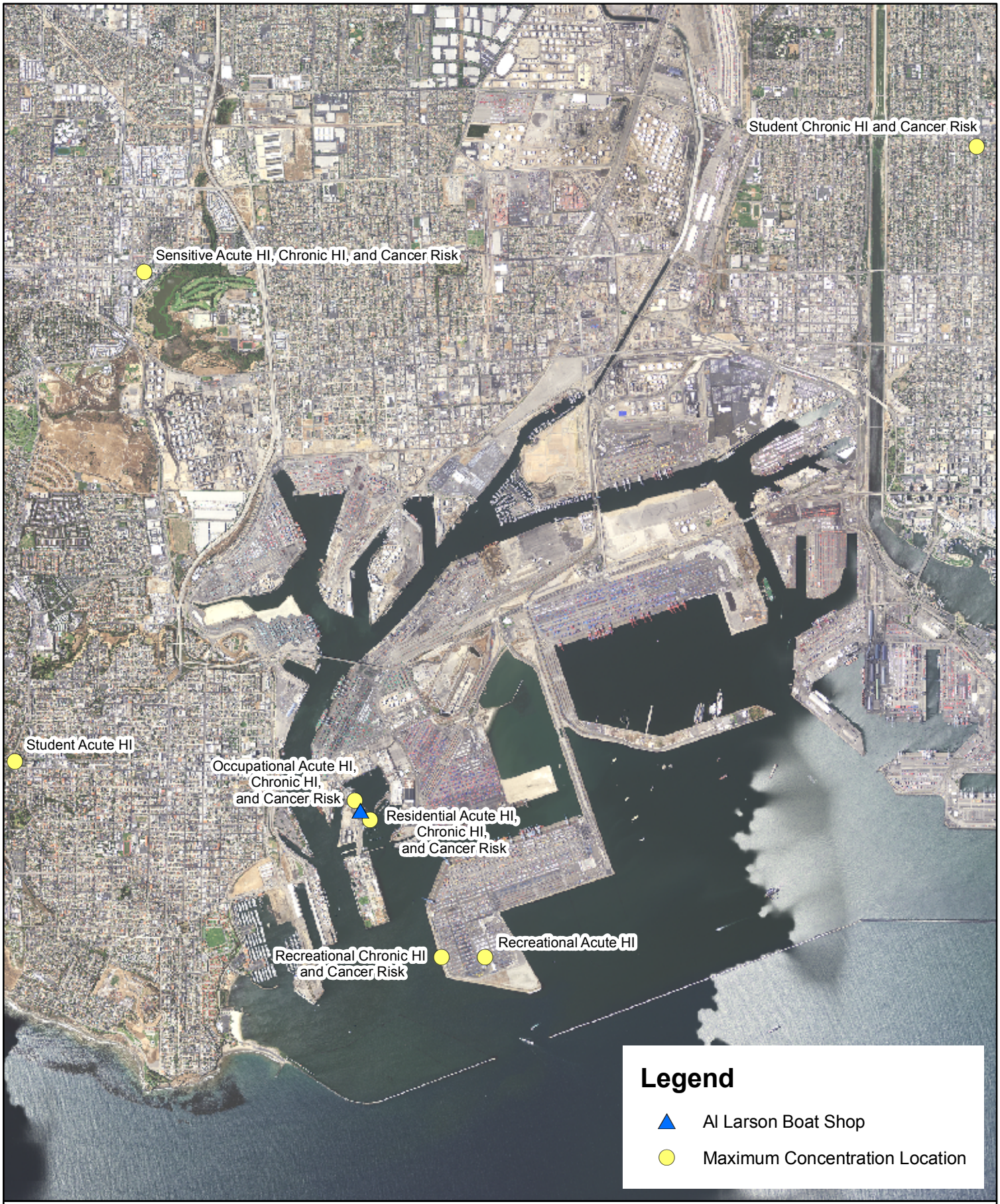
2

3



Port of Los Angeles
Al Larson Boat Shop Improvement Project
Maximum Concentration Locations Associated With the Unmitigated Proposed Project

Figure 3.2-1



Port of Los Angeles
Al Larson Boat Shop Improvement Project
Maximum Concentration Locations
Associated with the Mitigated Proposed Project

Figure 3.2-2

Particulates: Morbidity and Mortality

Health risk assessments are an estimate of the potential for current or future exposures to result in health risks to a broad population. Alternatively, epidemiological studies look at past exposure and try to link exposure to disease. Mortality is a measure of the number of deaths in a population, scaled to the population size, over time. Morbidity refers to the number of individuals who have contracted a disease during a given time period (the incidence rate) or the number who currently have that disease (the prevalence rate) scaled to the size of the population.

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter [PM_{10}]) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$.

The proposed Project would emit DPM during Project construction and operation. This discussion addresses potential health effects caused by the $PM_{2.5}$ portion of DPM emissions and discusses existing standards and thresholds developed by regulatory agencies to address health impacts.

Health Effects of DPM Emissions

Epidemiological studies substantiate the correlation between the inhalation of ambient PM and increased mortality and morbidity (CARB, 2002; CARB, 2007a). Recently, CARB conducted a study to assess the potential health effects associated with exposure to air pollutants arising from ports and goods movement in the State (CARB, 2006a; CARB, 2006c; CARB, 2008a). CARB's assessment evaluated numerous studies and research efforts, and focused on PM and ozone as they represent a large portion of known risk associated with exposure to outdoor air pollution. CARB's analysis of various studies allowed large-scale quantification of the health effects associated with emission sources. CARB's assessment quantified premature deaths and increased cases of disease linked to exposure to PM and ozone from ports and goods movement. Table 3.2-19 presents the statewide PM and ozone health effects identified by CARB (CARB, 2006a).

Table 3.2-19: Annual 2005 Statewide PM and Ozone Health Effects Associated with Ports and Goods Movement in California[a]

Health Outcome	Cases Per Year	Uncertainty Range (Cases per Year) [b]
Premature Death	2,400	720 to 4,100
Hospital Admissions (respiratory causes)	2,000	1,200 to 2,800
Hospital Admissions (cardiovascular causes)	830	530 to 1,300
Asthma and Other Lower Respiratory Symptoms	62,000	24,000 to 99,000
Acute Bronchitis	5,100	-1,200 to 11,000
Work Loss Days	360,000	310,000 to 420,000
Minor Restricted Activity Days	3,900,000	2,200,000 to 5,800,000
School Absence Days	1,100,000	460,000 to 1,800,000

[a] Does not include the contributions from particle sulfate formed from SO_X emissions, which is being addressed with several ongoing emissions, measurement, and modeling studies.

[b] Range reflects uncertainty in health concentration-response functions, but not in emissions or exposure estimates. A negative value as a lower bound of the uncertainty range is not meant to imply that exposure to pollutants is beneficial; rather, it is a reflection of the adequacy of the data used to develop these uncertainty range estimates.

In addition, although epidemiologic studies are numerous, few toxicology studies have investigated the responses of human subjects specifically exposed to DPM, and the available epidemiologic studies have not measured the DPM content of the outdoor pollution mix. CARB has made quantitative estimates of the public health impacts of DPM based on the assumption that DPM is as toxic as the general ambient PM mixture (CARB, 2006d).

CARB's study concluded that there are significant uncertainties involved in quantitatively estimating the health effects of exposure to outdoor air pollution. Uncertain elements include emission and population exposure estimates, concentration-response functions, baseline rates of mortality and morbidity that are entered into concentration response functions, and occurrence of additional not-quantified adverse health effects (CARB, 2006d). Many of these elements have a factor-of-two uncertainty.[13] Numerous new studies, ongoing and proposed, will likely increase scientific knowledge and provide better estimates of DPM health effects.

It should be noted that PM in ambient air is a complex mixture that varies in size and chemical composition, as well as varying spatially and temporally. Different types of particles may cause different effects with different time courses, and perhaps only in susceptible individuals. The interaction between PM and gaseous co-pollutants adds additional complexity because in ambient air pollution, a number of pollutants tend to co-occur and have strong inter-relationships with each other (e.g., PM, SO_2, NO_2, CO, and ozone) (AQMD, 2007; CARB, 2006a; CARB, 2006c).

[13] Uncertainty factors are used to compensate for a deficiency in knowledge concerning the accuracy of test results, the difficulty in estimating the health effects in different exposure conditions, and variation in susceptibility among the members of the human population.

Nevertheless, various studies have been published over the past 10 years that substantiate the correlation between the inhalation of ambient PM and increased cases of premature death from heart and/or lung diseases (Pope et al., 1995, 2002; Jerrett et al., 2012; Krewski et al., 2001). Studies such as these and studies that have followed since serve as the fundamental basis for PM air quality standards promulgated by AQMD, CARB, USEPA, and the World Health Organization.

Although epidemiologic studies are numerous, few toxicology studies have investigated the responses of human subjects specifically exposed to DPM, and the available epidemiologic studies have not measured the DPM content of the outdoor pollution mix. CARB has made quantitative estimates of the public health impacts of DPM based on the assumption that DPM is as toxic as the general ambient particulate matter mixture (CARB, 2006d).

CARB's 2006 study concluded that there are significant uncertainties involved in quantitatively estimating the health effects of exposure to outdoor air pollution. Uncertain elements include emission and population exposure estimates, concentration-response (C-R) functions, baseline rates of mortality and morbidity that are entered into concentration response functions, and the occurrence of additional non-quantified adverse health effects (CARB, 2006e). Many of these elements have a factor-of-two uncertainty. Numerous new studies, ongoing and proposed, would likely increase scientific knowledge and provide better estimates of DPM health effects.

In 2008, CARB prepared a staff report for a draft methodology to estimate premature deaths associated with long-term exposure to $PM_{2.5}$ (CARB, 2008b). The document reevaluated the relative risk of premature death due to $PM_{2.5}$ exposure based on relevant scientific literature. The methodology developed a new relative risk factor of a 10 percent increase in premature death per 10 $\mu g/m^3$ increase in $PM_{2.5}$ exposures (with an uncertainty of 3 to 20 percent). Using this new factor, CARB staff estimated that PM contributes 3,900 premature deaths statewide on an annual basis (CARB 2008).

Existing Thresholds

Concentration Thresholds. Regulatory agencies set protective health-based short and long-term ambient concentration standards designed "in consideration of public health, safety, and welfare, including, but not limited to, health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy" (Health and Safety Code Section 39606[a][2]). Ambient Air Quality Standards (AAQS) specify concentrations and durations of exposure to air pollutants that reflect the relationships between the intensity and composition of air pollution and undesirable effects. The fundamental objective of an AAQS is to provide a basis for preventing or abating adverse health or welfare effects of air pollution.

In developing the AAQS, federal, state, and local air quality regulatory agencies consider existing health science literature and recommendations from Office of Environmental Health Hazard Assessment (OEHHA). Standards are set to ensure that sensitive population sub-groups are protected from exposure to levels of pollutants that may cause adverse health effects. In the case of PM, CAAQS are peer reviewed by the Air Quality Advisory Committee (AQAC), an external scientific peer review committee, comprised of world-class scientists in the PM field.

Within the South Coast Air Basin, the SCAQMD furthermore identifies localized ambient significance thresholds. These ambient concentration thresholds target those pollutants the SCAQMD has determined are most likely to cause or contribute to an exceedance of the NAAQS or CAAQS. The localized standards for PM are more stringent than either the NAAQS or the CAAQS. SCAQMD localized significance thresholds for PM_{10} and $PM_{2.5}$are 10.4 $\mu g/m^3$ for construction and 2.5 $\mu g/m^3$ for operation. These values were developed based on CARB guidance and epidemiological studies showing significant toxicity (resulting in mortality and morbidity) related to exposure to fine particles. The proposed Project conducted dispersion analysis to determine ambient air concentrations and determined localized significance (Section 3.2.4.3).

Emission Thresholds. PM emissions also affect air quality on a regional basis. When fugitive dust enters the atmosphere, the larger particles of dust typically fall quickly to the ground, but smaller particles less than 10 microns in diameter may remain suspended for longer periods, giving the particles time to travel across a regional area affecting receptors at some distance from the original emissions source.

For this reason, the SCAQMD established mass daily thresholds for construction and operational activities for PM. The mass daily thresholds are emissions-based thresholds used to assess the potential significance of criteria air pollutants on the regional level. Emissions that exceed the regional significance thresholds are mass daily emissions that may have significant adverse regional effects. The proposed Project quantified mass daily emissions and determined significance (Section 3.2.4.3).

HRA Thresholds. SCAQMD specifies thresholds for cancer risk and noncancer chronic and acute hazard impacts. The cancer risk calculation methodology accounts for the cancer potency of a pollutant and the expected dose for exposure pathways. For chronic noncancer and acute exposures, maximum annual concentrations and peak daily concentrations, respectively are compared with the OEHHA Reference Exposure Levels (REL), which are used as indicators of potential adverse noncancer health effects. The RELs are concentrations, at or below which no adverse health effects are anticipated in the general human population and are based on the most sensitive relevant adverse health effect reported in the medical and toxicological literature. RELs are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety.

Risk assessment and health impact determination methodologies rely on risk assessment health values published by OEHHA, which in turn are based on results of numerous toxicology and epidemiology studies. For DPM, OEHHA has established health values for cancer and noncancer chronic effects to be used in quantification of health impacts. The proposed Project quantified both cancer risk and noncancer chronic impacts from DPM exposure, per OEHHA risk assessment methodology.

In addition, the Port has adopted SCAQMD's threshold of 10 in a million excess cancer risk and a 1.0 Hazard Index in evaluating new projects (Section 3.2.4.3). The thresholds set by USEPA, CARB, and SCAQMD for localized, regional and toxic impacts are designed to account for health impacts, such as premature deaths, cardiac and respiratory hospitalizations, asthma, lost work/school days. The proposed Project has quantified localized, regional and toxic impacts of DPM (Section 3.2.4.3).

Quantifying Morbidity and Mortality

The Port has developed a methodology for assessing morbidity and mortality in CEQA documents which generally follows the approach used by CARB to estimate state-wide health impacts from ports and goods movement in California (CARB 2006a), incorporating the recent draft methodology for mortality published by CARB (2008a). In the 2006 analysis, CARB focused on particulate matter (PM) and ozone because these are the criteria pollutants for which sufficient evidence of mortality and morbidity effects exists. Modeling changes in ozone concentrations usually requires information on emissions from all sources within a region (for example, the South Coast Air Basin), and is not considered appropriate for project-level analyses. Therefore, this methodology for project-level studies conducted for LAHD CEQA documents will focus on the health effects associated with changes in PM concentrations. Focusing in particulate matter is also consistent with recent CARB studies of mortality and morbidity impacts from California ports (CARB 2006a, 2006b, and 2008b).

The SCAQMD's localized significance threshold for a 24-hour $PM_{2.5}$ concentration is 10.4 $\mu g/m^3$ for construction impacts and 2.5 $\mu g/m^3$ for operational impacts (SCAQMD, 2011). These values are only approximately 30 percent and 7 percent of the 24-hour NAAQS and 87 and 21 percent of the annual CAAQS respectively (there is no 24-hour CAAQS for $PM_{2.5}$). These values are based on CARB guidance and epidemiological studies showing significant toxicity (resulting in mortality and morbidity) related to exposure to fine particles. Because mortality and morbidity studies represent major inputs used by CARB and USEPA to set California and National Ambient Air Quality Standards, project-level mortality and morbidity will be presented in LAHD CEQA documents as a further elaboration of local PM impacts which are already addressed. Therefore, mortality and morbidity will be quantified only if a $PM_{2.5}$ concentration significance finding is identified as part of the air quality impact analysis. More specifically, mortality and morbidity will be quantified if dispersion modeling of ambient air quality concentrations during project construction or operations (Impact AQ-2 and Impact AQ-4) identifies a significant impact for $PM_{2.5}$.

Impact Determination

Table 3.2-18 shows that the maximum cancer risk (long-term) increment associated with the unmitigated construction phase of the proposed Project is predicted to be 29 in a million at a residential receptor and less than10 in a million at an occupational, recreational, sensitive, and student receptors. The cancer risk therefore would be significant at a residential receptor during construction. The peak residential impact during construction occurs at the liveaboards directly to the south of the proposed Project. No other residential locations would exceed the threshold of 10 in a million for cancer risk.

As shown on Table 3.2-18, the maximum chronic (long-term) hazard index increment associated with the unmitigated Project is predicted to be less than 0.1 at residential, occupational, sensitive, recreational, and student receptors. No chronic hazard index impact exceeds the threshold of 1.0, therefore chronic health risk impacts associated with the proposed Project would be less than significant.

As shown on Table 3.2-18, the acute (short-term) hazard index increments associated with residential receptors (3.5) and occupational receptors (4.2) would exceed the significance criterion hazard index of 1.0 during construction and therefore impacts

would be significant for construction.[14] The acute risk is driven by formaldehyde emissions, the main source of which is dredging equipment. The maximum residential impact occurs south of the proposed Project at the liveaboard location at the Al Larson Marina, approximately 280 ft (85 meters) to the south of the nearest onshore portion of the Project (Phase 3 area) and 100 ft (30 meters) south of the southern limits of proposed Project dredging (Phase 2). The maximum occupational impact occurs at a marine fueling station (currently operated by ExxonMobil/General Petroleum) directly north of the proposed Project.

The 24-hour $PM_{2.5}$ impact shown in Table 3.2-14 for proposed Project construction is 19.4 $\mu g/m^3$. This exceeds the SCAQMD threshold of 10.4 $\mu g/m^3$. To assess whether morbidity and mortality calculations were required, additional dispersion modeling was performed to determine whether the extent of the $PM_{2.5}$ exceedance reaches a residential area. With the exception of the liveaboards, no exceedance of the $PM_{2.5}$ SCAQMD threshold for construction occurs outside approximately 50 meters of the project boundary. There are only a few potential liveaboards that are impacted; therefore, a population exposure determination would not apply to this area. Similarly, while the operational $PM_{2.5}$ in Table 3.2-17 is 25.7 $\mu g/m^3$ which exceeds the SCAQMD threshold of 2.5 $\mu g/m^3$, the range of the exceedance would not extend into residential areas beyond the Project boundary with the exception of the few potential liveaboards within Al Larson Marina. Appendix C3 shows the results of this analysis in greater detail. Therefore the 24-hour $PM_{2.5}$ concentration is considered to be less than significant for the purposes of a mortality and morbidity analyses, and a mortality and morbidity determination is not required.

Mitigation Measures

Mitigation measures to reduce TAC emissions would be the same as measures **MM AQ-1 through MM AQ-6** described above for Impact AQ-1. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.5.

Residual Impacts

Table 3.2-20 shows the maximum cancer, chronic and acute risks associated with the mitigated proposed Project with mitigation for construction activities. The residential cancer risk after mitigation is reduced with mitigation, but remains significant at 22 in a million. The acute (short-term) occupational hazard index (2.0) remains significant after mitigation. The acute (short-term) residential hazard index (1.0) remains significant after implementation of mitigation measures **MM AQ-1 through MM AQ-6**.

Therefore, after mitigation, the residential cancer risk and the residential and occupational acute hazard indices remain significant and unavoidable for construction activities.

[14] As discussed previously, operational TAC emissions were compared to SCAQMD Rule 1401 risk levels and were determined not to require further analysis. The detailed health risk assessment only evaluated construction-related emissions.

Table 3.2-20: Maximum Health Impacts Associated With the Construction of the Proposed Project With Mitigation, 2011 – 2080

Health Impact	Receptor Type	Maximum Predicted Impact[a,b] Increment[c]	Significance Threshold
Cancer Risk	Residential[d]	***2 x 10^{-05} (22 in a million)***	10 × 10^{-6} 10 in a million
	Occupational	7 x 10^{-06} (7 in a million)	
	Sensitive	4 x 10^{-07} (0.4 in a million)	
	Student	3 x 10^{-09} (0.003 in a million)	
	Recreational	2 x 10^{-07} (0.2 in a million)	
Chronic Hazard Index	Residential	0.008	1.0
	Occupational	0.02	
	Sensitive	0.0002	
	Student	0.00001	
	Recreational	0.0001	
Acute Hazard Index	Residential	**1.0**	1.0
	Occupational	**2.0**	
	Sensitive	0.2	
	Student	0.01	
	Recreational	0.1	

[a] Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.

[b] Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

[c] The increment represents Project minus baseline.

[d] The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

Impact AQ-7: The proposed Project would not conflict with or obstruct implementation of an applicable AQMP.

Project operation would produce emissions of nonattainment pollutants primarily in the form of diesel exhaust and particulates. The 2007 AQMP proposes emission reduction measures that are designed to bring the South Coast Air Basin into attainment of the state and national ambient air quality standards. The attainment strategies in these plans include more stringent standards for new engines and cleanup of existing fleets including new measures for port trucks, statewide truck fleets, ships traveling and in port, construction equipment, and harbor craft that are enforced at the state and federal level on engine manufacturers and petroleum refiners and retailers; as a result, proposed Project operation would comply with these control measures. The SCAQMD also adopts AQMP control measures into the SCAQMD rules and regulations, which are then used to regulate sources of air pollution in the South Coast Air Basin. Therefore, compliance with these requirements would ensure that the proposed Project would not conflict with or obstruct implementation of the AQMP.

The LAHD regularly provides SCAG with its Port-wide cargo forecasts for development of the AQMP. Therefore, the attainment demonstrations included in the 2007 AQMP account for the emissions generated by projected future growth at the Port. Because one objective of the proposed Project is to accommodate growth in cargo throughput at the Port, the AQMP accounts for the Project and conforms to the SIP.

The proposed Project would implement the Source Specific Performance Standards and the Project-Specific Standards contained in the 2010 CAAP Update and adopted regulations. Therefore, the proposed Project is consistent with the San Pedro Bay Standards. Additionally, the proposed Project would implement construction BMPs applicable to proposed Project construction as listed in the 2010 CAAP Update Section 4.6. The proposed Project is a ship-repair facility, therefore CAAP standards regarding locomotives, cargo-handling equipment, and ocean-going vessels would not apply. Table 3.2-21 assesses the proposed Project's implementation of the 2010 CAAP Update measures applicable to the proposed Project emission sources.

Table 3.2-21: Comparison between the 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIR Mitigation Measure (MM)	Discussion
HDV-1	Performanc e Standards for On-Road Heavy-Duty Vehicles (HDVs)	This measure requires that all trucks servicing both ports comply with 2007 USEPA heavy-duty on-road emissions standards, in addition to safety and security requirements, by January 1, 2012. Incentives, grants, and financing were provided to support the required fleet turnover. This comprehensive program will maximize the associated emissions reductions and greatly reduce health risk concerns associated with trucks. The measure is being implemented through port tariffs and lease agreements.	No applicable mitigation measure	While on-road HDVs are a part of ALBS operations, they are not a major source of emissions since ALBS is boat-repair facility, and does not have heavy truck traffic similar to a shipping terminal at the Port. Therefore no mitigation is needed for HDVs for the proposed Project.

Table 3.2-21: Comparison between the 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIR Mitigation Measure (MM)	Discussion
HDV-2	Alternative Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	In order to encourage use of alternative fueled trucks, the ports will support development of alternative-fuel infrastructure in the Port Complex.	No applicable mitigation measure	This measure will be implemented directly by the Ports. The Port of Long Beach, in con-junction with the Port of Los Angeles, recently released a request for proposal (RFP) seeking proposals to design, construct and operate a public liquid natural gas (LNG) fueling and maintenance facility on Port of Los Angeles property.
HC-1	Performance Standards for Harbor Craft	All harbor craft operating in the ports of Long Beach and Los Angeles are required to comply with the CARB harbor craft (HC) regulation. In addition, all HC home-ported in the San Pedro Bay were required to meet USEPA Tier 2 standards for harbor craft, or equivalent reductions by 2008. As Tier 3 engines become available between 2009 and 2014, within five years all HC homebased in the San Pedro Bay will be repowered with the new engines. All tugs will use shore power while at their home port location.	No mitigation assumed	This measure is a Port-wide measure. ALBS does not have a direct contractual relationship with tugboat operators. The Ports of Los Angeles and Long Beach shall implement HC-1 through a Port-wide Program as described in the CAAP.

The proposed Project would not conflict with or obstruct implementation of the AQMP nor would it obstruct implementation of the San Pedro Bay Standards; therefore, significant impacts are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-8: The proposed Project would produce GHG emissions that would exceed baseline levels.

Climate change, as it relates to man-made GHG emissions, is by its nature a global impact. An individual project does not generate enough GHG emissions to significantly influence global climate change by itself (AEP, 2007). The issue of global climate change is, therefore, a cumulative impact. Nevertheless, for the purposes of this EIR, the LAHD has opted to address GHG emissions as a Project-level impact. In actuality, an appreciable impact on global climate change would only occur when the Project GHG emissions combine with GHG emissions from other man-made and naturally occurring activities on a global scale.

Table 3.2-22 summarizes the total GHG construction emissions associated with the proposed Project. The emissions are totaled over the entire multiple-year construction period. The construction sources for which GHG emissions were calculated include off-road construction equipment, on-road trucks, dredging equipment, and worker commute vehicles.

Table 3.2-22: Total GHG Emissions from Al Larson Boat Shop Construction Activities – Proposed Project

Emission Source	CO_2	CH_4	N_2O	CO_2e[a]
	Total Emissions[b] (Metric Tons[c])			
Phase 1	463	0.04	0.0	464
Phase 2	338	0.03	0.0	339
Phase 3	556	0.06	0.0	557
Total Construction –Impact[d,e]	***1,358***	***0.12***	***0.0***	***1,360***

[a] CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.

[b] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

[c] One metric ton equals 1,000 kilograms, 2,205 lbs, or 1.1 U.S. (short) tons.

[d] Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1

[e] The impact equals total Project construction emissions minus baseline emissions. In the case of construction, baseline emissions are zero.

Table 3.2-23 summarizes the annual unmitigated GHG emissions that would occur in California from operation of the proposed Project. The emission sources for which GHG emission were calculated include machine shop operations, building operations, off-road equipment, harbor craft transit, and worker trips to the site. The table also shows the net change in the Project's GHG emissions relative to the baseline.

Table 3.2-23: Total Annual GHG Emissions from Al Larson Boat Shop Operational Activities – Proposed Project

Emission Source	CO_2	CH_4	N_2O	CO_2e[a]
	Total Emissions (Metric Tons[b])			
Machine Shop Operations	174	0.01	0.00	175
Building Operations	560	0.02	0.01	562
Off-road Equipment[c]	202	0.01	0.01	204
Harbor Craft Transit	6,739	0.20	0.30	6,836
Worker Trips	675	0.02	0.01	680
Total For Proposed Project	8,350	0.26	0.32	8,456
Baseline	4,318	0.14	0.18	4,375
Project Minus Baseline	**4,033**	**0.12**	**0.15**	**4,081**

[a] CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.

[b] One metric ton equals 1,000 kilograms, 2,205 lbs, or 1.1 U.S. (short) tons.

[c] Off-road equipment includes mobile off-road equipment on-site and the new boat hoists.

Construction and operational GHG emissions would exceed the baseline. Therefore, emissions of Project-related GHGs would be significant.

Mitigation Measures

Measures that reduce electricity consumption or fossil fuel usage from Project emission sources would reduce proposed GHG emissions.

The following additional mitigation measures (**MM AQ-7 through MM AQ-10)** specifically target Project GHG emissions. They were developed through an applicability and feasibility review of possible measures identified in the *Climate Action Team Report to Governor Schwarzenegger* and *the California Legislature* (Cal/EPA, 2006) and the CARB *Proposed Early Actions to Mitigate Climate Change in California* (CARB, 2007). The strategies proposed in these two reports for the commercial/industrial sector are listed in Table 3.2-24, along with an applicability determination for the proposed Project.

Table 3.2-24: Project Applicability Review of Potential GHG Emission Reduction Strategies

Operational Strategy	Applicability to Proposed Project
Commercial and Industrial Design Features	
Vehicle Climate Change Standards	Regulatory measure implemented by CARB
Diesel Anti-Idling	Regulatory measure implemented by CARB
Other Light duty Vehicle Technology	Regulatory measure implemented by CARB (standards will phase in starting 2009)
HFCs Reduction	Future regulatory measure planned by CARB
Transportation Refrigeration Units, Off-road Electrification, Port Electrification	Regulatory measure is planned by CARB
Alternative Fuels: Biodiesel blends	Future regulatory measure planned by CARB
Alternative Fuel: Ethanol vehicles or enhanced ethanol/gasoline blends	Future regulatory measure planned by CARB
Heavy Duty Vehicle Emissions Reduction Measures	Port-wide CAAP measure HDV2 (trucks); also a regulatory measure implemented by CARB
Reduced Venting in Gas Systems	Not applicable to Project
Building Operations Strategy	
Recycling	**MM AQ-9;** also regulatory requirements implemented by the Integrated Waste Management Board and City of Los Angeles
Building Energy Efficiency	**MM AQ-7** and **MM AQ-8;** also regulatory measures required by LA Green Code and Title 24 energy efficiency requirements
Green Buildings Initiative	Future regulatory measure planned by the State and Consumer Services and Cal/EPA
California Solar Initiative	Future regulatory measure is planned by the California Public Utilities Commission

Note: These strategies are found in the *California Climate Action Team's report to the Governor* (Cal/EPA, 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB, 2007).

MM AQ-7: Compact Fluorescent Light Bulbs

All interior buildings on the premises shall exclusively use compact fluorescent light bulbs fluorescent light bulbs, or a technology with similar energy-saving capabilities for ambient lighting within all ALBS buildings. The tenant shall also maintain and replace any Port-supplied compact fluorescent light bulbs. Instructions on proper disposal of used bulbs and clean-up of broken bulbs in compliance with USEPA recommendations shall be posted in visible location within each building to reduce potential exposure to mercury vapor.

Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

MM AQ-8: Energy Audit

The tenant shall conduct a third party energy audit every 5 years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.

This mitigation measure primarily targets large on-site electricity consumers such as lighting and electric machine shop equipment. These sources and other building energy uses consume the majority of on-site electricity, and account for about 30 percent of overall Project GHG emissions. Therefore, implementation of power saving technology on-site could minimally reduce overall Project GHG emissions. The effectiveness of this mitigation measure was not quantified.

MM AQ-9: Recycling

The tenant shall ensure a minimum of 40 percent of all waste generated in all ALBS buildings are recycled by 2014 and 60 percent of all waste generated in all ALBS buildings are recycled by 2016. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and; (j) all plastic bottles.

In general, products made with recycled materials require less energy and raw materials to produce than products made with un-recycled materials. This savings in energy and raw material use translates into GHG emission reductions. The effectiveness of this mitigation measure was not quantified due to the lack of a standard emission estimation approach.

MM AQ-10: Tree Planting

The applicant shall plant shade trees where appropriate/feasible around the on-site buildings, and the tenant shall maintain all trees through the life of the lease.

Trees act as insulators from weather, thereby decreasing energy requirements. On-site trees also provide carbon storage (AEP, 2007). Although not quantified, implementation of this measure is expected to reduce Project GHG emissions by less than 0.1 percent.

Residual Impacts

Table 3.2-25 shows construction-related GHG emissions after mitigation. While **MM AQ-7 through MM AQ-10** would be applied to proposed Project operations, the benefits of these measures cannot be quantified at this time. No other GHG-related mitigation measures are applied to proposed Project operations. Therefore operational emissions are still anticipated to increase over baseline GHG emissions. After mitigation, GHG emissions from construction and operations would therefore remain significant and unavoidable.

Table 3.2-25: Total GHG Emissions from Al Larson Boat Shop Construction Activities – Proposed Project After Mitigation

Emission Source	CO_2	CH_4	N_2O	CO_2e[d]
	Total Emissions (Metric Tons[c])[b]			
Phase 1	463	0.04	0.00	464
Phase 2	338	0.03	0.00	339
Phase 3	556	0.06	0.00	557
Total Construction –Impact[a,e]	***1,358***	***0.12***	***0.00***	***1,360***

[a] Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.

[b] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

[c] One metric ton equals 1,000 kilograms, 2,205 lbs, or 1.1 U.S. (short) tons.

[d] CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.

[e] The impact equals total Project construction emissions minus baseline emissions. In the case of construction, baseline emissions are zero.

3.2.4.4 Summary of Impact Determinations

The following Table 3.2-26 summarizes the impact determinations of the proposed Project related to Air Quality, Meteorology and Greenhouse Gases, as described in the detailed discussion in Section 3.2.4.3. Identified potential impacts are based on federal, state, or City of Los Angeles significance criteria, Port criteria, and the scientific judgment of the report preparers, as applicable.

Table 3.2-26: **Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality, Meteorology, and Greenhouse Gases Associated with the Proposed Project**

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-7.	Significant for NO_x	**MM AQ-1. Harbor Craft Used during Construction** **MM AQ-2. On-Road Trucks** **MM AQ-3. Construction Equipment** **MM AQ-4. Best Management Practices** **MM AQ-5. Additional Fugitive Dust Controls** **MM AQ-6. General Mitigation Measure**	Significant and unavoidable for NO_x during construction
AQ-2: Proposed Project construction would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.	Maximum off-site ambient air pollutant concentrations would be significant for PM_{10} (24-hour average), $PM_{2.5}$ (24-hour average) and NO_2 (1-hour average)	**MM AQ-1 through MM AQ-6**	Maximum off-site ambient air pollutant concentrations would remain significant and unavoidable for PM_{10} (24-hour average), $PM_{2.5}$ (24-hour average) and NO_2 (1-hour average) during construction
AQ-3: The proposed Project would not result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-9.	Less than significant	No mitigation is required	Less than significant
AQ-4: Proposed Project operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-10.	Significant for NO_2, PM_{10}, and $PM_{2.5}$	Feasible mitigation measure not identified	Significant and unavoidable for NO_2, PM_{10}, and $PM_{2.5}$ during operations
AQ-5: The proposed Project would not create an objectionable odor at the nearest sensitive receptor.	Less than significant	Mitigation not required	Less than significant

AQ-6: The proposed Project would expose receptors to significant levels of TACs.	During construction cancer risk would be significant for residential receptors. During construction the acute hazard index would be significant for residential and occupational receptors. The chronic hazard index would be less than significant for all receptors.	**MM AQ-1 through MM AQ-6**	The cancer risk and acute hazard index would be significant and unavoidable during construction at residential receptors (livaboards in Al Larson Marina). The acute hazard index would be significant and unavoidable at occupational receptors during construction.
AQ-7: The proposed Project would not conflict with or obstruct implementation of an applicable air quality plan.	Less than significant	No mitigation is required	Less than significant
AQ-8: The proposed Project would produce GHG emissions that would exceed baseline levels.	Exceedance of baseline emissions for construction and operations.	**MM AQ-1 through MM AQ-6** **MM AQ-7. Compact Fluorescent Light Bulbs** **MM AQ-8. Energy Audit** **MM AQ-9. Recycling.** **MM AQ-10. Tree Planting.**	Significant and unavoidable

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3.2.4.5 Mitigation Monitoring

The following mitigation monitoring program is applicable to the proposed Project:

Impact AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-7	
Mitigation Measure	**MM AQ-1. Harbor Craft Used during Construction** 1. As of January 1, 2011: All harbor craft with USEPA designated Category 1 (C1) or Category 2 (C2) marine engines must utilize a USEPA Tier-3 engine, or cleaner. 2. Three exception conditions from this measure may apply a. A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement. b. A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available. **c.** A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.
Timing	During specified construction phases.
Methodology	ALBS will include MM AQ-1 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-2. On-Road Trucks** 1. Trucks hauling material such as debris or any fill material will be fully covered while operating off Port property. 2. USEPA Standards: a. For On-road trucks except for Import Haulers and Earth Movers: Comply with 2004 or 2007 on-road emission standards for PM_{10} and NOx. b. For Import Haulers: Comply with 1998 or 2004 on-road emission standards for PM_{10} and NOx. c. For Earth Movers: Comply with 1998 or 2004 on-road emission standards for PM_{10} and NOx.
Timing	During specified construction phases.
Methodology	ALBS will include MM AQ-2 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable

Mitigation Measure	**MM AQ-3. Construction Equipment** 1. All dredging equipment shall meet at a minimum USEPA Tier 3 standards. Construction equipment will incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards. 2. Idling will be restricted to a maximum of 5 minutes when not in use. 3. Equipment Engine Specifications: a. Meet Tier 2, 3, or 4 standards depending on timing. b. Two categories of exceptions exist. i. Requirements do not apply to equipment less than 50hp. **ii.** Requirements do not apply to marine vessels and harbor craft.
Timing	During specified construction phases.
Methodology	ALBS will include MM AQ-3 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-4. Best Management Practices** BMPs shall be implemented to reduce air emissions from construction activities, including: 1. Use of diesel oxidation catalysts and catalyzed diesel particulate traps. 2. Maintain equipment according to manufacturers' specifications. 3. Install high-pressure fuel injectors on construction equipment vehicles. 4. Re-route construction trucks away from congested streets or sensitive receptor areas.
Timing	During specified construction phases.
Methodology	ALBS will include MM AQ-4 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable

Mitigation Measure	**MM AQ-5. Additional Fugitive Dust Controls** The project construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels. The project construction contractor shall specify the dust-control methods that will achieve this control level in the Dust Control Plan submitted to the South Coast Air Quality Management District (SCAQMD) for review and approval in compliance with SCAQMD Rule 403. These measures shall also apply, as appropriate, during holiday and weekend periods when work may not be in progress. The following measures to reduce dust shall be included in this plan, at a minimum: • SCAQMD's Best Available Control Technology (BACT) measures must be followed on all projects. They are outlined on Table 1 in Rule 403. Large construction projects (on a property which contains 50 or more disturbed acres) shall also follow Rule 403 Tables 2 and 3. • Active grading sites shall be watered three times per day. • Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas. • Contractors shall provide temporary wind fencing around sites being graded or cleared. • Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code ("Spilling Loads on Highways"). • Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site. • The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed. • Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant. • Stabilize the materials while loading, unloading and transporting to reduce fugitive dust emissions. • Belly-dump truck seals should be checked regularly to remove trapped rocks to prevent possible spillage. • Comply with track-out regulations and provide water while loading and unloading to reduce visible dust plumes. • Waste materials should be hauled off-site immediately.
Timing	During specified construction phases.
Methodology	ALBS will include MM AQ-5 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-6. General Mitigation Measure** For any of the above mitigation measures (MM AQ-1 through AQ-4), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of emissions performance than the existing measure, the technology shall replace the existing measure pending approval by the LAHD.
Timing	During specified construction phases.
Methodology	ALBS will include MM AQ-6 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.

Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable
Impact AQ-2: Proposed Project construction would result in off-site ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.	
Mitigation Measure	See Mitigation Measures **MM AQ-1 through MM AQ-6** above.
Residual Impacts	Significant
Responsible Parties	ALBS, LAHD.
Residual Impacts	Significant and unavoidable
Impact AQ-6: The proposed Project would expose receptors to significant levels of TACs.	
Mitigation Measure	See Mitigation Measures **MM AQ-1 through MM AQ-6** above.
Timing	During specified construction phases.
Methodology	LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	ALBS, LAHD
Residual Impacts	Significant and unavoidable
Impact AQ-8: The proposed Project would produce GHG emissions that would exceed baseline levels.	
Mitigation Measure	See Mitigation Measures **MM AQ-1 through MM AQ-6** above.
Mitigation Measure	**MM AQ-7. Compact Fluorescent Light Bulbs** All interior buildings on the premises shall exclusively use compact fluorescent light bulbs fluorescent light bulbs, or a technology with similar energy-saving capabilities for ambient lighting within all on-site buildings. Instructions on proper disposal of used bulbs and clean-up of broken bulbs in compliance with USEPA recommendations shall be posted in a readily visible location within each building to reduce potential exposure to mercury vapor. Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	ALBS, LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-8. Energy Audit** The tenant shall conduct a third party energy audit every 5 years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable

	electric current and eliminate wasted electricity, thereby lowering overall electricity use. This mitigation measure primarily targets large on-site electricity consumers such as lighting and electric machine shop equipment. These sources and other building energy uses consume the majority of on-site electricity, and account for about 30 percent of overall Project GHG emissions. Therefore, implementation of power saving technology on-site could minimally reduce overall Project GHG emissions. The effectiveness of this mitigation measure was not quantified.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	ALBS, LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-9. Recycling.** The tenant shall ensure a minimum of 40 percent of all waste generated in all on-site buildings is recycled by 2014 and 60 percent of all waste generated in all on-site buildings is recycled by 2016. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and; (j) all plastic bottles. In general, products made with recycled materials require less energy and raw materials to produce than products made with un-recycled materials. This savings in energy and raw material use translates into GHG emission reductions. The effectiveness of this mitigation measure was not quantified due to the lack of a standard emission estimation approach.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	ALBS, LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-10. Tree Planting.** The applicant shall plant shade trees where appropriate/feasible around on-site buildings, and the tenant shall maintain all trees through the life of the lease. Trees act as insulators from weather, thereby decreasing energy requirements. On-site trees also provide carbon storage. Although not quantified, implementation of this measure is expected to reduce Project GHG emissions by less than 0.1 percent.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	ALBS, LAHD.
Residual Impacts	Significant and unavoidable

3.2.5 Significant Unavoidable Impacts

Emissions from proposed Project construction would increase relative to baseline emissions for VOC, CO, NOx, PM_{10}, and $PM_{2.5}$. After mitigation, the proposed Project would result in significant and unavoidable impacts for NOx emissions.

Construction of the proposed Project would exceed the 1-hour NO_2 and 24-hour PM_{10} and $PM_{2.5}$ ambient thresholds. Therefore, construction emissions for the proposed Project would result in significant and unavoidable impacts due to increased NO_2, PM_{10} and $PM_{2.5}$.

Peak daily emissions from the operation of the proposed Project would increase relative to baseline emissions for VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$ during the operational project analysis year. However, the proposed Project would not result in significant impacts for any emissions of criteria pollutants.

Impacts from operation of the proposed Project would result in significant impacts from NO_2, PM_{10}, and $PM_{2.5}$ ambient concentrations exceeding SCAQMD ambient thresholds. Feasible mitigation measures to reduce emissions were not identified and the proposed Project would result in significant and unavoidable impacts of NO_2, PM_{10}, and $PM_{2.5}$ ambient concentrations.

Construction and operational emissions of TACs under the proposed Project after mitigation would not increase the chronic hazard index from baseline levels to above the significance criterion of 1.0 to off-site residential, occupational, and sensitive receptors. The construction emissions of TACs under the proposed Project after mitigation would increase the acute hazard index from baseline levels to above the significance criterion of 1.0 to off-site residential and occupational receptors. The construction emissions of TACs under the proposed Project after mitigation would increase the cancer risk from baseline levels to above the significance criterion of 10 in a million (10×10^{-6}) risk or above to off-site residential receptors. Impacts would be significant and unavoidable.

The proposed Project's GHG emissions would contribute to significant and unavoidable impacts to global climate change.

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