3.2

AIR QUALITY

3.2

AIR QUALITY AND GREENHOUSE GASES

3.2.1 Introduction

Emissions from construction and operation of the proposed Project would affect air quality in the immediate proposed project area and the surrounding region. This section provides a description of affected air quality and applicable regulations and plans pertaining to air quality and greenhouse gases (GHGs), discusses the potential impacts of the proposed Project, and presents mitigation measures that would reduce significant impacts. However, even with all feasible mitigation incorporated, there would still be significant and unavoidable impacts related to air quality and GHGs.

The following list summarizes the significant and unavoidable air quality and GHG impacts that would result from construction and operation of the proposed Project:

- The proposed Project would produce peak daily construction emissions that would exceed significance thresholds and result in significant and unavoidable impacts for VOC and NO_X. The proposed Project would also produce overlapping construction and operational emissions during the construction period that would exceed significance thresholds and result in significant and unavoidable impacts for VOC, CO and NO_X.
- The proposed Project would produce overlapping construction and operational emissions during the construction period that would exceed localized significance thresholds for NO_X and result in significant and unavoidable impacts.
- The proposed Project would produce peak daily operational emissions that would exceed significance thresholds and result in significant and unavoidable impacts for VOC, CO and NO_X.
- The proposed Project would produce operational emissions that would exceed localized significance thresholds for NO_X, PM10, and PM2.5 and result in significant and unavoidable impacts.
- The proposed Project would expose sensitive receptors to significant levels of toxic air contaminants (TACs). This impact is an indirect impact associated with emissions from emission sources outside the control of the proposed Project.

- The proposed Project would produce GHG emissions that would exceed SCAQMD CEQA significance thresholds, resulting in a significant and unavoidable impact.

3.2.2 Environmental Setting

The proposed project site is in the Harbor District of the City of Los Angeles in the southwest coastal area of the SCAB. The SCAB consists of the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties and all of Orange County; covering an area of approximately 6,000 square miles, 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 proposed 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 (the 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 area's weather patterns.

The Eastern Pacific High attains its greatest strength and most northerly position during the summer, when it 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 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 O_3, which reaches 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 proposed 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

3.2.2.2.1 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.

EPA establishes the NAAQS. For most pollutants, maximum concentrations cannot exceed an NAAQS more than once per year; and they cannot exceed the annual standards. CARB establishes the CAAQS, which are generally more stringent and include more pollutants than the NAAQS. California standards for O_3, carbon monoxide (CO), NO_2, particulate matter less than 10 microns (µm) in diameter (PM10), and particulate matter less than 2.5 µm in diameter (PM2.5) are values not to be exceeded. All other standards are not to be equaled or exceeded.

Pollutants that have corresponding national or state ambient air quality standards are known as criteria pollutants. These pollutants can harm human health and the environment, and cause property damage. They 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. "Primary standards" are the set of limits based on human health; "secondary standards" are those intended to prevent environmental and property damage. The criteria pollutants of greatest concern for the proposed Project are O_3, CO, NO_2, SO_2, PM10, and PM2.5. NO_X and SO_X are the generic terms for 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. 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 Criteria Pollutants

Pollutant	*Adverse Effects*
O_3	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) 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; (3) vegetation damage; and (4) property damage.
CO	(1) Aggravation of angina pectoris and other aspects of coronary heart disease, (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease, (3) impairment of central nervous system functions, and (4) possible increased risk to fetuses.
NO_2	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups, (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes, and (3) contribution to atmospheric discoloration.
SO_2	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.
PM10	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[a]
PM2.5	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.[a]
Sulfates[b]	(1) Decrease in ventilatory function, (2) aggravation of asthmatic symptoms, (3) aggravation of cardiopulmonary disease, (4) vegetation damage, (5) degradation of visibility, and (6) property damage
Lead[c]	(1) Increased body burden, and (2) impairment of blood formation and nerve conduction, and neurotoxin.

[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment, *Particulate Matter Health Effects and Standard Recommendations,* www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may, May 9, 2002; and EPA, *Air Quality Criteria for Particulate Matter*, October 2004.

[b] SCAQMD has not established an emissions threshold for sulfates, nor does it require dispersion modeling against the localized significance thresholds.

[c] CAAQS have been established for lead, 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.

Source*:* SCAQMD 2007b.

Of the criteria pollutants of concern, O_3 is unique because it is not directly emitted from sources related to the proposed Project. Rather, O_3 is a secondary pollutant,

formed from the precursor pollutants volatile organic compounds (VOC) and NO_X. VOC and NO_X react to form O_3 in the presence of sunlight through a complex series of photochemical reactions. As a result, unlike inert pollutants, O_3 levels usually peak several hours after the precursors are emitted and many miles downwind of the source. Because of the complexity and uncertainty in predicting photochemical pollutant concentrations, O_3 impacts are indirectly addressed in this study by comparing emissions of VOC and NO_X generated by the proposed Project to daily emission thresholds set by the SCAQMD. These emission thresholds are discussed in Section 3.2.4.2, "Thresholds of Significance."

Generally, concentrations of photochemical pollutants, such as O_3, are highest during the summer months and coincide with the season of maximum solar insolation[1]. 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 PM10 impacts from fugitive dust sources, maximum concentrations may occur during high wind events or near human-made ground-disturbing activities, such as vehicular activities on roads and earth moving during construction activities.

Because most of the proposed project–related emission sources would be diesel-powered, DPM is a key pollutant evaluated in this analysis. DPM is one of the components of ambient PM10 and PM2.5. DPM is also classified as a TAC by CARB. As a result, DPM is evaluated in this study both as a criteria pollutant (as a component of PM10 and PM2.5) and as a TAC.

3.2.2.2.2 Local Air Monitoring Levels

EPA designates all areas of the U.S. according to whether they meet the NAAQS. A nonattainment designation means that a primary NAAQS has been exceeded more than the number of times allowed by the standard in a given area. EPA currently designates the SCAB as an extreme nonattainment area for 8-hour O_3, a serious nonattainment area for PM10, and a nonattainment area for PM2.5. SCAB is considered a maintenance area for CO and NO_2 and is unclassified for SO_2 and lead (EPA 2011). States with nonattainment areas must prepare a State Implementation Plan (SIP) that demonstrates how those areas will come into attainment.

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. CARB currently designates the SCAB as an "extreme" nonattainment area for 1-hour O_3, and as a nonattainment area for 8-hour O_3, PM10, PM2.5, 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.

LAHD 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

[1] Solar insolation: the rate of exposure to solar radiation.

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 PM10, PM2.5, and elemental carbon PM2.5, which indicates fossil fuel combustion sources, at four locations in the Port vicinity (POLA 2011a). In 2008, the Port also began measuring ambient concentrations of O_3, SO_2, NO_2 and CO. The station locations are described below.

Wilmington Station—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. It also provides information on the relative strengths of these source combinations.

Coastal Boundary Station—Berth 47 in the 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.

Source-Dominated Station—Terminal Island Treatment Plant. This station is surrounded by three terminals and has the 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, it measures aged urban emissions and Port emissions.

San Pedro Station—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, the station measures aged urban emissions and Port emissions.

The Port has collected PM10 data for six years at its Wilmington Station; PM2.5 data at all four of its stations for six years; and O_3, SO_2, NO_2 and CO from all four of its stations for three years. However, to show trends in criteria pollutant concentrations other than PM10 and PM2.5 over the past three years, it was necessary to use data from the network of monitoring stations operated by SCAQMD.

In addition, Table 3.2-2 shows the highest pollutant concentrations recorded at the North Long Beach station for 2008 to 2010, the most recent complete three-year period of quality assured data available. As shown in the table, the following standards were exceeded at the North Long Beach Station over the three-year period: O_3 (state 1-hour and 8-hour standards in 2008 and 2010), PM10 (state 24- hour and annual standards), and PM2.5 (24-hour standard, and national and state annual standards). No standards were exceeded for CO, NO_2, SO_2, lead, and sulfates, although some data were not available for SO_2 and lead sulfates between 2007 and 2009.

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Figure 3.2-1
Sensitive Air Quality Receptors
City Dock No. 1 Marine Research Center Project

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*		
				2008	*2009*	*2010*
O_3 (ppm)	1 hour	N/A	0.09	**0.093**	0.089	**0.101**
	8 hours	0.075	0.070	**0.074**	0.068	**0.084**
CO (ppm)	1 hour	35	20	3	3	3
	8 hours	9	9.0	2.6	2.2	2.1
NO_2 (ppm)	1 hour	N/A	0.18	0.13	0.011	0.093
	Annual	0.053	0.030	0.0208	0.0212	0.0198
	1 hour (98^{th} percentile)	0.100	N/A	0.09	0.07	0.07
SO_2 (ppm)	1 hour	N/A	0.25	0.09	0.02	0.04
	24 hours	0.14	0.04	0.012	0.005	0.006
	Annual	0.030	N/A	0.0022	Not available	Not available
PM10 ($\mu g/m^3$)	24 hours	150	50	**62**	**62**	**44**
	Annual	N/A	20	**29.1**	**30.5**	**22.0**
PM2.5 ($\mu g/m^3$)[c]	24 hours	35	N/A	**57.2**	**63.0**	**35.0**
	24 hour (98^{th}percentile)	35	N/A	**38.9**	**34.2**	28.3
	Annual	15	12	**14.2**	**13.0**	10.5
Lead ($\mu g/m^3$)	30 days	1.5	N/A	0.01	0.01	0.01
	Calendar quarter	N/A	1.5	0.01	0.01	0.01
Sulfates ($\mu g/m^3$)	24 hours	N/A	25	11.0	13.6	11.8

Notes:

Exceedances of the standards are highlighted in **bold**. Although the NAAQS were not exceeded at the North Long Beach Monitoring Station for CO during 2008 to 2010, the SCAB is classified by EPA as nonattainment for this pollutant because violations have occurred at other monitoring stations in the Basin.

$\mu g/m^3$ = micrograms per cubic meter
ppm = parts per million
N/A = Not applicable

Source: SCAQMD 2012: http://www.aqmd.gov/smog/historicaldata.htm.

Pollutant sampling data for the most recent three years (2008 through 2010) from the Port monitoring program are available. The data are summarized in Table 3.2-3. Data collected concurrently at the SCAQMD North Long Beach monitoring station are also presented for comparison.

Table 3.2-3. Maximum Pollutant Concentrations Measured for the Port Air Quality Monitoring Program 2008–2010

Pollutant	*Averaging Period*	*Port of Los Angeles Monitoring Stations*[a]				*SCAQMD Monitoring Station*
		Wilmington Community	*Coastal Boundary*	*San Pedro*	*Source-Dominated*	*North Long Beach*
O_3 (ppm)[b]	1 hour	0.110	0.130	0.081	0.140	0.101
	8 hours	0.087	0.076	0.064	0.062	0.084
CO (ppm)[c]	1 hour	4.6	2.2	2.7	4.9	3
	8 hours	2.8	2.1	1.4	1.6	2.6
NO_2 (ppm)[d]	1 hour	0.098	0.093	0.200	0.099	0.13
	1 hour (98^{th} percentile)	0.079	0.066	0.089	0.088	0.07
	Annual	0.023	0.011	0.020	0.022	0.0212
SO_2 (ppm)[e]	1 hour	0.029	0.080	0.031	0.048	0.09
	1 hour (99^{th} percentile)	0.030	0.027	0.030	0.059	na
	Annual	0.0025	0.0009	0.0022	0.0065	na
	24 hours	na	na	na	na	0.012
PM10 ($\mu g/m^3$) [f,g]	24 hours	46.6	48.9	na	na	62
	Annual	25.9	24.0	na	na	30.5
PM2.5 ($\mu g/m^3$) [h]	24 hours (98^{th} percentile)	21.9	22.8	21.6	25.4	38.9
	Annual	9.3	8.9	11.4	11.4	14.2
Lead ($\mu g/m^3$)	30 days	na	na	na	na	0.01
	Calendar Quarter	na	na	na	na	0.01
	Rolling 3-month average	na	na	na	na	na
	Annual	na	na	na	na	na
Sulfates ($\mu g/m^3$)	24 hours	na	na	na	na	13.6

Notes:

[a] The Port data were collected between May 2007 and April 2010, with the exception of PM10 measurements at the Coastal Boundary site, which began in September 2008 (POLA 2010, POLA 2011a). Data from the SCAQMD North Long Beach monitoring site were collected between January 2008 and December 2010 (SCAQMD 2012).

[b] Port O_3 data was collected over the period May 2009 through April 2011.

[c] Port CO data was collected over the period May 2009 through April 2011.

[d] Port NO_2 data was collected over the period May 2009 through April 2011.

Pollutant	Averaging Period	Port of Los Angeles Monitoring Stations[a]				SCAQMD Monitoring Station
		Wilmington Community	Coastal Boundary	San Pedro	Source-Dominated	North Long Beach

[e] Port SO_2 data was collected over the period May 2009 through April 2011.

[f] PM10 is not measured at the San Pedro Community site or Source-Dominated site.

[g] Port PM10 24-hour data is presented for the available period May 2010 through April 2011; PM10 annual data is presented for the period May 2008 through April 2011.

[h] Port PM2.5 24-hour and annual data is presented for the period May 2008 through April 2011.

$\mu g/m^3$ = micrograms per cubic meter
ppm = parts per million
na = not available

Source: POLA 2010, 2011; SCAQMD 2012.

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 SCAQMD's implementation of emission reduction strategies. This trend towards cleaner air has occurred in spite of continued population growth.

3.2.2.2.3 Toxic Air Contaminants

TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). TACs include air pollutants that can produce adverse human health effects, including carcinogenic effects, 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 II (MATES II) that about 70% of the background airborne cancer risk in the SCAB is due to particulate emissions from diesel-powered on- and off-road motor vehicles (SCAQMD 2000). The higher risk levels were found in the urban core areas in south central Los Angeles County, in Wilmington adjacent to the Port, and near freeways.

In January 2008, the SCAQMD released the draft MATES III study (SCAQMD 2008b). Mates III determined that diesel exhaust remains the major contributor to air toxics risk, accounting for approximately 84% of the total risk. 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 17% from the analysis in MATES II.

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

As discussed in Section 3.2.3.3, "Regional and Local Regulations," the Port of Los Angeles, in conjunction with the Port of Long Beach, has developed the San Pedro Bay's CAAP that targets all emissions, but is focused primarily on TACs. The Port of Los Angeles has also developed the Sustainable Construction Guidelines as discussed in Section 3.2.3.3 to reduce emissions, including TAC's, from construction. Additionally, all major development projects will include a health risk assessment to further assess TAC emissions and to target mitigation to reduce the impact on public health.

3.2.2.2.4 Secondary PM2.5 Formation

Within the SCAB, PM2.5 particles are both directly emitted into the atmosphere (e.g., primary particles) and formed through atmospheric chemical reactions from precursor gases (e.g., secondary particles). Primary PM2.5 includes diesel soot, combustion products, road dust, and other fine particles. Secondary PM2.5, 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.

Proposed project–generated emissions of NO_X, SO_X, and VOCs would contribute toward secondary PM2.5 formation some distance downwind of the emission sources. However, the air quality analysis in this Draft EIR focuses on the effects of direct PM2.5 emissions generated by the proposed Project and their ambient impacts. This approach is consistent with the recommendations of SCAQMD (SCAQMD 2006).

3.2.2.2.5 Ultrafine Particles

Although EPA and the State of California currently monitor and regulate PM10 and PM2.5, new research is being done on ultrafine particles (UFPs), 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 in its infancy but suggests the UFPs might be more dangerous to human health than the larger PM10 and PM2.5 particles (termed fine particles) due to size and shape. Because of their 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 them. UFPs might have the ability to travel across cell layers and enter into the bloodstream and/or into individual cells. Because UFPs have a large surface area–to–volume ratio, chemicals can adsorb onto the UFP and travel into the cell as a kind of "hitchhiker."

Current UFP research primarily involves roadway exposure. Preliminary studies suggest that over 50% 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 San Pedro Bay Ports. Work is being done on filter technology, including filters for ships, which appears promising. LAHD began collecting UFP data at its four air quality monitoring stations in late 2007 and early 2008; actively participates in CARB testing at the Port; and will comply with all future regulations regarding UFPs. Additionally, measures included in the CAAP aim to reduce all emissions throughout the Port.

3.2.2.2.6 Atmospheric Deposition

The fallout of air pollutants to the surface of the earth is known as atmospheric deposition. This phenomenon 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.

CARB and the 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 salt water bodies from pollution. Port emissions deposit into both local waterways and regional land areas. Construction emission sources from the proposed Project would produce DPM, which contains trace amounts of toxic chemicals. Through its 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.

3.2.2.2.7 Greenhouse Gases and Climate Change

Gases that trap heat in the atmosphere are 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 though human activities include fluorinated gases (hydrofluorocarbons [HFCs] and perfluorocarbons [PFCs]) and sulfur hexafluoride (SF_6).

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_2 on 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_2 equivalent (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.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be approximately 61 degrees (°) Fahrenheit (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. According to the Intergovernmental Panel on Climate Change (IPCC), the atmospheric concentration of CO_2 in 2005 was 379 parts per million (ppm) compared to the pre-industrial levels of 280 ppm (IPCC 2007). In addition, the Fifth U.S. Climate Action Report concluded, in assessing current trends, that CO_2 emissions increase by 20% from 1990 to 2007, while methane and nitrous oxide emission decreased 5% and 1%, respectively (U.S. Department of State 2010).

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. 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. Data suggest that in the next 25 years, California could experience longer, more frequent and more extreme heat waves, longer dry periods, an increase in wildfires, and sea level rise.

The 2009 California Climate Adaptation Strategy is a multi-sector strategy with the objective to guide California's efforts in adapting to climate change impacts. The Adaptation Strategy summarizes the science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats. As part of the Adaptation Strategy mandate, the California Natural Resources Agency and the California Energy Commission developed Cal-Adapt, a web-based climate change adaptation tool. The Cal-Adapt tool enables users to identify potential climate change risks in specific areas throughout California. It is important to note that climate change models are intentionally conservative and may overestimate atmospheric heat retention and climate change impacts. Cal-Adapt projects the following in the areas surrounding the proposed project vicinity:

- temperature rise of approximately 1–6ºF by the end of the century, and
- decrease of approximately 3–5 inches in annual precipitation by the end of the century. (Cal-Adapt 2011.)

Cal-Adapt has not assigned wildfire risk, snow pack change, or sea level rise to the area. However, global models indicate that California may see up to a 55-inch rise in sea level, during a 100-year flood event, within this century given the expected rise in temperatures around the world. The global models used in Cal-Adapt do not currently take into account protective structures, such as levees.

The potential effects from climate change described above are not expected to affect construction or operation of the proposed Project.

The proposed Project air quality analysis includes estimates of GHG emissions generated by the proposed Project for existing and future conditions. In keeping with international convention, the GHG emissions in this report are expressed in metric units (metric tons per year [mty], in this case).

3.2.2.3 CEQA Baseline

Section 15125 of the State CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of the project that exists at the time the NOP is published. These environmental conditions would normally constitute the baseline physical conditions by which the CEQA lead agency determines whether an impact is significant. For purposes of this EIR, the CEQA baseline for determining the significance of potential proposed project impacts is 2011.

CEQA baseline emissions include emissions from the following activities that operated in the baseline year. Table 3.2-4 presents peak daily existing 2011 emissions associated with these sources.

a. Berth 56, located along the southern edge of 22nd Street in the northwestern portion of the proposed project site, contains the Pan-Am Terminal Facility Building and a small parking lot.

b. The transit shed at Berth 57 was recently used to store hay for the Crescent Warehouse Company, Ltd. The transit shed includes a loading dock that spans the full horizontal length of the north side of the building.

c. The transit shed at Berths 58–60 is currently vacant and includes a loading dock that spans the full horizontal length of the building.

d. A water taxi service is located at the southwestern corner of Berth 60 and maintains an office, a small maintenance shed, some storage areas for supplies, and a fleet of approximately five vessels. This service transports supplies and materials to ships anchored outside the breakwater.

e. The San Pedro Bait Company is located at Berth 56. Its two bait vessels will move to Fish Harbor during project construction.

f. Berth 260 is located less than one mile northeast of the City Dock No. 1 site on Terminal Island, and contains SCMI's existing facilities, which are proposed to be relocated to the City Dock No. 1 site. SCMI occupies a 1.32-acre site at 820 South Seaside Avenue, and consists of two noncontiguous parcels separated by a building operated by the Los Angeles Port Police. The northern side of the site includes a 19,000-square-foot building that contains offices, laboratories, classrooms, a circulating seawater system, storage, an inside water tank, meeting space, and warehouse space. The site also includes a small parking lot and dock space at which several research vessels are docked. The southern side of the site is occupied by a machine shop, warehouse space, and an open storage yard. The

current SCMI facility accommodates approximately 25 researchers and staff, and operates as the shore-side support facility for the University of Southern California's Wrigley Marine Science Center on Catalina Island.

g. Emission sources associated with the above activities included marine vessels such as research vessels and water taxis; land-side sources such as forklifts, generators, and cranes; vehicle sources such as delivery trucks, worker vehicles, and visitor vehicles; and fugitive sources such as road dust. Any architectural coating applications, which may have occurred during the baseline year, were conservatively excluded from the baseline.

h. Boundary conditions for marine vessels were assumed to be the SCAB for criteria pollutants and the California border for GHG emissions.2 Vehicular sources primarily consist of local trips; the boundary condition for these sources was assumed to be a 35-mile radius for both criteria pollutants and GHG emissions.

Table 3.2-4. 2011 CEQA Baseline Emissions

Source	*Peak Day Emissions (lb/day)*						*Average Annual Emissions (mty)*
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*CO_2e*
Marine Vessels[a]	12	156	267	0	10	9	970
Land-Side Sources[b]	1	23	8	0	1	0	85
Vehicle Sources[c]	3	18	20	0	1	1	488
Fugitive Sources[d]	0	0	0	0	1	0	0
Utility Sources[e]	0	1	1	0	0	0	245
Total	**16**	**198**	**295**	**0**	**12**	**11**	**1,789**

[a] Marine vessels are SCMI, NOAA, and UNOLS, water taxis, and San Pedro Company bait fishing boats.

[b] Land-side sources are mobile, portable, and stationary equipment operating on land, such as forklifts, generators, cranes, etc.

[c] Vehicle sources are delivery trucks and visitor/worker vehicles.

[d] Fugitive sources are roadway dust.

[e] Utility sources are for the most part sources of offsite emissions associated with energy use, electricity use, water use, wastewater, and solid waste generation. The use of natural gas is an onsite source of combustion emissions.

Numbers may not add precisely due to rounding.

lb/day = pounds per day
mty = metric tons per year

3.2.2.4 Sensitive Receptors

The impact of air emissions on sensitive members of the population is a special concern. Sensitive receptor groups include children and infants, pregnant women,

[2] Although boundary conditions were set at the SCAB and California border for criteria pollutants and GHGs, respectively, marine sources primarily remained within the Port harbor during the baseline year.

the elderly, and the acutely and chronically ill. The locations of these groups include residences, schools, playgrounds, daycare centers, and hospitals. The nearest sensitive receptors to the proposed project area are residents in San Pedro to the northwest of the proposed Project, residents at the Federal Correctional Institution (FCI) on Terminal Island, and residents in the Cabrillo Way Marina. Additionally, the 15th Street Elementary School is located approximately one mile from the proposed project site. World Tots and Merry Go-Round nursery schools as well as several churches with preschool and day care programs are also located in the San Pedro community, within one mile of the proposed project site. The nearest convalescent home, the Harbor View House, is less than one mile north of the proposed project site. The Harbor Community Clinic is located approximately one mile northwest, and the nearest hospital is the Little Company of Mary San Pedro Hospital, approximately two miles northwest of the proposed project site. Figure 3.2-1 shows the location of these sensitive receptors.

The proposed Project also proposes to construct a new sensitive land use near existing industrial uses. As such, patrons of the new facilities would represent new sensitive receptors and may be affected by the existing surrounding land uses found at the Port.

3.2.3 Applicable Regulations

The CAA and its subsequent amendments established air quality regulations and the NAAQS, and delegated enforcement of these standards to the states. In California, CARB is responsible for enforcing air pollution regulations. CARB has, in turn, delegated the responsibility of regulating stationary emission sources to the local air agencies. In the SCAB, 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 apply to the proposed Project and its related activities.

3.2.3.1 Federal Regulations

3.2.3.1.1 State Implementation Plan

In federal nonattainment areas, the CAA requires preparation of a SIP that details how the state will attain the NAAQS within mandated timeframes. In response to this requirement, the SCAQMD and SCAG have jointly developed the 2007 AQMP, which addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP builds upon the approaches taken in the 2003 AQMP for the SCAB for the attainment of federal air quality standards. The SCAQMD and SCAG, in cooperation with the CARB and EPA, have developed the 2007 AQMP for purposes of demonstrating compliance with the new NAAQS for PM2.5 and 8-hour O_3 and other planning requirements, including compliance with the NAAQS for PM10 (SCAQMD 2007b). Additionally, the plan highlights the significant amount of reductions necessary and the urgent need to identify additional strategies, especially

in the area of mobile sources, to meet federal criteria pollutant standards within the timeframes allowed under the federal CAA (SCAQMD 2007b). The 2007 AQMP has been submitted as part of the SIP to EPA for approval. Since it will be more difficult to achieve the 8-hour O_3 NAAQS compared to the 1-hour NAAQS, the 2007 AQMP contains substantially more emission reduction measures compared to the 2003 AQMP. SCAQMD released the Draft Program Environmental Impact Report for the 2007 AQMP in March 2007 (SCAQMD 2007b). The 2007 AQMP was submitted to CARB, and CARB submitted the state-wide and South Coast SIP to EPA for approval in September 2007.

On November 22, 2010, the EPA proposed a partial approval and partial disapproval of the 2007 SCAQMD SIP for 1997 Fine Particulate Matter Standards as part of the South Coast 2007 AQMP. Specifically, EPA proposed to approve the emission inventories and commitments by the SCAQMD and CARB as well as the air quality modeling demonstration as meeting the requirements of the CAA and EPA guidance. However, EPA proposed to disapprove the attainment demonstration because it does not provide sufficient emissions reductions from adopted and EPA-approved measures to provide for attainment of the NAAQS. As a result, EPA also proposed to disapprove the reasonably available control measures/technology and Reasonable Further Progress demonstrations and proposed 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, EPA proposed to disapprove the assignment of 10 tons per day of NO_X to the federal government, $PM_{2.5}$ contingency measures, and the motor vehicle emissions budgets for the area's Reasonable Further Progress 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, EPA believes that many of the noted deficiencies could be addressed.

On April 28, 2011 CARB approved a progress report and proposed revisions to the SIP for submittal to EPA. CARB's proposed $PM_{2.5}$ SIP revisions are limited to an updated calendar of CARB rulemaking, adjustments to transportation conformity budgets, and revisions to Reasonable Further Progress tables and associated reductions for contingency purposes for the South Coast and the San Joaquin Valley. The proposal also includes approval for EPA revisions to the $PM_{2.5}$ and ozone SIP for the SCAB.

3.2.3.1.2 Emission Standards for Non-Road Diesel Engines

To reduce emissions from non-road diesel equipment, EPA established a series of emission standards for new non-road diesel engines. Tier 1 standards were phased in between 1996 and 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in between 2001 and 2006. Tier 3 standards were phased in between 2006 and 2008. Tier 4 standards, which often require add-on emission control equipment to reach attainment, are being phased in from 2008 to 2015. These standards apply to construction equipment (DieselNet 2011).

3.2.3.1.3 Emission Standards for Marine Engines

To reduce emissions from marine engines, EPA established a series of emission standards for new marine diesel engines.

The Tier 1 NO_X standard, equivalent to MARPOL Annex VI, was made mandatory for Category 1 and 2 engines in 2004. Tier 2 standards were phased in between 2004 and 2007 (year of manufacture), depending on the engine horsepower category. Tier 3 standards are being phased in between 2009 and 2014. Tier 4 standards will be phased in between 2014 and 2017. These standards apply to research vessels, tugboats and water taxi crew and supply boats (DieselNet 2011).

3.2.3.1.4 Emission Standards for On-road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, EPA established a series of increasingly strict emission standards for new engines, starting in 1988. EPA promulgated the final and cleanest standards with the *Regulations for Heavy-Duty Diesel Engines* (EPA 2006). The PM emission standard of 0.01 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 and 0.14 g/hp-hr, respectively, would be phased in together between 2007 and 2010 on a percent of sales basis: 50% from 2007 to 2009 and 100% in 2010. For the proposed Project, this rule affects haul trucks and delivery trucks.

3.2.3.1.5 Highway Diesel Fuel Rule

With the Highway Diesel Fuel Rule, EPA set sulfur limitations for on-road diesel fuel to 15 ppm starting June 1, 2006 (EPA 2000).

3.2.3.1.6 Non-Road Diesel Fuel Rule

With this rule, EPA set sulfur limitations for non-road diesel fuel, including locomotives and marine vessels (though not for the marine residual fuel used by very large engines on oceangoing vessels) and construction equipment to 15 ppm in October 2006. For the proposed Project, this rule affects marine research vessels; the California Diesel Fuel Regulations (described below) generally preempt this rule for other sources such as marine engines and construction equipment.

3.2.3.1.7 Mandatory Reporting of GHG Rule

In response to the 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), EPA issued the Mandatory Reporting of GHG Rule. Signed on September 22, 2009, the rule required that suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines outside of the light duty sector, and facilities that emit 25,000 mty or more of GHGs to submit annual reports to EPA. The rule was intended to collect emissions data to guide future policy decisions on climate change. This rule, although not directly relevant to proposed project activities, serves to highlight the developing GHG regulatory framework.

3.2.3.1.8 EPA Tailoring Rule for GHG Emissions

On May 13, 2010, the EPA issued the "tailoring" rule for GHG emissions, which targets the largest GHG emitters. Starting January 2, 2011, the largest GHG emitters are subject to the CAA construction and operating permit requirements. Facilities already subject to New Source Review permits for other pollutants are required to include GHGs in their permits if they increase their emissions by 75,000 tons of CO_2e per year. On July 1, 2011, the EPA planned to extend the requirements to new construction projects that emit at least 100,000 tons of GHGs and existing facilities that increase their emissions by 75,000 tons per year, even if they do not exceed thresholds for pollutants. GHG emissions will be accounted for in Title V operating permits if the source emits 100,000 tons of CO_2e per year or more.

The EPA GHG guidance for this rule explains that new and modified facilities will be required to implement Best Available Control Technology (BACT) to control GHGs. There is still considerable uncertainty as to what controls must be installed. A BACT is a case-by-case analysis that considers technological feasibility, environmental effectiveness, and cost effectiveness of the control technology at the particular facility. This rule, although not directly relevant to proposed project activities, serves to highlight the developing GHG regulatory framework.

3.2.3.1.9 GHG Endangerment and Cause or Contribute Findings for GHGs under the Clean Air Act

On December 7, 2009, two findings were signed by EPA regarding GHGs under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The EPA found that the current and projected concentrations of the six key GHGs in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG gas pollution that threatens public health and welfare.

Although these findings do not themselves impose any requirements on industry or other entities, this action is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which EPA proposed in a joint proposal including the Department of Transportation's proposed Corporate Average Fuel Economy (CAFE) standards on September 15, 2009. The final rule became effective in January 2010.

3.2.3.1.10 EPA and National Highway Traffic Safety Administration National Program to Cut GHG Emissions and Improve Fuel Economy for Cars and Trucks.

In 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a national program to reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States. The EPA and NHTSA finalized a joint rule that established a national program consisting of new standards for new passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model year 2012 through 2016 light-duty vehicles that would reduce GHG emissions and improve fuel economy. In July 2011, EPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose federal GHG and fuel economy standards for light-duty vehicles, covering model years 2017–2025. The EPA finalized the national GHG emissions standards under the CAA, and the NHTSA finalized CAFE standards under the Energy Policy and Conservation Act.

The complementary EPA and NHTSA standards that make up the heavy-duty national program were promulgated in August 2011. The standards apply to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). This rule, although not directly relevant to proposed project activities, serves to highlight the developing GHG regulatory framework.

3.2.3.1.11 Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 was signed into law on December 19, 2007, and includes provisions covering:

- Renewable Fuel Standard (Section 202);
- Appliance and Lighting Efficiency Standards (Sections 301–325);
- Building Energy Efficiency (Sections 411–441).

Additional provisions of the Energy Independence and Security Act address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

The Renewable Fuel Standard is of some relevance to the proposed Project because the regulations require annual increases in biofuels sold—both biodiesel and bioethanol—from 2010 to 2022. By 2022, the Renewable Fuel Standard will require at least 74 billion gallons of biofuel to be sold in the U.S., as compared to the 2010 level of approximately 14.5 billion gallons. This act, although not directly relevant to proposed project activities, serves to highlight the developing GHG regulatory framework.

3.2.3.2 State Regulations

3.2.3.2.1 California Clean Air Act

The CCAA 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 on the severity of the ambient air quality standard violation within a region.

3.2.3.2.2 Heavy-Duty Vehicle Idling Emission Reduction Program

This CARB rule affected heavy-duty diesel trucks in California starting February 1, 2005. The rule requires that heavy-duty trucks not idle for longer than five minutes at a time. However, truck idling for longer than five minutes while queuing is allowed if the queue is located more than 100 feet from any homes or schools.

3.2.3.2.3 California Diesel Fuel Regulations

With this rule, CARB set sulfur limitations for diesel fuel sold in California for use in on- and non-road motor vehicles (CARB 2004). Harbor craft were originally excluded from the rule but were later added by a 2004 rule amendment, and again updated in 2008 (CARB 2008). Under this rule, diesel fuel used in motor vehicles except harbor craft 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 on January 1, 2006, and 15 ppm sulfur on September 1, 2006.

3.2.3.2.4 Airborne Toxic Control Measure for Commercial Harbor Craft

With this rule, CARB set low sulfur fuel use requirements, set forth requirements for newly acquired harbor craft, and set compliance dates by which owners and operators of commercial harbor craft are required to replace or otherwise bring into compliance with the specified engine standards all in-use pre-Tier 1 and Tier 1-certified engines by the dates shown in specified compliance schedules. The compliance dates are designed to clean up the fleet's oldest and dirtiest engines first, while giving more time for relatively newer, Tier 1 engines to be upgraded or replaced

3.2.3.2.5 Statewide Portable Equipment Registration Program

The Statewide Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB 2012). Once registered in this program, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts. The PERP generally may apply to some of the proposed construction equipment.

3.2.3.2.6 CARB Portable Diesel-Fueled Engines Air Toxic Control Measure

Effective September 12, 2007, all portable engines having a maximum rated horsepower of 50 brake horsepower (bhp) and greater and fueled with diesel must comply with this regulation and meet weighted fleet average PM emission standards. The first fleet standard compliance date is in 2013. This regulation may apply to some of the proposed construction equipment.

3.2.3.2.7 CARB In-Use Off-Road Diesel Vehicle Rule

In late July 2007 CARB adopted a rule that requires owners of off-road mobile equipment powered by diesel engines 25 horsepower (hp) or larger to meet the fleet average or BACT requirements for NO_X and PM emissions by March 1 of each year (CARB 2010). The rule is structured by fleet size: large, medium and small. Medium sized fleets receive deferred compliance, and small fleets are exempt from NO_X requirements and also get deferred compliance.

The original Regulation for In-Use Off-Road Diesel Vehicles was adopted in April 2008. In 2011, CARB amended the regulation to delay the turnover of Tier 1 equipment for meeting the NO_X performance requirements of the regulation, and then to delay overall implementation of the equipment turnover compliance schedule in response to the economic downturn in 2008 and 2009. The regulation also limits idling to 5 minutes.

3.2.3.2.8 CARB Statewide Bus and Truck Regulation

In December 2008, CARB adopted the Statewide Bus and Truck Regulation requiring installation of PM retrofits on all heavy duty trucks beginning January 1, 2012, and replacement of older trucks starting January 1, 2015. By January 1, 2023, all vehicles need to have 2010 model year engines or equivalent.

3.2.3.2.9 AB 2588 "Hot Spots" Program

The California Legislature established the AB 2588 air toxics "Hot Spots" program in September 1987. The program requires facilities to report their air toxics emissions, ascertain health risks, and to notify nearby residents of significant risks. In September 1992, the "Hot Spots" Act was amended by Senate Bill 1731 which

required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

3.2.3.2.10 AB 1493—Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley), enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB apply 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% in 2020 and 27% in 2030 (CARB 2009).

3.2.3.2.11 Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, state-wide 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% below 1990 levels.

3.2.3.2.12 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 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 CARB to adopt GHG emission limits and emission reduction measures by January 1, 2011, both of which were to become effective on January 1, 2012. CARB must also evaluate whether to establish a market-based cap and trade system. AB 32 does not identify a significance level of GHG for CEQA purposes.

3.2.3.2.13 California Climate Change Scoping Plan

The Climate Change Scoping Plan is the state's roadmap to reach the GHG reduction goals required in the Global Warming Solutions Act of 2006, or AB 32. This plan calls for reductions in California's carbon footprint to 1990 levels. The Scoping Plan calls for cuts of approximately 30% from business-as-usual emissions levels projected for 2020, or about 15% from today's levels. The Scoping Plan includes strategies such as the cap-and-trade program, improved appliance efficiency standards and other energy efficiency measures, capture of high GWP gases, more efficient agricultural equipment and uses, reduction of 30% in vehicle GHG emissions by 2016 (known as the "Pavley standards") followed by further reductions from 2017, better land-use planning, regulations on largest emission sources, forestry measures, waste facility emission reduction measures, and improved recycling measures.

In March 2011, a San Francisco Superior Court enjoined the implementation of CARB's Scoping Plan, finding the alternatives analysis and public review process violated both CEQA and CARB's certified regulatory program (Association of

Irritated Residents, et al v. California Air Resources Board, Case No. CPF-09-509562, March 18, 2011). In response to this litigation, the CARB adopted the new CEQA document (*Final Supplement to the AB32 Scoping Plan Functional Equivalent Document*) on August 24, 2011. CARB staff re-evaluated the baseline in light of the economic downturn and updated the projected 2020 emissions to 545 $MMTCO_2e$. Two reduction measures (Pavley I and the Renewables Portfolio Standard [12% - 20%]) not previously included in the 2008 Scoping Plan baseline were incorporated into the updated baseline, further reducing the 2020 statewide emissions projection to 507 $MMTCO_2e$. The updated forecast of 507 MMTCO2e is referred to as the AB 32 2020 baseline. Reduction of an estimated 80 MMTCO2e are necessary to reduce statewide emissions to the AB 32 Target of 427 MMTCO2e by 2020 (CARB 2011c).

3.2.3.2.14 Senate Bill 97 Chapter 185, Statutes of 2007

Senate Bill (SB) 97 required the Office of Planning and Research (OPR) to prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The California Resources Agency was required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The amendments became effective on March 18, 2010.

3.2.3.2.15 Executive Order S-01-07

Executive Order S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. 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% by 2020, and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

3.2.3.2.16 January 2010 Attorney General GHG CEQA Guidance Memo

Although not considered a regulation, the California State Attorney General's Office released a CEQA guidance memo related to GHG analysis and mitigation measures (AG 2010). The memo provides examples of mitigation measures that could be used in a diverse range of projects. Measures identified in the memo have been incorporated as GHG mitigation measures in this analysis to the extent feasible.

3.2.3.2.17 Office of Planning and Research's CEQA Guidelines on GHGs

The OPR developed amendments to the State CEQA Guidelines for addressing GHG emissions. These amendments became effective on March 18, 2010, when the Office of Administrative Law approved them. OPR did not define or set a CEQA threshold in which GHG emissions would be considered significant. Instead the lead agency would assess the significance of impacts from GHG emissions on the environment by

considering a threshold that applies to the project and evaluate feasible mitigation measures.

3.2.3.2.18 The Climate Registry

The Climate Registry (TCR) is a nonprofit collaboration among North American states, provinces, territories, and Native Sovereign Nations that sets standards to calculate, verify, and publicly report GHG emissions into a single registry. The Climate Registry represents a linking of several state-sponsored GHG emissions reporting efforts, including the California Climate Action Registry, which officially closed in December 2010. LAHD was a voluntary member of the California Climate Action Registry since March 2006 and has been a voluntary member of TCR since March 2008. LAHD has made the following commitments:

- Identify sources of GHG emissions including direct emissions from vehicles, onsite combustion, fugitive and process emissions; and indirect emissions from electricity, steam and co-generation;
- Calculate GHG emissions using TCR reporting protocols; and
- Report final GHG emissions estimates on TCR website.

3.2.3.2.19 CARB Interim GHG Thresholds

In October 2008, CARB released its preliminary draft staff proposal recommending approaches for setting interim significance thresholds for GHGs under CEQA. The CARB thresholds apply to industrial projects and set a quantitative standard of 7,000 mty of CO_2e for operational emissions. The proposal did not set quantitative standards for construction emissions but instead referred to a future development of performance standards for transport and construction activities (CARB 2008).

3.2.3.3 Regional and Local Regulations

3.2.3.3.1 South Coast Air Quality Management District Rules and Regulations

Through the attainment planning process, SCAQMD develops the SCAQMD Rules and Regulations to regulate sources of air pollution in the SCAB. The SCAQMD rules most pertinent to the proposed Project are listed below. With the possible exception of dredging equipment during construction, the emission sources associated with the proposed Project are considered mobile sources. Therefore, they 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 TAC), or Rule 431.2 (Sulfur Content of Liquid Fuels).

Rule 402—Nuisance

This rule prohibits discharge of air contaminants or other materials 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.

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 cubic yards 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.

Rule 1113—Architectural Coatings

This rule limits the VOC content of architectural coatings used within the SCAQMD.

Rule 1121—Control of NO_X from Residential Type, Natural Gas-Fired Water Heaters.

This rule limits the NO_X content from gas-fired water heaters with input rates less than 75,000 Btu per hour.

Regulation XIII

This regulation sets forth pre-construction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the NAAQS, and that future economic growth within the SCAQMD is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors.

In addition to nonattainment air contaminants, this regulation will also limit emission increases of ammonia and Ozone Depleting Compounds (ODCs) from new, modified or relocated facilities by requiring the use of BACT.

Regulation XIV

This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permit units which emit TACs. The rule establishes allowable risks for permit units requiring new permits.

Rule 1403—Asbestos Emissions from Demolition/ Renovation Activities

The purpose of this rule is to limit emissions of asbestos, a TAC, from structural demolition/renovation activities. The rule requires people to notify 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.

3.2.3.3.2 San Pedro Bay Ports Clean Air Action Plan

LAHD, in conjunction with the Port of Long Beach and with cooperation of the staff of the EPA, CARB, and SCAQMD, has adopted the 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 SCAB to attain state and federal ambient air quality standards. Each individual CAAP measure there is a proposed strategy for achieving these emissions reduction 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 GHGs; and
- public participation processes with environmental organizations and the business communities.

The CAAP focuses primarily on reducing DPM, along with NO_X and SO_X. 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 that support the goals expressed as Source-Specific Performance Standards and the Project-Specific Standard. 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 emissions levels:

- Health Risk Reduction Standard: 85% reduction in DPM by 2020;
- Emission Reduction Standards;
- by 2014, emissions reduced by 72% for DPM, 22% for NO_X, and 93% for SO_X; and
- by 2023, emissions reduced by 77% for DPM, 59% for NO_X, and 92% for SO_X.

The Project-Specific Standard remains as adopted in the original CAAP in 2006—that new projects meet the 10 in 1,000,000 excess residential cancer risk threshold, as determined by health risk assessments conducted subject to CEQA statutes, regulations, and guidelines, and implemented through required CEQA mitigations and/or lease negotiations. Although each port has adopted the Project-Specific Standard as a policy, the Board of Harbor Commissioners retain the discretion to consider and approve projects that exceed this threshold if the Board deems it necessary by adoption of a statement of overriding considerations at the time of project approval.

The goals set forth as the Source-Specific Performance Standards of the CAAP address a variety of port-related emission sources—ships, trucks, trains, cargo-handling equipment, and harbor craft—and outline specific strategies to reduce emissions from each source category.

Although the Port has adopted a general policy that its leases must be compliant with the goals of the CAAP, the Board of Harbor Commissioners has discretion regarding the form of all lease provisions and CAAP measures at the time of lease approval. In addition, tenants must comply with all applicable federal, state, and local air quality regulations.

Because the CAAP is a planning document that sets goals and implementation strategies to guide future actions, it does not constrain the discretion of the ports' Board of Harbor Commissioners as to any specific future action. Each individual CAAP measure is a proposed strategy for achieving necessary emission reductions.

The Board of Harbor Commissioners uses its discretion in its approvals of projects, leases, tariffs, contracts, or other implementing activities in order to appropriately apply the CAAP to the particular situation, and may make adjustments if any proposed measure proves infeasible or if better alternatives for a measure emerge. This EIR analysis assumes proposed project compliance with the CAAP. Proposed project features or mitigation measures applied to reduce air emissions and public health impacts are largely consistent with, and in some cases exceed, the emission-reduction strategies of the CAAP. Proposed project features and mitigation measures also would extend beyond the five-year CAAP time-frame to the end of the lease period.

3.2.3.3.3 POLA/POLB Clean Truck Program

The Port Clean Truck Program (CTP) is a central element of the CAAP. The CTP establishes a progressive ban on polluting trucks. As of October 1, 2008, all pre-1989 trucks were banned from the Port. As of January 1, 2010, all 1989–1993 trucks were banned in addition to 1994–2003 trucks that had not been retrofitted. As of January 1, 2012, all trucks that did not meet the 2007 Federal Clean Truck Emission Standards were also banned from the Port.

3.2.3.3.4 Port of Los Angeles Sustainable Construction Guidelines

In February 2008, the Port's Board of Harbor Commissioners adopted the Los Angeles Harbor Department Sustainable Construction Guidelines for Reducing Air Emissions (Port Construction Guidelines). These guidelines, updated in November 2009, will be used to establish air emission criteria for inclusion in construction bid specifications. The Port Construction Guidelines will reinforce and require sustainability measures during performance of the contracts, balancing the need to protect the environment, be socially responsible, and provide for the economic development of the Port. Future Board resolutions will expand the Port Construction Guidelines to cover other aspects of construction, as well as planning and design. These guidelines support the forthcoming Port Sustainability Program.

The intent of the Port Construction Guidelines is to facilitate the integration of sustainable concepts and practices into all capital projects at the Port and to phase in the implementation of these procedures in a practical yet aggressive manner. Significant features of the Port Construction Guidelines include, but are not limited to, the following:

- All dredging equipment shall be electric.
- All ships & barges used primarily to deliver construction related materials for LAHD construction contracts shall comply with the expanded Vessel Speed Reduction Program (12 knots from 40 nautical miles).
- Harbor craft shall meet EPA Tier 2 engine emission standards.
- All on-road heavy-duty trucks must meet the requirements of the CTP.

- Off-road construction equipment must meet Tier 2 standards in the period prior to 12/31/2011, Tier 3 standards in the period between 1/1/2012 to 12/31/2014, and shall meet Tier 4 standards after 1/1/2015.
- As applicable, off-road construction equipment shall be equipped with an ARB-verified Level 3 diesel emission control system.
- Construction equipment idling is limited to five minutes when not in use.
- Full compliance with SCAQMD Rule 403, Fugitive Dust, including an approved Control Plan is required.

This EIR analysis requires that the proposed Project would adopt all applicable Sustainable Construction Guidelines as mitigations. These measures are incorporated into the emission calculations for the mitigated proposed Project and alternatives scenarios. Section 3.2.4.3, "Impacts and Mitigation," identifies the mitigation and monitoring requirements for these measures.

3.2.3.3.5 Port of Los Angeles Green Building Policy

In 2007 LAHD adopted a Green Building Policy. The policy stipulated the following for all buildings of new construction 7,500 square feet or greater:

- Buildings meeting the intention set forth by LEED New Construction (LEED NC) (i.e., office buildings) will be designed to a minimum standard of LEED NC Gold (U.S. Green Building Council 2009).
- Buildings of the typology that was not the primary focus for LEED NC (i.e., marine utilitarian buildings) will be designed to a minimum standard of LEED NC Silver (U.S. Green Building Council 2009).

All LAHD-owned existing buildings 7,500 square feet or greater will be inventoried and evaluated for their applicability to LEED Existing Building (LEED EB) standards. The operation and maintenance procedures of the building will then be used to determine the priority for certification to LEED EB standards (U.S. Green Building Council 2008).

All other buildings not encompassed in the above criteria will be designed and construction to comply or be consistent with the highest practical and applicable LEED standards or their equivalent to the extent feasible for the building's purpose.

In addition to meeting LEED standards, all new Port buildings will incorporate solar power to the maximum feasible extent as well as incorporate the best available technology for energy and water efficiency.

LAHD will also:

- participate in the Los Angeles Department of Water and Power's New Construction Incentive Program utilizing the Performance Method or Prescriptive Method;

- maintain a staff dedicated to the advancement of sustainable practices, with that staff developing green guidelines and sustainable strategies for Port developments, maintenance, and operations; and
- continuously evaluate their sustainable practices and maintain contact with existing City department organizations for the advancement of those practices.

3.2.3.3.6 City of Los Angeles Policies - Green LA Action Plan

The City released its climate action plan, "Green LA: An Action Plan to Lead the Nation in Fighting Global Warming," in May 2007 (City of Los Angeles 2007). The Green LA plan is a voluntary program that sets a goal of reducing the City's greenhouse gas emissions to 35% below 1990 levels by 2030. Climate LA is the implementation framework that contains the details of the more than 50 action items that are included in Green LA. The majority of the actions described in the LA Green Plan are not project-specific and include City-wide actions. Some of the measures the City will take to achieve the 35% reduction goal include the following:

- increasing the amount of renewable energy provided by LADWP;
- improving the energy efficiency of all City departments and City-owned buildings;
- converting City fleet vehicles, refuse collection trucks, street sweepers and buses to alternative fuel vehicles;
- providing incentives and assistance to existing LADWP customers in becoming more energy efficient;
- changing transportation and land use patterns to reduce dependence on automobiles;
- decreasing per capita water use;
- "greening" the Port and the four airports operated by the City (including Los Angeles International Airport and LA/Ontario International Airport); and
- promoting expansion of the "green economy" throughout the City.

The LA Green Plan calls for the following Port-specific actions:

- Heavy-duty vehicles: By the end of 2011, all trucks calling at the ports will meet or exceed the EPA's 2007 heavy-duty vehicle on-road emissions standards for particulate matter.
- Cargo-handling equipment: All yard tractors will meet at a minimum EPA's 2007 on-road or Tier IV engine emission standards.
- Railroad locomotives: For Pacific Harbor Line switch engines, use Tier II engines and emulsified or other equivalently clean alternative diesel fuels available. Diesel-powered Class 1 locomotives entering port facilities will be 90% controlled for particulate matter and NO_X.
- Complete a strategic plan for the Port, including sustainable and green growth options.

- Complete an economic development plan for the Port, identifying opportunities to link the Port's investment in green growth to new economic opportunities in the green sector.

3.2.3.3.7 Sustainability and Port Action Climate 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 (City of Los Angeles 2007). 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 Port's Climate Action Plan developed in December of 2007 covers currently listed GHG emissions related to the Port's activities (such as Port buildings and Port workforce operations) (LAHD 2007). The Climate Action Plan outlines specific steps that LAHD has taken and will take on global climate change. These steps include specific actions that will be taken for energy audits, green building policies, onsite photovoltaic (PV) solar energy, green energy procurement, tree planting, water conservation, alternative fuel vehicles, increased recycling, and green procurement.

The Port of Los Angeles 2011 Sustainability Report provides an assessment of existing programs and policies that address the Port's material issues related to sustainability: green growth, health risk reduction, air quality, energy and climate change, water quality, habitat protection, open space and greening, land use, local economic development, and environmental justice (POLA 2011b).

LAHD also 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, and subsequent data has been reported to TCR.

LAHD, as a Department of the City of Los Angeles and as a port associated with a major city, is a participant in the Clinton Climate Initiative as a C40 City. LAHD is also signatory to the California Sustainable Goods Movement Program.

3.2.4 Impact Analysis

This section presents a discussion of the potential air quality and GHG 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

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 haul and delivery trucks, tugboats, and worker vehicles. 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, PM10, PM2.5, and GHGs. Since most construction equipment would be diesel-fueled, no indirect GHG emissions (i.e., electricity use) would be associated with construction activities. 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 PM10 and PM2.5. Worker commute vehicles and haul trucks would generate vehicle exhaust and paved road dust emissions. Additional VOCs would be generated from paving activities and architectural coating activities.

Construction schedule, equipment utilization, and equipment power ratings (cranes and pumps) used to calculate construction emissions, were provided by the LAHD's engineering staff. Power ratings for other equipment were obtained from SCAQMD's California Emission Estimator Model (CalEEMod) default tables (SCAQMD 2011c). Emission factors and load factors from CARB's OFFROAD2011 and EMFAC2011 were used to quantify emissions from off-road equipment and on-road vehicles, respectively. Marine engine characteristics, emission factors, and load factors from the Port of Los Angeles Inventory of Air Emissions (POLA 2011a) were used to quantify emissions from marine vessels.

This analysis considered all construction activity associated with the proposed Project site during the years of construction, organized into the following major elements:

- Phase I Construction (2014–2016)
  - Berth 56 new building construction;
  - Berth 57 wharf retrofit/repair, ground improvements, transit shed rehabilitation/conversion, floating dock construction, public plaza construction, and Signal Street improvements; and
  - Berth 57 SCMI interior building construction.
- Phase II Construction (2014–2023)
  - Berth 260 demolition of old SCMI building;
  - Berths 58–60 wharf retrofit/repair, ground improvements, transit shed rehabilitation/conversion, pump station construction, and promenade construction;
  - Berths 58–60 temporary NOAA facility construction;

- Berths 70–71 permanent NOAA facility and wave tank construction.

To estimate peak daily construction emissions for comparison to SCAQMD emission thresholds, emissions were first calculated for the individual construction elements and then summed for overlapping construction elements per the proposed construction schedule (available in Appendix B). The combination of construction activities producing the highest daily emissions was then selected as the peak day and compared to the SCAQMD emission thresholds, which are presented in Section 3.2.4.2, "Thresholds of Significance."

Furthermore, the start year of each construction element was conservatively used to quantify emission factors for that construction element. In other words, for a construction element that begins in 2014 and continues through 2015, emission factors corresponding to 2014 were used throughout the life of that construction element. This represents a conservative assumption because emission factors, in general, 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.

In addition, for years during which construction and operation would overlap, emissions were calculated for individual construction and operation elements and then summed for overlapping elements per the proposed schedule. The combination of construction and operational activities producing the highest daily emissions was then selected as the peak day during each construction year and compared to SCAQMD thresholds for construction, presented in Section 3.2.4.2, "Thresholds of Significance."

The specific approaches to calculating emissions for the various emission sources during construction of the proposed Project are discussed below. Table 3.2-5 includes a synopsis of the regulations and agreements that were assumed as part of the proposed Project in the construction calculations. The construction emission calculations are presented in Appendix B.

Table 3.2-5. Regulations and Agreements Assumed in the Unmitigated Construction Emissions

Off-road Construction Equipment	*On-road Trucks*	*Tugboats*	*Fugitive Sources*
Emission Standards for Non-road Diesel Engines—Emission standards for new engines, gradually phased in due to normal construction equipment fleet turnover. **California Diesel Fuel Regulations**—15 ppm sulfur fuel content. **CARB In-Use Off-Road Diesel Vehicle Rule—**	**Emission Standards for On-road Trucks**—Tiered standards for new engines gradually phased in due to normal truck fleet turnover. **California Diesel Fuel Regulations**—15 ppm sulfur fuel content. **Heavy-Duty Vehicle Idling Emission Reduction Program**—Diesel trucks subject to	**Emission Standards for Marine Engines** – Emission standards for new marine engines gradually phased due to normal turnover. **California Diesel Fuel Regulations**—15 ppm sulfur fuel content. **Airborne Toxic Control Measure for Commercial Harbor Craft**—With this rule,	**SCAQMD Rule 403 Compliance—**61% reduction in fugitive dust. Rule 403 activities include, but are not limited to, watering three times per day, covering stockpiled materials, stabilizing transport material, and covering haul vehicles prior to exiting the site. **SCAQMD Rule 1113,**

Off-road Construction Equipment	*On-road Trucks*	*Tugboats*	*Fugitive Sources*
Off-road mobile equipment powered by diesel engines 25 hp or larger must meet the fleet average or BACT requirements for NO_X and PM emissions by March 1 of each year. The regulation also limits idling to 5 minutes. **CARB Portable Diesel-Fueled Engines Air Toxic Control Measure (ATCM)—**Effective September 12, 2007, all portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel must meet weighted fleet average PM emission standards.	idling limits. **CARB Statewide Bus and Truck Regulation**—Installation of PM retrofits on all heavy duty trucks beginning January 1, 2012, and replacement of older trucks starting January 1, 2015. By January 1, 2023, all vehicles need to have 2010 model year engines or equivalent.	CARB set low sulfur fuel use requirements, and set forth requirements for newly acquired and in-use harbor craft.	**Architectural Coatings** – This rule limits the VOC content of architectural coatings used within the SCAQMD.

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, "Applicable Regulations."

Off-Road Construction Equipment

Emissions of VOC, NO_X, PM10, and PM2.5 from diesel-powered construction equipment were calculated using emission factors derived from the CARB OFFROAD2011 Emissions Model (CARB 2011a). The OFFROAD2011 model does not calculate CO or SO_X emissions. Per CARB guidance, OFFROAD2007 was used to calculate CO and SO_X emissions. Using the SCAB fleet information, the OFFROAD models were run for each construction year 2014 through 2024. Emission factors were calculated based on each type of equipment, horsepower rating of the equipment, and the corresponding peak daily and annual equipment activity levels, provided by LAHD.

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 Vehicles Used during Construction

Emissions from on-road, heavy-duty diesel trucks and worker vehicles used during construction were calculated using emission factors generated by the EMFAC2011

on-road mobile source emission factor model for a truck fleet and passenger vehicle fleet representative of the County of Los Angeles (CARB 2011a). The EMFAC2011 model output shows that, on a per-mile basis, emission factors will steadily decline in future years, as older vehicles are replaced with newer, cleaner vehicles that meet the required state and federal on-road engine emission standards.

Other assumptions regarding on-road trucks used during construction are as follows:

- Trucks used to deliver equipment/materials to the construction site were assumed to make 4 trips per day for the number of days listed allocated to the specific construction element (LAHD 2011).
- Activity for trucks used to haul jet grouting waste from the construction site was calculated based on the projected amount of jet grouting waste and a truck capacity of 20 cubic yards.
- Peak daily and annual activity for trucks used to haul construction/demolition waste was provided by LAHD engineering staff.
- All trucks were assumed to travel within a 35-mile radius.
- All trucks used during construction were assumed to idle on site for 5 minutes per trip.
- Truck activity assumptions are documented in Appendix B.

Assumptions regarding worker vehicles are as follows:

- The number of workers was calculated per CalEEMOD's default of 1.25 workers per each piece of construction equipment and rounded up to the nearest whole integer. Worker vehicles were assumed to travel 30 miles per round trip.
- The number of workers during each construction element was estimated by applying a factor of 1.25 to the total number of construction equipment used during that construction element and rounded up to the nearest whole integer (SCAQMD 2011c).

Tugboats Used during Construction

During construction, tugboats would be used to mobilize and position any floating equipment, such as derrick barges or flat barges. Emissions from tugboat main and auxiliary engines were calculated using emission factors from the 2010 Port Emissions Inventory (Starcrest 2011).

Other assumptions regarding tugboats during construction are as follows:

- Although many tugboats at the Port have been repowered with Tier 2 marine engines as part of the ongoing Tugboat Retrofit Project, the emission calculations conservatively used Tier 1 emission factors for all construction phases without mitigation.

- The diesel fuel used in tugboats is assumed to have an average sulfur content of 15 ppm, which is the sulfur content limit for California harbor craft, in accordance with California Diesel Fuel Regulations (CARB 2004).
- Up to two tugboats would each operate 2 hours per day, for the duration of each construction element that requires the use of tugboats (i.e., Phase I construction of floating dock at Berth 57 and demolition of SCMI facilities at Berth 260), per LAHD engineering staff.

Fugitive Emissions during Construction

Fugitive emissions during construction include fugitive dust from demolition, grading, earth moving/handling activities, and road dust as well as fugitive VOC emissions from asphalt paving and architectural coating activities. Assumptions regarding fugitive emissions during construction are as follows:

- CalEEMOD equations and factors were used to determine the fugitive dust generated by construction equipment, trucks, and automobiles travelling both on and off site (Appendix B).
- Onsite dust emissions were reduced by 61% from uncontrolled levels to reflect required compliance with SCAQMD Rule 403 for onsite activities. According to SCAQMD guidance, watering the site three times per day pursuant to Rule 403 would reduce fugitive dust emissions by 61% (SCAQMD 2005).
- The dust-control methods for the proposed Project would be specified in the dust-control plan that must be submitted to the SCAQMD per Rule 403.
- CalEEMOD equations and factors were used to determine VOC emissions from asphalt paving and architectural coating activities.
- Asphalt paving emissions were based on site acreage provided by LAHD engineering staff. It was assumed that on a peak day 25% of the site could be paved (URBEMIS 2007).
- Architectural coating emissions were based on the usable square footage of each proposed building. A factor of 2 was used to convert the usable square footage to building surface area (SCAQMD 2011c).
- The VOC content of architectural coatings was assumed to be 250 grams per liter in accordance with SCAQMD Rule 1113.

3.2.4.1.2 Methods for Determining Operational Emissions

Operational emissions in the form of VOC, CO, NO_X, SO_X, PM10, PM2.5, and GHGs would be generated from diesel fuel combustion in research vessel engines, water taxis, and land-side equipment such as cranes and generators; natural gas combustion in space heating and water heaters; combustion of diesel fuel and gasoline in on-road vehicles; PM10, and PM2.5 road dust as well as tire wear and brake wear from on-road vehicles; and VOC emissions from reapplication of architectural coatings. In addition, indirect GHGs from the use of electricity for

onsite lighting and shore-side auxiliary power for research vessels would be generated.

Operational equipment and source information, equipment utilization, equipment power ratings, and other relevant information were provided by LAHD staff. Information regarding research vessels was provided by SCMI staff (SCMI 2012), while information regarding NOAA vessels was projected by Starcrest (Starcrest 2010). Vehicle trips associated with the proposed Project were taken from the Traffic Study (Appendix C), conducted as part of this Draft EIR.

Furthermore, the start year of each operational element was conservatively used to quantify emission factors for the duration of that element. In other words, for an operational element that begins in 2016 and continues through 2042, emission factors corresponding to 2016 or earlier were used throughout the life of that element. For example, SCMI research vessels which are proposed to relocate to Berths 56–57 in 2016 were assumed to retrofit their engines to higher engine tier engines in 2016, upon their relocation. In actuality it is likely that as the vessel engines reach the end of their useful life, the vessel operators would retrofit many of the engines earlier than 2016. However, this analysis conservatively assumes that the retrofits would take place upon relocation of the vessels and that the vessels would not be retrofitted again for the duration of the lease. This represents a conservative assumption because emission factors generally 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.

This analysis considers operations associated with the proposed Project during the 2016, 2021, 2024, and 2042 analysis years and is organized into the following major elements:

- Berths 56–57: Learning center and SCMI research facility operation would begin operation in 2016.
- Berths 58–60: SCMI research facility, marine business park, NOAA temporary berths, water taxi, café, and public plaza would begin operation in 2021.
- Berths 70–71 (2024): NOAA permanent facility and wave tank operation would begin in 2024.

The proposed Project would be fully built out in 2024 and emissions associated with onsite sources would not change after 2024. However, vehicular traffic would change as reported in the Traffic Study due to regional growth (Appendix C). Analysis year 2042 is the final analysis year represented in the Traffic Study and is included in the air quality analysis for consistency.

In addition to activities described above, it is anticipated that the San Pedro Bait Company, which currently operates at Berth 57, would be relocated either across the East Channel or to Fish Harbor.

Table 3.2-6 presents a synopsis of regulations that were assumed in the unmitigated emissions calculations. Current regulations and agreements were assumed as part of

the unmitigated proposed project emissions for the various analysis years. CAAP measures planned for future implementation at a project level are treated as mitigation in this study. Therefore, the unmitigated emissions of the proposed Project assume no future CAAP measure implementation.

The specific approaches to calculating emissions for the various emission sources during operation of the proposed Project are discussed below. The operational emission calculations are presented in Appendix B.

Table 3.2-6. Regulations and Agreements Assumed in the Unmitigated Project Operations

Marine Vessels	*Land-Side Equipment*	*Vehicle Sources*	*Fugitive Sources*
California Diesel Fuel Regulations—15 ppm sulfur fuel content. **Emission Standards for Marine Diesel Engines**—Emission standards for new marine engines gradually phased due to normal turnover. **Airborne Toxic Control Measure for Commercial Harbor Craft**—With this rule, CARB set low sulfur fuel use requirements, and set forth requirements for newly acquired and in-use harbor craft.	**Emission Standards for Non-road Diesel Engines**—Emission standards for new engines, gradually phased in due to normal construction equipment fleet turnover. **California Diesel Fuel Regulations**—15-ppm sulfur fuel content. **CARB In-Use Off-Road Diesel Vehicle Rule**—Off-road mobile equipment powered by diesel engines 25 hp or larger must meet the fleet average or BACT requirements for NO_X and PM emissions by March 1 of each year. The regulation also limits idling to 5 minutes. **CARB Portable Diesel-Fueled Engines Air Toxic Control Measure**—Effective September 12, 2007, all portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel must meet weighted fleet average PM emission standards. **SCAQMD Rule 1121, Control of NO_X from Residential Type, Natural Gas-Fired**	**Emission Standards for On-road Trucks**—Tiered standards for new engines gradually phased in due to normal truck fleet turnover. **California Diesel Fuel Regulations**—15 ppm sulfur fuel content. **Heavy-Duty Vehicle Idling Emission Reduction Program**—Diesel trucks subject to idling limits. **CARB Statewide Bus and Truck Regulation—**Installation of PM retrofits on all heavy duty trucks beginning January 1, 2012, and replacement of older trucks starting January 1, 2015. By January 1, 2023, all vehicles need to have 2010 model year engines or equivalent.	**SCAQMD Rule 1113 – Architectural Coatings**—The rule limits the VOC content of architectural coatings. **SCAQMD Rule 1113, Architectural Coatings** – This rule limits the VOC content of architectural coatings used within the SCAQMD.

Marine Vessels	*Land-Side Equipment*	*Vehicle Sources*	*Fugitive Sources*
	Water Heaters—This rule limits the NO_X content from gas-fired water heaters with input rates less than 75,000 Btu per hour.		

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, "Applicable Regulations."

Marine Research Vessels

Emissions from SCMI, the University of Southern California facility, and associated marine research vessels, as well as NOAA and University-National Oceanographic Laboratory System (UNOLS) research vessels were calculated using emission factors, engine power requirements, and vessel activity levels. Emission factors for criteria pollutants associated with fuel combustion were based on EPA's engine tier standards for marine engines (DieselNet 2011), whereas emission factors for GHGs associated with fuel combustion were based on TCR's U.S. default factors (TCR 2012). GHG emissions associated with electricity use while at berth were quantified using TCR's U.S. Emission Factors by eGRID Subregion, for California (TCR 2012).

CARB defines work boats as self-propelled vessels used to perform duties such as fire/rescue, law enforcement, hydrographic surveys, spill/response, research, and training.

SCMI, associated vessels, and NOAA/UNOLS research vessels would be considered work boats under this definition and as such are not subject to CARB's compliance schedule requirements (CARB 2011b). However, as the vessels' engines reach the end of their useful life and are replaced, the regulation requires that the most recent model year marine or off-road emission standard engine available at the time of replacement be installed. Water taxis are categorized as crew boats by CARB and as such are subject to CARB's compliance schedule requirements.

The following assumptions regarding marine vessels were made.

SCMI Research Vessel Fleet Assumptions (SCMI 2012):

- The proposed Project would provide floating dock space for a total of 12 SCMI research vessels. The analysis assumed that in addition to the 9 existing SCMI vessels, 3 more vessels would operate at the new Berths 56–57 facility, for a total of 5 large vessels (>25 feet) and 7 small vessels (<25 feet) on a peak day.
- The baseline peak day was based on 4 large and 5 small vessels operating in the water for 6 hours per day, whereas the proposed project peak day assumed that 5 large and 7 small vessels would operate in the water for 6 hours per day.

- Average baseline and proposed project operation were based on 2 large vessels operating for 6 hours per day, 4 days per week, and 52 weeks per year; and 2 small vessels operating for 6 hours per day, 3 days per week, and 52 weeks per year.
- It was assumed that large SCMI and associated vessels would turn off main engines at berth and connect auxiliary engines to the electric grid, whereas small SCMI and associated vessels would turn off both main and auxiliary engines while at berth. Ten minutes of incidental start-up/stop idling at berth was assumed for the large vessels and five minutes was assumed for the small vessels.
- It was assumed that, on average, both large and small vessels would spend 35% of their annual working time within the Port harbor.
- Power requirements for main and auxiliary engines, average engine age, and average operating hours were based on information provided by SCMI based on their existing and projected fleet.
- Research vessels are exempt from CARB's retrofit compliance schedule requirements. Engine retrofits would therefore occur at the end of the engine's useful life. Based on the average age of the SCMI and associated vessel fleet, and useful life of 17 and 23 years, respectively, for workboat main and auxiliary engines (CARB 2011a), it was assumed that main engines would have been replaced with Tier 3 engines and auxiliary engines would have been replaced with Tier 2 engines by the time the SCMI facility is built in 2016 and that no additional retrofits past 2016 would occur through the end of the lease. In reality, it is likely that many of the engines would be replaced before SCMI's relocation in 2016 and again during the course of the lease.
- For the purpose of quantifying regional emissions, it was assumed that vessels would conservatively operate in the harbor for the entire peak day. Localized ambient impacts were quantified using onsite emissions, which reflect incidental idling emissions at berth; the use of onsite emissions to quantify localized ambient impacts is consistent with SCAQMD's localized significance thresholds (LST) methodology. Health impacts were quantified based on vessel emissions in the harbor; emissions outside of the harbor would not be close enough to result in impacts to on-land human receptors. For the purposes of quantifying GHG emissions, it was assumed that all emissions from SCMI and associated vessels would occur within the 24-mile state water boundary, as defined by CARB. Annual GHG emissions were therefore quantified based in the operating schedule as defined above.

NOAA/UNOLS Research Vessel Fleet Assumptions (Starcrest 2010):

- The proposed Project would provide new space for up to three large research vessels. The peak day scenario assumed three NOAA/UNOLS vessels and the average scenario assumed two NOAA/UNOLS vessels transiting the harbor.
- These research vessels would do no work in the harbor, but would transit the harbor on their way to various ocean locations. It would take each vessel a total of 0.4 hours to transit the harbor and 2.4 hours to transit to the 24 nautical mile California waters boundary, as defined by CARB. The transit time was

quantified on a speed of 5 knots within the harbor and 12 knots outside of the harbor.

- It was assumed that NOAA/UNOLS vessels would use shore electrical power while berthed. Ten minutes of incidental idling during start-up/stop at berth.
- Power requirements for main and auxiliary engines, average engine age, and average operating hours were based on the average age of NOAA's and UNOLS' Pacific vessel fleet.
- Research vessels are exempt from CARB's retrofit compliance schedule requirements. Engine retrofits would therefore occur at the end of the engine's useful life. Based on engine information for NOAA/UNOL's Pacific vessel fleet and useful life of 17 years and 23 years for vessel main and auxiliary engines, respectively (CARB 2011a), it was assumed that main engines would meet Tier 4 standards and auxiliary engines would meet Tier 2 standards by the time the vessels locate to the temporary berth in 2021. It was conservatively assumed that no additional retrofits past 2021 would occur through the end of the lease. This is a conservative assumption as it is likely that many of the engines would be replaced before relocation in 2021 and again during the course of the lease.
- For the purpose of quantifying regional emissions, it was assumed that vessels would transit the harbor and the 24 nautical miles to the state water boundary once in a peak day. Localized ambient impacts were quantified using onsite emissions, which reflect incidental idling emissions at berth; the use of onsite emissions to quantify localized ambient impacts is consistent with SCAQMD's LST methodology. Health impacts were quantified based on vessel emissions during transit in the harbor; emissions outside of the harbor would not be close enough to result in impacts to on-land human receptors. GHG emissions were quantified within the 24-mile state water boundary, as defined by CARB. It was also assumed that vessels would make 6 annual trips, would be at berth 60 days out of the year, and would spend the rest of their working time in the ocean.

Water Taxi Vessel Fleet Assumptions:

- The water taxi service operates five water taxis at Berth 60. This activity would not change due to the proposed Project, but the storage areas at the end of Berth 60 used by the water taxi service would be relocated within the general vicinity of Berth 60 to better accommodate the proposed Project.
- Water taxis were assumed to operate 4 hours per day, 365 days per year during peak and average operations.
- It was assumed that vessels would turn off both their main and auxiliary engines while at berth and that 10 minutes of incidental idling during start-up/stop would occur.
- It was conservatively assumed that water taxis would spend all their working time within the Port harbor.
- Power requirements for main and auxiliary engines, average engine age, and average operating hours were based on the 2010 Port Inventory.
- Water taxis are considered as crew boats, which are subject to CARB's engine retrofit schedule requirements. Per CARB's compliance schedule requirements,

the water taxis would require retrofit to Tier 3 engines in 2016, several years prior to their relocation to Berths 58-60.

- For the purpose of quantifying regional emissions, it was assumed that vessels would conservatively operate in the harbor for the entire peak day. Localized ambient impacts were quantified using onsite emissions, which reflect incidental idling emissions at berth; the use of onsite emissions to quantify localized ambient impacts is consistent with SCAQMD's LST methodology. Health impacts were quantified based on vessel emissions in the harbor. Annual GHG emissions were quantified based in the operating schedule as defined above.

San Pedro Bait Company Fleet Assumptions:

- It is anticipated that the San Pedro Bait Company operations, which currently operate at Berth 57, would be relocated either across the East Channel or to Fish Harbor. However, the barge would remain in its current location as permitted under the current lease. The more distant Fish Harbor location is conservatively assumed in the analyses.
- Other than its berthing location, San Pedro Bait Company's fishing vessel operations would remain unchanged. Based on the distance from Berth 57 to Angels Gate, it takes the vessels approximately 0.8 hour per day roundtrip to transit the harbor. Once relocated to Fish Harbor, it would take the vessels approximately 1 hour to travel to and from Angels Gate.
- It was assumed that vessels operate a total of 4 hours per day during both a peak and average day and that 50% of their average working time would be spent within the 24-nautical-mile state water boundary.
- It was assumed that vessels would turn off both of their engines while at berth. Also, 10 minutes of incidental idling was assumed during startup/stop at berth.
- Power requirements for vessel engines were provided by the vessel operator. Average engine age and average annual operating hours were based on the 2010 Port of Long Beach Emissions Inventory.
- Fishing vessels are exempt from CARB's engine retrofit schedule requirements. The San Pedro Bait Company reported that vessel engines were recently retrofitted to Tier 2. Based on information provided by San Pedro Bait Company regarding engine retrofits, the average age of fishing vessels in the Port, and useful life of 21 years for vessel main engines (CARB 2011a), it was conservatively assumed that engines would remain Tier 2 for the duration of the project.
- For the purpose of quantifying regional emissions, it was assumed that vessels would cross the harbor and the 24 nautical miles to the state water boundary twice (making a single roundtrip) in a peak day. Localized ambient impacts were quantified using onsite emissions, which reflect incidental idling emissions at berth; the use of onsite emissions to quantify localized ambient impacts is consistent with SCAQMD's LST methodology. Health impacts were quantified based on vessel emissions during transit in the harbor; emissions outside of the harbor would not be close enough to result in impacts to on-land human receptors. GHG emissions were quantified within the 24-mile state water boundary, as defined by CARB. It was also assumed that vessels would make

237 annual trips. The annual trips were based on the average annual value of 948 hr/yr for fishing vessels from the 2010 POLA Inventory and a typical 4-hour workday.

Land-Side Source Emissions

Emissions of VOC, NO_X, PM10, PM2.5, and GHGs from land-side equipment (e.g., forklifts, land-side portable cranes, and generators) were calculated using emission factors derived from the CARB OFFROAD2011 Emissions Model (CARB 2011a) and TCR General Protocol (TCR 2012). The OFFROAD2011 model does not calculate CO or SO_X emissions. Per CARB guidance, OFFROAD2007 was used to calculate CO and SO_X emissions. Using the SCAB fleet information, the OFFROAD models were run for each operational analysis year. 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.

Motor Vehicle Emissions

The proposed Project would generate motor-vehicle trips (e.g., delivery trucks, worker vehicles, and visitor vehicles), which would emit air pollutants. Motor vehicle exhaust emissions, as well as emissions from tire and brake wear, were calculated via the EMFAC2011 model (CARB 2011a). The motor vehicle fleet age distribution incorporated into EMFAC2011 was used for the County of Los Angeles fleet mix. Emission calculations are based on the daily trip generation data provided in the Traffic Study (Appendix C).

Assumptions regarding motor vehicles are as follows:

- Delivery trucks were assumed to travel within a 35-mile radius.
- Visitor and worker vehicles were assumed to travel within a 30-mile radius.
- Delivery trucks would not be required to comply with CAAP.
- CARB vehicle type T-6 instate heavy trucks were conservatively assumed for delivery trucks and LDA/LDT1 were assumed for worker vehicles.

Fugitive Source Emissions

Fugitive emissions during operations include road dust generated by vehicles transiting the site and surrounding streets, as well as fugitive VOC emissions from periodic repainting of surfaces with architectural coatings. Assumptions regarding fugitive emissions during operation are as follows:

- AP42 equations and factors were used to determine road dust generated by motor vehicles travelling both on and off site (Appendix B) (AP42, Chapter 13.2.1, January 2011).
- CalEEMOD equations and factors were used to determine VOC emissions from architectural coating activities.
- Architectural coating emissions were based on the usable square footage of each proposed building. A factor of 2 was used to convert the usable square footage to building surface area (SCAQMD 2011c).
- The VOC content of architectural coatings was assumed to be 250 grams per liter in accordance with SCAQMD Rule 1113.

Miscellaneous Stationary Source Emissions

Miscellaneous stationary emissions during operation include natural gas combustion in space heating and water heaters. Emissions were calculated based on building square footage, consumption factors from CalEEMod, and emission factors from SCAQMD Rule 1121 (SCAQMD 2004) for NO_X, and AP-42 for CO, PM, VOC, and SO_X. Indirect GHG emissions from electricity use, water purveying, and wastewater and solid waste purveying were quantified using building square footage, consumption factors, and emission factors from TCR General Protocol.

3.2.4.2 Thresholds of Significance

The following significance criteria are based on the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006) and other criteria applicable to Port projects. The proposed Project would have a significant impact on air quality and GHG if.

AQ-1: Construction-related emissions exceed any of the SCAQMD thresholds of significance in Table 3.2-7.

AQ-2: Construction-related emissions exceed any of the localized significance thresholds (LST) shown in Table 3.2-8.

AQ-3: Operational emissions exceed any of the SCAQMD thresholds of significance in Table 3.2-9.

AQ-4: Operational emissions exceed any of the LSTs shown in Table 3.2-10.

AQ-5: Project-generated on-road traffic would result in either of the following conditions at an intersection or roadway within 0.25 mile of a sensitive receptor:

- The project would cause or contribute to an exceedance of the California 1- or 8-hour CO standards of 20 or 9.0 ppm, respectively; or
- The incremental increase due to the project would be equal to or greater than 1.0 ppm for the California 1-hour CO standard or 0.45 ppm for the 8-hour CO standard.

AQ-6: It would create an objectionable odor at the nearest sensitive receptor.

AQ-7: It would expose receptors to significant levels of TACs. Impacts would be significant if:

- The maximum incremental cancer risk for residential receptors would be greater than or equal to 10 in 1 million, or
- The non-cancer hazard index is greater than or equal to 1.0 (project increment).

AQ-8: It would conflict with or obstruct implementation of an applicable air quality plan.

GHG-1: It would result in GHG emissions above SCAQMD's GHG significance threshold for CEQA of 3,000 mty CO_2e for industrial facilities (SCAQMD 2011a).

GHG-2: It would conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

The following sections provide additional information on determining the significance of impacts under Thresholds AQ-1 through AQ-4 as listed in Tables 3.2-7 through 3.2-10. Thresholds AQ-5 through AQ-8 and GHG-2 do not require additional explanation in determining significant impacts under these thresholds and are not discussed in any more detail below.

3.2.4.2.1 Construction Thresholds

The *L.A. CEQA Thresholds Guide* (2006) references the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993) and EPA AP-42 for calculating and determining the significance of construction emissions. Each lead city department has the responsibility to determine the appropriate standards. The following factors are to be used in a case-by-case evaluation of impact significance for a proposed project:

- Combustion emissions from construction equipment:
  - Type, number of pieces, and usage for each type of 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 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 (SCAQMD 2011a).

AQ-1: Construction-related emissions exceed any of the SCAQMD thresholds of significance in Table 3.2-7.

Table 3.2-7. SCAQMD Thresholds for Construction Emissions

Air Pollutant	*Emission Threshold (pounds/day)*
VOC	75
CO	550
NO_X	100
SO_X	150
PM10	150
PM2.5	55
Lead	3
Source: SCAQMD 2011a	

AQ-2: Construction-related emissions exceed any of the localized significance thresholds (LST) shown in Table 3.2-8.

LSTs were developed by SCAQMD as part of the SCAQMD's environmental justice initiative (SCAQMD 2008a). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. LSTs are intended for projects where the onsite emission sources are confined to an area of less than or equal to five acres on any given day. The LSTs are conservative, providing public agencies with a relatively simple method of evaluating ambient air pollutant concentrations without having to conduct more complicated air dispersion modeling.

LST thresholds vary depending on the pollutant, geographical location within the air basin, size (acres) of the disturbed construction area, the ambient air quality in the project vicinity, and the distance to nearest offsite human receptor. For purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, prison, and convalescent facility where it is possible that an individual could remain for 24 hours. Schools are also considered sensitive receptors. Although commercial and industrial facilities are not considered sensitive receptors because employees do not typically remain on site for a full 24 hours, it has been LAHD's policy to consider impacts on offsite workers.

The LST methodology requires that PM10 and PM2.5 emissions be evaluated at sensitive receptors because the averaging period for the state standard is 24 hours and because, per SCAQMD's definition, an individual could remain at a sensitive receptor location for the full 24 hours. The LST methodology also requires that for pollutants with standards based on shorter averaging periods, such as NO_2 and CO, emissions be evaluated at industrial and commercial receptors because it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours. VOC does not have an ambient air quality standard and is, therefore, not addressed in the LST methodology. The SCAQMD's LST methodology does not apply to SO_2 because the SCAB has historically been in attainment with SO_2 CAAQS. Finally, offsite mobile emissions are not included in the LST evaluation, per LST methodology, because they are farther away from the receptors and therefore would have a minimal impact on the ambient concentrations at the receptors of interest.

SCAQMD's LST methodology for NO_2 is based on the California 1-hour ambient air quality standard. In 2010, the EPA created a new federal NO_2 1-hour ambient air standard that is lower than the California standard. Because the SCAQMD has not revised their LST methodology to reflect the new federal standard, a different approach was warranted in addressing localized NO_2 impacts as they apply to the federal 1-hour standard. Because SCAQMD's LST methodology does not apply to SO_2, and the EPA also created a new federal 1-hour SO_2 standard, a different methodology was also warranted in addressing localized SO_2 impacts as they apply to the federal 1-hour standard. These alternate methodologies are as follows:

- The *de minimis level* for NO_X stipulated in the federal general conformity rule was used as the federal screening threshold for NO_X. The federal general conformity rule ensures that federal actions do not cause or contribute to a new violation of the NAAQS, do not cause additional or worsen existing violations of the NAAQS, and do not delay attainment of the NAAQS. It should be noted that the proposed Project is not subject to the federal general conformity rule and that the *de minimis* thresholds associated with the general conformity rule were used as a screening threshold for the federal NO_2 standard in absence of an LST.
- The conformity regulation stipulates *de minimis* emission levels based on the type and severity of the nonattainment designation. If the federal action would result in emissions below the *de minimis* levels, the action is determined to conform; that is, it would not cause or contribute to a violation of the NAAQS. The SCAB is considered a maintenance area for NO_2 and as such is subject to a 100 tons per year *de minimis* level. However the SCAB is in extreme nonattainment for O_3, for which NO_X is a precursor and as such is subject to a 10 tons per year *de minimis* level (EPA 2010a). The general conformity *de minimis* level of 10 tons per year was therefore used to evaluate NO_X impacts as they relate to the NAAQS.

Because the SCAB is unclassified for SO_2 and as such does not have a *de minimis* level under general conformity, the EPA Prevention of Significant Deterioration (PSD) of Air Quality (Code of Federal Regulations [CFR], Title 40, Section 52.21) was used to evaluate potential SO_2 impacts. PSD applies to new major sources or major modifications at existing sources for pollutants where the source is located in

an NAAQS attainment or unclassified area. It should be noted that the proposed Project is not subject to PSD and that the PSD SER level for SO_X was used as a screening threshold for the federal SO_2 standard in absence of an LST.

Under 40 CFR 52.21(b)(23), the EPA set forth the SER for SO_2. Per the regulation, an ambient impact analysis is not necessary for pollutants with emissions below their respective SERs. In 2010, the EPA issued guidance under PSD in which it recommends the continuing use of the existing SO_2 SERs in conducting air quality impact analyses for PSD projects (EPA 2010b, 2010c). Proposed activities that would generate emissions below the SER are considered to have demonstrated that the said activities would not cause or contribute to a violation of the 1-hour SO_2 NAAQS. The SER for SO_2 is 40 tons per year, per 40 CFR 52.21.

In summary, for this analysis, SCAQMD's LST thresholds were used to evaluate localized impacts for CO, NO_X, PM10, and PM2.5 with respect to the CAAQS. The general conformity *de minimis* level for NO_X and EPA's SER for SO_2 were used to evaluate NO_2 and SO_2 impacts under NAAQS.

The thresholds identified for the construction LST analysis are conservative in that they assume that onsite construction activities within each construction phase overlap within a 5-acre area. In actuality, construction activities would be distributed over an area greater than 5 acres and would therefore have more diluted ambient concentration impacts. In addition, the analysis identifies the distance to a receptor from each construction activity and conservatively uses the shortest distance to inform the significance thresholds.

Construction site acreages and distances to the nearest offsite sensitive and commercial/industrial receptors for program and project elements are summarized in Table 3.2-8 and are shown on Figure 3.2-1.

Table 3.2-8. Construction Activities—Localized Significance Thresholds

Construction Element	Year	Area Under Construction (acres/day[a])	Approximate Distance		Localized Significance Threshold (pounds per day[b])				Federal Threshold (ton/yr)[c]	
			Sensitive Receptor	Commercial Receptor	CO_2	NO_X	PM10	PM2.5	NO_X	SO_X
Phase I Construction										
Berth 56 new building construction	2015–2016		400 meters (m) West to Cabrillo Way Marina	100 m Northeast to Municipal Fish Warehouse						
Berth 57 wharf retrofit/repair, ground improvements, and transit shed rehabilitation	2014–2015		450 m West to Cabrillo Way Marina	130 m West to Berth 54-44 SSA Facility						
Berth 57 floating dock, public plaza, and Signal Street construction	2014–2015		450 m (Cabrillo Way Marina to west)	100 m Northeast to Municipal Fish Warehouse						
Berth 57 promenade construction	2015		450 m (Cabrillo Way Marina to west)	100 m Northeast to Municipal Fish Warehouse						
Berth 57 SCMI interior building construction	2016		450 m (Cabrillo Way Marina to west)	100 m Northeast to Municipal Fish Warehouse						
Overlapping Phase I Construction Elements	2014-2016	5	450 m (Cabrillo Way Marina to west)	100 m Northeast to Municipal Fish Warehouse	2,613	126	141.5	79.5	10	40
Phase II Construction										
Berth 260 demolition of old SCMI building	2017–2018		>500 m	>500 m						

Construction Element	*Year*	*Area Under Construction (acres/day[a])*	*Approximate Distance*		*Localized Significance Threshold (pounds per day[b])*				*Federal Threshold (ton/yr)[c]*	
			Sensitive Receptor	*Commercial Receptor*	*CO_2*	*NO_X*	*PM10*	*PM2.5*	*NO_X*	*SO_X*
Berths 58–60 wharf retrofit/rehabilitation, ground improvements, and transit shed rehabilitation	2019–2020		300 m West to Cabrillo Way Marina	200 m West to Berth 54-44 SSA Facility						
Berths 58–60 promenade construction	2020		300 m West to Cabrillo Way Marina	200 m West to Berth 54-44 SSA Facility						
Berths 58–60 interior building construction	2020–2021		300 m West to Cabrillo Way Marina	200 m West to Berth 54-44 SSA Facility						
Berths 70–71 permanent NOAA facility and wave tank construction, and opportunity sight	2023–2024		350 m East to FCI	280 m West to Berth 54-44 SSA Facility						
Overlapping Phase II Construction Elements	2017-2024	5	300 m West to Cabrillo Way Marina	200 m West to Berth 54-44 SSA Facility	4,184	141	141.5	79.5	10	40

[a] Construction activities would occur on a site greater than 5 acres. However, 5 acres was assumed as a conservative estimate because a site larger than 5 acres would have emissions distributed over a greater area and would therefore have more diluted ambient concentration impacts.

[b] PM10 and PM2.5 LSTs are based on the distance to the nearest non-commercial/industrial sensitive receptor because PM10 and PM2.5 24-hr AAQS averaging times are applicable to residential receptors that could be present for 24 hours. CO and NO_X LSTs are based on the shortest distance to either a sensitive or commercial/industrial receptor because AAQS averaging times for NO_2 and CO are less than 24 hours and as such can apply to worker receptors that are present at a site for less than 24 hours.

[c] NO_X reflects general conformity *de minimis* levels; SO_2 reflects significant emission rate (SER) under the NSR program.

[d] FCI is the Federal Corrections Institution on Terminal Island.

Source: SCAQMD LST Methodology (SCAQMD 2008b) and look-up tables, revised on October 2009 (SCAQMD 2009).

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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 determining CEQA significance, these thresholds are compared to the CEQA increment, where the CEQA increment is quantified by subtracting the CEQA baseline from the proposed project emissions.

AQ-3: Operational emissions exceed any of the SCAQMD thresholds of significance in Table 3.2-9.

Table 3.2-9. SCAQMD Thresholds for Operational Emissions

Air Pollutant	*Emission Threshold (pounds/day)*
VOCs	55
CO	550
NO_X	55
SO_X	150
PM10	150
PM2.5	55
Lead	3
Source: SCAQMD 2011a.	

AQ-4: Operational emissions exceed any of the LSTs shown in Table 3.2-10.

The development of LST thresholds and of NO_2 and SO_2 thresholds is described above under significance threshold AQ-2.

Similar to the construction LST analysis, the thresholds identified for the operational LST analysis are conservative in that they assume that onsite operational activities would overlap within a 5-acre area. In actuality, operational activities would be distributed over an area much greater than 5 acres and would therefore have more diluted ambient concentration impacts. In addition, the analysis identifies the distance to a receptor from each operational activity and conservatively uses the shortest distance to inform the significance thresholds.

Table 3.2-10. Localized Emissions Thresholds Associated with Proposed Project Operations

Operational Element	*Year*	*Area (acres/day)*[a]	*Approximate Distance*		*Localized Significance Threshold (pounds per day)*[b]				*Federal Threshold (ton/yr)*[c]	
			Sensitive Receptor	*Commercial Receptor*	*CO*	*NO_X*	*PM10*	*PM2.5*	*NO_X*	*SO_X*
Berths 56–57—Learning Center; SCMI Research Facility	2016		300 m West to Cabrillo Way Marina	100 m Northeast to Municipal Fish Warehouse						
Berths 58–60—Research Facility, Marine Business Park, Water Taxi, Café, Public Plaza	2021		300 m West to Cabrillo Way Marina	200 m West to Berth 54-44 SSA facility						
Berths 70–71—NOAA Facility, Wave Tank	2024		350 m East to FCI [d]	280 m West to Berth 54-44 SSA facility						
Overlapping Operational Activities	2016-2024	5	300 m West to Cabrillo Way Marina	100 m Northeast to Municipal Fish Warehouse	2,613	126	34	19.5	10	40

[a] Operational activities would occur on a site greater than 5 acres. However, 5 acres was assumed as a conservative estimate because a site larger than 5 acres would have emissions distributed over a greater area and would therefore have more diluted ambient concentration impacts.

[b] PM10 and PM2.5 LSTs are based on the distance to the nearest non-commercial/industrial sensitive receptor because PM10 and PM2.5 24-hr AAQS averaging times are applicable to residential receptors that could be present for 24 hours. CO and NO_X LSTs are based on the shortest distance to either a sensitive or commercial/industrial receptor because AAQS averaging times for NO_2 and CO are less than 24 hours and as such can apply to worker receptors that are present at a site for less than 24 hours.

[c] NO_X reflects general conformity *de minimis* levels; SO_2 reflects significant emission rate (SER) under the NSR program.

[d] FCI is the Federal Corrections Institution on Terminal Island

Thresholds AQ-5 through AQ-8 and GHG-2 do not require additional explanation in determining significant impacts under these thresholds and are not discussed in any more detail.

GHG-1: CEQA encourages lead agencies to adopt thresholds of significance to use in determining the significance of environmental effects. In 2008, the SCAQMD proposed a series of five tiers designed to guide a lead agency or project proponent in evaluating GHG impacts for CEQA analyses. However, only some of SCAQMD's proposed methodology has since been presented to and approved by the SCAQMD board, as the SCAQMD continues to review and revise the methodology.

Several air quality districts, including the SCAQMD and Bay Area Air Quality District (BAAQMD), use a screening significance threshold of 10,000 mty CO2e emissions as the threshold for industrial projects. This screening level was developed to capture and therefore require mitigation for projects representing 90% of GHG emissions from projects subject to SCAQMD and BAAQMD regulations. The SCAQMD initially developed this screening level based on natural gas burning stationary sources, but has designated and board-approved the threshold for all industrial facilities. SCAQMD's board-approved 10,000 mty CO2e threshold requires that construction emissions be amortized over 30 years and included with operational emissions for comparison with the 10,000-mty CO2e threshold.

In addition, the SCAQMD has proposed but not yet board-approved similar numeric thresholds for nonindustrial projects. SCAQMD's proposed numeric thresholds for residential and commercial projects are 3,500 and 1,400 mty CO2e, respectively. The numeric threshold for mixed use residential/commercial and all other nonindustrial projects is 3,000 mty CO2e.

The proposed Project incorporates industrial, recreational, and other nonindustrial uses. SCAQMD's proposed 3,000 mty CO2e threshold for nonindustrial and mixed use projects is lower than SCAQMD's 10,000 mty CO2e threshold for industrial projects and therefore is considered an appropriate and conservative GHG threshold for the proposed Project.

3.2.4.3 Impacts and Mitigation

3.2.4.3.1 Construction Impacts

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

Table 3.2-11 presents peak daily criteria pollutant emissions associated with construction of the proposed Project without mitigation. Table 3.2-12 presents peak daily criteria pollutant emissions associated with construction without mitigation overlapped with operations that would begin during the course of the 21-month construction period as part of the proposed Project. The overlap of construction emissions with operations was evaluated in order to capture the peak emissions levels

from these activities, as they are expected to overlap in time. These tables contain peak daily emissions for each year of the proposed Project, as well as significance determinations. Maximum emissions for each element were determined by totaling the daily emissions from the individual construction activities and operational activities that overlap in the proposed construction schedule. Detailed tables of emissions for each proposed project activity can be found in Appendix B. In addition, Appendix B contains data used to quantify emissions.

Table 3.2-11. Peak Daily Construction Emissions—Proposed Project without Mitigation

	Peak Day Emissions (lb/day)						
Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM[a]*
2014							
Construction Equipment Emissions	12	95	181	0	8	7	8
Vehicle Emissions	3	11	106	0	4	3	2
Worker Vehicle Emissions	2	15	1	0	0	0	0
Fugitive Emissions	206	0	0	0	38	6	0
Onsite Emissions	218	96	186	0	43	12	8
Offsite Emissions	4	25	103	0	7	3	2
Total	223	121	288	0	50	16	10
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	**Yes**	No	No	No	N/A
2015							
Construction Equipment Emissions	15	120	221	0	10	9	10
Vehicle Emissions	4	14	138	0	5	3	2
Worker Vehicle Emissions	2	18	2	0	0	0	0
Fugitive Emissions	272	0	0	0	53	8	0
Onsite Emissions	288	121	227	0	60	16	10
Offsite Emissions	5	31	134	0	9	4	2
Total	293	152	361	1	68	20	13
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	**Yes**	No	No	No	N/A
2016							
Construction Equipment Emissions	2	20	30	0	2	1	2
Vehicle Emissions	1	3	30	0	1	1	0
Worker Vehicle Emissions	0	3	0	0	0	0	0

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM[a]*
Fugitive Emissions	94	0	0	0	8	1	0
Onsite Emissions	96	20	32	0	9	2	2
Offsite Emissions	1	5	29	0	2	1	0
Total	97	26	60	0	11	3	2
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	No	No	No	No	N/A
2017							
Construction Equipment Emissions	3	28	49	0	2	2	2
Vehicle Emissions	0	1	13	0	0	0	0
Worker Vehicle Emissions	0	3	0	0	0	0	0
Fugitive Emissions	0	0	0	0	17	2	0
Onsite Emissions	3	28	50	0	19	4	2
Offsite Emissions	1	4	12	0	1	0	0
Total	4	32	62	0	20	5	2
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2018							
Construction Equipment Emissions	3	28	49	0	2	2	2
Vehicle Emissions	0	1	13	0	0	0	0
Worker Vehicle Emissions	0	3	0	0	0	0	0
Fugitive Emissions	0	0	0	0	17	2	0
Onsite Emissions	3	28	50	0	19	4	2
Offsite Emissions	1	4	12	0	1	0	0
Total	4	32	62	0	20	5	2
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2019							
Construction Equipment Emissions	6	54	75	0	3	3	3
Vehicle Emissions	5	21	194	1	9	5	2
Worker Vehicle Emissions	1	5	0	0	0	0	0
Fugitive Emissions	566	0	0	0	43	7	0

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM[a]*
Onsite Emissions	572	56	84	0	38	8	3
Offsite Emissions	5	24	186	1	17	7	2
Total	577	80	269	1	55	15	6
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	**Yes**	No	No	No	N/A
2020							
Construction Equipment Emissions	6	54	75	0	3	3	3
Vehicle Emissions	5	21	194	1	9	5	2
Worker Vehicle Emissions	1	5	0	0	0	0	0
Fugitive Emissions	566	0	0	0	43	7	0
Onsite Emissions	572	56	84	0	38	8	3
Offsite Emissions	5	24	186	1	17	7	2
Total	577	80	269	1	55	15	6
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	**Yes**	No	No	No	N/A
2021							
Construction Equipment Emissions	0	2	2	0	0	0	0
Vehicle Emissions	0	1	8	0	0	0	0
Worker Vehicle Emissions	0	1	0	0	0	0	0
Fugitive Emissions	104	0	0	0	8	1	0
Onsite Emissions	104	2	2	0	7	1	0
Offsite Emissions	0	2	8	0	1	0	0
Total	105	4	10	0	8	1	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	No	No	No	No	N/A
2022							
Construction Equipment Emissions	0	0	0	0	0	0	0
Vehicle Emissions	0	0	0	0	0	0	0
Worker Vehicle Emissions	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0
Onsite Emissions	0	0	0	0	0	0	0

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*[a]
Offsite Emissions	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2023							
Construction Equipment Emissions	1	7	9	0	0	0	0
Vehicle Emissions	0	1	3	0	0	0	0
Worker Vehicle Emissions	0	2	0	0	0	0	0
Fugitive Emissions	1,922	0	0	0	1	0	0
Onsite Emissions	1,922	7	9	0	1	0	0
Offsite Emissions	0	3	3	0	1	0	0
Total	1,923	10	12	0	2	1	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	No	No	No	No	N/A
2024							
Construction Equipment Emissions	1	7	9	0	0	0	0
Vehicle Emissions	0	1	3	0	0	0	0
Worker Vehicle Emissions	0	2	0	0	0	0	0
Fugitive Emissions	1,922	0	0	0	1	0	0
Onsite Emissions	1,922	7	9	0	1	0	0
Offsite Emissions	0	3	3	0	1	0	0
Total	1,923	10	12	0	2	1	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	No	No	No	No	N/A

[a] DPM was conservatively assumed to equal PM10 associated with diesel exhaust.

Emissions are rounded to the nearest pound.

Onsite construction emissions consist of construction equipment exhaust, on-road vehicles traveling and idling on site, architectural coatings, and asphalt operations.

Offsite construction emissions consist of on-road vehicles traveling off site.

Table 3.2-12. Peak Daily Overlapping Construction and Operational Emissions—Proposed Project without Mitigation

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
2011 CEQA Baseline	16	198	295	0	12	11	11
2016[a]							
Construction	97	26	60	0	11	3	2
Operation	340	361	270	1	21	10	5
Total	437	387	330	1	32	13	7
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	421	189	37	1	19	2	-4
Significance Determination	**Yes**	No	No	No	No	No	N/A
2017							
Construction	4	32	62	0	20	5	2
Operation	340	361	270	1	21	10	5
Total	344	393	332	1	41	14	8
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	328	195	37	1	28	4	-4
Significance Determination	**Yes**	No	No	No	No	No	N/A
2018							
Construction	4	32	62	0	20	5	2
Operation	340	361	270	1	21	10	5
Total	344	393	332	1	41	14	8
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	328	195	37	1	28	4	-4
Significance Determination	**Yes**	No	No	No	No	No	N/A
2019							
Construction	577	80	269	1	55	15	6
Operation	340	361	270	1	21	10	5
Total	917	442	539	1	76	24	11
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	901	244	244	1	64	14	0
Significance Determination	**Yes**	No	**Yes**	No	No	No	N/A
2020							
Construction	577	80	269	1	55	15	6

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Operation	340	361	270	1	21	10	5
Total	917	442	539	1	76	24	11
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	901	244	244	1	64	14	0
Significance Determination	**Yes**	No	**Yes**	No	No	No	N/A
2021							
Construction	105	4	10	0	8	1	0
Operation	1,132	764	451	2	59	24	10
Total	1,236	768	461	2	67	25	10
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	1,221	570	166	2	55	15	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2022							
Construction	0	0	0	0	0	0	0
Operation	1,132	764	451	2	59	24	10
Total	1,132	764	451	2	59	24	10
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	1,116	566	157	2	47	14	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2023							
Construction	1,923	10	12	0	2	1	0
Operation	1,132	764	451	2	59	24	10
Total	3,054	774	463	2	61	25	10
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	3,039	577	169	2	49	14	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2024							
Construction	1,923	10	12	0	2	1	0
Operation	1,892	833	466	2	69	27	10
Total	3,814	843	479	2	71	28	11
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	3,799	645	184	2	58	18	0
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*

[a] 2016 is the first overlap year for construction and operational activities.

Onsite construction emissions are comprised of construction equipment exhaust, on-road vehicles traveling and idling onsite, architectural coatings, and asphalt operations.

Offsite construction emissions are comprised of on-road vehicles traveling offsite.

Onsite operational emissions are comprised of marine vessel engine use at berth, land-side equipment use, on-road vehicles traveling and idling onsite, architectural coatings, and onsite natural gas use.

Offsite operational emissions are comprised of marine vessels transiting within and outside of the harbor, and on-road vehicles traveling offsite.

Impact Determination

Table 3.2-11 shows that, without mitigation, peak daily construction emissions would exceed the SCAQMD daily emission thresholds for VOC in construction years 2014, 2015, 2016, 2019, 2020, 2021, 2023, and 2024. Peak daily construction emissions would also exceed the SCAQMD daily emission thresholds for NO_X in construction years 2014, 2015, 2019, and 2020. The largest contributor to peak daily VOC construction emissions would be fugitive emissions from the painting of buildings, whereas the largest contributor to peak daily NO_X emissions would be the exhaust from off-road construction equipment, followed by exhaust from on-road vehicles.

Table 3.2-12 shows that, without mitigation, peak daily overlapping construction and operational emissions would exceed the SCAQMD daily emission thresholds for VOC in construction years 2016 through 2024, for CO in years 2021 through 2024, and for NO_X in construction years 2019 through 2024. The largest contributor to peak daily VOC construction emissions would be fugitive emissions from the painting of buildings, whereas the largest contributor to peak daily CO and NO_X emissions would be the exhaust from operation of marine research vessels. Due to the different combinations of construction and operational activities, the highest overlapping emissions would vary between different years for different pollutants.

Therefore, without mitigation, the proposed Project would exceed the daily construction emission thresholds for VOC, CO, and NO_X, and significant impacts would occur.

Mitigation Measures

Mitigation measures for proposed project construction were derived, where feasible, from the LAHD's Sustainable Construction Guidelines, in consultation with LAHD staff, and applicable measures of the CAAP. These mitigation measures are required during construction and are to be implemented by the construction contractor.

Table 3.2-13 summarizes construction mitigation measures assumed in the mitigated emission calculations. Regulatory requirements assumed in the unmitigated construction emissions calculations were previously presented in Table 3.2-5.

Table 3.2-13. Mitigation Measures Assumed in the Proposed Project Construction Emissions

Off-road Construction Equipment	*On-road Trucks*	*Tugboats*	*Fugitive Emissions*
MM AQ-2: Implement Fleet Modernization for Construction Equipment	**MM AQ-5: Clean Trucks Program for Construction Haul Trucks**	**MM AQ-1: Implement Harbor Craft Engine Standards**	**MM AQ-3: Implement Additional Fugitive Dust Controls** **MM AQ-4: Implement SCAQMD's Super-Compliant Architectural Coating Standard**
Mitigation Measures Not Quantified in the Mitigated Emission Calculations[a]			
MM AQ-6: Implement Best Management Practices **MM AQ-7: Implement General Mitigation Measure**			
[a] These mitigation measures were not quantified because their effectiveness has not been established.			
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, "Applicable Regulations."			

MM AQ-1: Implement Harbor Craft Engine Standards. All harbor craft used during the construction phase of the proposed Project will, at a minimum, be repowered to meet EPA Tier 2. Additionally, where available, harbor craft will meet EPA Tier 3 or cleaner marine engine emission standards. Analysis conservatively reflects the use of engines that meet EPA Tier 2 standards.

This harbor craft measure will be met unless one of the following circumstances exists, and the contractor is able to provide proof of its existence:

- A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the proposed 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 have attempted to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the proposed Project has the controlled equipment available for lease.

MM AQ-2: Implement Fleet Modernization for Construction Equipment

- Tier Specifications:

  a. From the start of construction through December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, will meet Tier-3 off-road emission standards at a minimum. In addition, all construction equipment greater than 50 hp will be retrofitted with a CARB-verified Level 3 Diesel Emission Control Strategy (DECS). Any emissions control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 DECS for a similarly sized engine as defined by CARB regulations.

  b. From January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, will meet Tier-4 off-road emission standards at a minimum. Any emissions control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 DECS for a similarly sized engine as defined by CARB regulations.

A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit will be provided at the time of mobilization of each applicable unit of equipment. The above "Tier Specifications" measures will be met, unless one of the following circumstances exists, and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable within 200 miles of the Port of Los Angeles, including through a leasing agreement. If this circumstance exists, the equipment must comply with one of the options contained in the Step-Down Schedule as shown in Table 3.2-14. At no time will equipment meet less than a Tier 1 engine standard with a CARB40-verified Level 2 DECS.
- The availability of construction equipment will be reassessed in conjunction with the years listed in the above Tier Specifications on an annual basis. For example, if a piece of equipment is not available prior to January 1, 2015, the contractor will reassess this availability on January 1, 2015.
- Construction equipment will incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards.

Table 3.2-14. Compliance Step-Down Schedule for Non-Road Construction Equipment

Compliance Alternative	*Engine Standard*[a]	*CARB-Verified DECS*	*PM Emissions*[b] *(g/bhp-hr)*	*NO_X Emissions (g/bhp-hr)*
1	Tier 4	N/A	0.01	0.3
2	Tier 3	Level 3	0.02	2.9
3	Tier 2	Level 3	0.02	4.7
4	Tier 1	Level 3	0.06	6.9
5	Tier 2	Level 2	0.08	4.7
6	Tier 2	Level 1	0.11	4.7

Compliance Alternative	*Engine Standard*[a]	*CARB-Verified DECS*	*PM Emissions*[b] *(g/bhp-hr)*	*NO_X Emissions (g/bhp-hr)*
7	Tier 2	Uncontrolled	0.15	4.7
8	Tier 1	Level 2	0.2	6.9

[a] Equipment less than Tier 1, Level 2 will not be permitted.

[b] Stated emission levels are for engine hp ratings to 176 bhp and above. Emission levels for engine bhp ratings below 176 hp are marginally higher (0.02–0.08 g/bhp-hr depending on hp, Tier, and Vehicle Diesel Emission Control level).

g/bhp-hr = grams per brake horsepower hour

MM AQ-3: Implement Additional Fugitive Dust Controls. The calculation of fugitive dust (PM10) from proposed project earth-moving activities assumes a 61% reduction from uncontrolled levels to simulate three times per day watering of the site and use of other measures (listed below) to ensure compliance with SCAQMD Rule 403 (SCAQMD 2005).

The construction contractor will reduce fugitive dust emissions by 74% from uncontrolled levels (SCAQMD 2007a). The proposed project construction contractor will specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan and will include holiday and weekend periods when work may not be in progress.

Measures to reduce fugitive dust include, but are not limited to, the following:

- Active grading sites will be watered every two hours.
- Contractors will apply approved non-toxic chemical soil stabilizers according to manufacturer's specifications to all inactive construction areas or replace groundcover in disturbed areas (previously graded areas inactive for ten days or more).
- Construction contractors will provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel will be covered in accordance with Section 23114 of the California Vehicle Code.
- Construction contractors will 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. Pave road and road shoulders.
- The use of clean-fueled sweepers will be required pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on site or on roads adjacent to the site to reduce fugitive dust emissions.
- A construction relations officer will be appointed to act as a community liaison concerning onsite construction activity including resolution of issues related to PM10 generation.
- Traffic speeds on all unpaved roads will be reduced to 15 mph or less.

- Temporary traffic controls such as a flag person will be provided during all phases of construction to maintain smooth traffic flow.
- Construction activities that affect traffic flow on the arterial system will be conducted during off-peak hours to the extent practicable.
- The grading contractor will suspend all soil disturbance activity when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas will be stabilized if construction is delayed.

MM AQ-4: Implement SCAQMD's Super-Compliant Architectural Coating Standard. Architectural coatings used on site will meet SCAQMD's super-compliant VOC standard of 10 grams of VOC per liter.

MM AQ-5: Implement the Clean Trucks Program for Construction Haul Trucks. Heavy duty diesel trucks used for hauling must meet the EPA 2007 emission standards for on-road heavy duty diesel engines (EPA 2006) by 2012. The CTP applies to heavy duty trucks used during construction activities.

MM AQ-6: Implement Best Management Practices. The following types of measures are required on construction equipment (including on-road trucks), as determined feasible and appropriate:

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

LAHD will implement a process by which to select additional BMPs to further reduce air emissions during construction. LAHD will determine the BMPs once the contractor identifies and secures a final equipment list and project scope. LAHD will then meet with the contractor to identify potential BMPs and work with the contractor to include such measures in the contract. BMPs will be based on BACT guidelines and may also include changes to construction practices and design to reduce or eliminate environmental impacts.

MM AQ-7: Implement General Mitigation Measure. For any of the above mitigation measures, 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 could replace the existing measure pending approval by LAHD. For construction, measures will be set at the time a specific construction contract is advertised for bid.

Residual Impacts

Table 3.2-15 presents the peak daily criteria pollutant emissions associated with construction of the proposed Project after the application of Mitigation Measures MM AQ-1 through MM AQ-5. Peak daily emissions for each construction phase

were determined by totaling the daily emissions from those construction activities that overlap in the proposed construction schedule. Table 3.2-15 shows that, with mitigation, peak daily construction emissions would be reduced, but would remain above the level of significance for VOC in years 2023 and 2024. Peak daily NO_X construction emissions would also be reduced, but would remain above the level of significance in years 2014 and 2015. The largest contributor to peak daily NO_X construction emissions would be the exhaust from off-road construction equipment.

Table 3.2-16 presents the peak daily overlapping construction and operational emissions after the application of Mitigation Measures MM AQ-1 through MM AQ-5. Table 3.2-16 shows that, with mitigation, peak daily overlapping construction and operational emissions would be reduced but would remain above the level of significance for VOC, CO, and NO_X in years 2021 through 2024. The largest contributors to peak daily VOC emissions are fugitive emissions from architectural coatings. Marine vessel and vehicle emissions are the largest contributors to CO, and marine vessels are the largest contributors to NO_X emissions.

Mitigation Measures MM AQ-6 and MM AQ-7, not included in the mitigated emissions calculations, could further reduce construction emissions, depending on their effectiveness. However, CO and NO_X impacts would remain significant and unavoidable.

Table 3.12-15. Peak Daily Construction Emissions—Proposed Project with Mitigation

	Peak Day Emissions (lb/day)						
Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
2014							
Construction Equipment Emissions	5	95	101	0	1	1	1
Vehicle Emissions	2	7	27	0	3	1	1
Worker Vehicle Emissions	2	15	1	0	0	0	0
Fugitive Emissions	12	0	0	0	24	4	0
Onsite Emissions	17	95	102	0	23	4	1
Offsite Emissions	3	21	28	0	6	2	1
Total	20	117	130	0	28	6	2
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	**Yes**	No	No	No	N/A
2015							
Construction Equipment Emissions	6	120	105	0	1	1	1
Vehicle Emissions	2	10	36	0	3	2	1
Worker Vehicle	2	18	2	0	0	0	0

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Emissions							
Fugitive Emissions	14	0	0	0	35	5	0
Onsite Emissions	21	121	106	0	32	5	1
Offsite Emissions	4	27	36	0	7	3	1
Total	25	148	142	1	40	8	2
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	**Yes**	No	No	No	N/A
2016							
Construction Equipment Emissions	1	20	3	0	0	0	0
Vehicle Emissions	1	2	8	0	1	0	0
Worker Vehicle Emissions	0	3	0	0	0	0	0
Fugitive Emissions	4	0	0	0	5	1	0
Onsite Emissions	5	20	3	0	5	1	0
Offsite Emissions	1	5	8	0	2	1	0
Total	5	26	11	0	7	1	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2017							
Construction Equipment Emissions	2	28	13	0	0	0	0
Vehicle Emissions	0	1	4	0	0	0	0
Worker Vehicle Emissions	0	3	0	0	0	0	0
Fugitive Emissions	0	0	0	0	12	2	0
Onsite Emissions	2	28	13	0	12	2	0
Offsite Emissions	1	4	4	0	1	0	0
Total	2	32	17	0	13	2	1
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2018							
Construction	2	28	13	0	0	0	0

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Equipment Emissions							
Vehicle Emissions	0	1	4	0	0	0	0
Worker Vehicle Emissions	0	3	0	0	0	0	0
Fugitive Emissions	0	0	0	0	12	2	0
Onsite Emissions	2	28	13	0	12	2	0
Offsite Emissions	1	4	4	0	1	0	0
Total	2	32	17	0	13	2	1
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2019							
Construction Equipment Emissions	3	54	9	0	0	0	0
Vehicle Emissions	5	23	70	1	9	5	2
Worker Vehicle Emissions	1	5	0	0	0	0	0
Fugitive Emissions	24	0	0	0	31	5	0
Onsite Emissions	27	55	11	0	23	4	0
Offsite Emissions	5	27	68	1	17	7	2
Total	33	82	79	1	40	10	2
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2020							
Construction Equipment Emissions	3	54	9	0	0	0	0
Vehicle Emissions	5	23	70	1	9	5	2
Worker Vehicle Emissions	1	5	0	0	0	0	0
Fugitive Emissions	24	0	0	0	31	5	0
Onsite Emissions	27	55	11	0	23	4	0
Offsite Emissions	5	27	68	1	17	7	2
Total	33	82	79	1	40	10	2
Threshold	75	550	100	150	150	55	N/A
Significance	No	No	No	No	No	No	N/A

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Determination							
2021							
Construction Equipment Emissions	0	2	1	0	0	0	0
Vehicle Emissions	0	1	4	0	0	0	0
Worker Vehicle Emissions	0	1	0	0	0	0	0
Fugitive Emissions	4	0	0	0	5	1	0
Onsite Emissions	4	2	1	0	5	1	0
Offsite Emissions	0	2	3	0	1	0	0
Total	5	4	5	0	6	1	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2022							
Construction Equipment Emissions	0	0	0	0	0	0	0
Vehicle Emissions	0	0	0	0	0	0	0
Worker Vehicle Emissions	0	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	0	0
Onsite Emissions	0	0	0	0	0	0	0
Offsite Emissions	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	No	No	No	No	No	No	N/A
2023							
Construction Equipment Emissions	1	7	1	0	0	0	0
Vehicle Emissions	0	1	3	0	0	0	0
Worker Vehicle Emissions	0	2	0	0	0	0	0
Fugitive Emissions	82	0	0	0	1	0	0
Onsite Emissions	83	7	1	0	0	0	0
Offsite Emissions	0	3	3	0	1	0	0

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Total	83	10	4	0	1	0	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	No	No	No	No	N/A
2024							
Construction Equipment Emissions	1	7	1	0	0	0	0
Vehicle Emissions	0	1	3	0	0	0	0
Worker Vehicle Emissions	0	2	0	0	0	0	0
Fugitive Emissions	82	0	0	0	1	0	0
Onsite Emissions	83	7	1	0	0	0	0
Offsite Emissions	0	3	3	0	1	0	0
Total	83	10	4	0	1	0	0
Threshold	75	550	100	150	150	55	N/A
Significance Determination	**Yes**	No	No	No	No	No	N/A

[a] DPM was conservatively assumed to equal PM10 associated with diesel exhaust.

Emissions are rounded to the nearest pound.

Onsite construction emissions are comprised of construction equipment exhaust, on-road vehicles traveling and idling onsite, architectural coatings, and asphalt operations.

Offsite construction emissions are comprised of on-road vehicles traveling offsite.

Table 3.2-16. Peak Daily Overlapping Construction and Operational Emissions—Proposed Project with Mitigation

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
2011 CEQA Baseline	16	198	295	0	12	11	11
2016							
Construction	5	26	11	0	7	1	0
Operation	43	361	270	1	21	10	5
Total	48	387	281	1	28	11	6
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	32	189	-13	1	15	0	-6

	Peak Day Emissions (lb/day)						
Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Significance Determination	No	No	No	No	No	No	N/A
2017							
Construction	2	32	17	0	13	2	1
Operation	43	361	270	1	21	10	5
Total	45	393	287	1	34	12	6
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	29	196	-7	1	21	1	-6
Significance Determination	No	No	No	No	No	No	N/A
2018							
Construction	2	32	17	0	13	2	1
Operation	43	361	270	1	21	10	5
Total	45	393	287	1	34	12	6
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	29	196	-7	1	21	1	-6
Significance Determination	No	No	No	No	No	No	N/A
2019							
Construction	33	82	79	1	40	10	2
Operation	43	361	270	1	21	10	5
Total	76	444	349	1	61	20	8
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	60	246	54	1	49	9	-4
Significance Determination	No	No	No	No	No	No	N/A
2020							
Construction	33	82	79	1	40	10	2
Operation	43	361	270	1	21	10	5
Total	76	444	349	1	61	20	8
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	60	246	54	1	49	9	-4

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Significance Determination	No	No	No	No	No	No	N/A
2021							
Construction	5	4	5	0	6	1	0
Operation	110	764	451	2	59	24	10
Total	115	768	456	2	65	25	10
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	99	570	161	2	52	15	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2022							
Construction	0	0	0	0	0	0	0
Operation	110	764	451	2	59	24	10
Total	110	764	451	2	59	24	10
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	95	566	157	2	47	14	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2023							
Construction	83	10	4	0	1	0	0
Operation	110	764	451	2	59	24	10
Total	193	774	456	2	61	24	10
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	178	577	161	2	48	14	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2024							
Construction	83	10	4	0	1	0	0
Operation	148	833	466	2	69	27	10
Total	231	843	471	2	70	28	11
Threshold	75	550	100	150	150	55	N/A
CEQA Increment	215	645	176	2	58	17	-1

Year	Peak Day Emissions (lb/day)						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A

[a] 2016 is the first overlap year for construction and operational activities.

Onsite construction emissions are comprised of construction equipment exhaust, on-road vehicles traveling and idling onsite, architectural coatings, and asphalt operations.

Offsite construction emissions are comprised of on-road vehicles traveling offsite.

Onsite operational emissions are comprised of marine vessel engine use at berth, land-side equipment use, on-road vehicles traveling and idling onsite, architectural coatings, and onsite natural gas use.

Impact AQ-2: The proposed Project would result in offsite ambient air pollutant concentrations during construction that exceed a threshold of significance.

In addition to regional emissions, SCAQMD has developed a methodology that can be used to evaluate localized impacts that may result from construction-period emissions. For projects that disturb five acres of land or less, SCAQMD has developed LSTs that are used much like the regional significance thresholds. As described in Section 3.2.4.2, "Thresholds of Significance," LSTs represent the maximum emissions from a project that would not be expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. Therefore, the LSTs are conservative, providing public agencies with a method of evaluating ambient air pollutant concentrations for smaller projects without having to conduct air dispersion modeling.

The LST methodology for NO_2 is based on the California 1-hour ambient air quality standard and does not reflect the federal NO_2 1-hour standard, created in 2010. In addition, LSTs do not include SO_2 and, as such, do not reflect the federal SO_2 1-hour standard. As described in Section 3.2.4.2, "Thresholds of Significance," the federal conformity *de minimis* level was used to evaluate NO_X impacts, and EPA's SER for SO_2 was used to evaluate SO_2 impacts.

Table 3.2-17 presents the peak day onsite construction emissions without mitigation and compares the emissions to significance thresholds. The table shows that the worst-case combination of construction activities would occur in 2015 when many of the Phase I elements, such as Berth 56 new building construction; Berth 57 wharf rehabilitation, ground improvements, transit shed retrofit, floating dock construction, public plaza construction, Signal Street improvements, and promenade construction would occur concurrently. Emissions would be driven by exhaust from non-road construction equipment and by fugitive dust from construction activities.

Table 3.2-18 presents the peak day onsite overlapping construction and operational emissions, without mitigation, that would begin during the course of the 21-month construction period as part of the proposed Project. The overlap of construction emissions with operations was evaluated in order to capture the peak emissions levels from these activities, as they are expected to overlap in time.

It is important to note that Table 3.2-18 presents incremental impacts, that is, total emissions minus the CEQA baseline. The CEQA baseline for localized emissions was determined differently than the CEQA baseline for regional emissions in that the CEQA baseline for localized emissions reflects baseline Berths 56–57 and 58–60 emissions only and conservatively excludes baseline Berth 260 emissions. The reason for this is that the baseline location of SCMI on Berth 260 would have affected different receptors than the proposed location at Berths 56–57 and 58–60; accounting for Berth 260 activities in the baseline used for localized impacts would be an overestimation of the baseline. Therefore, activities at the Berth 260 SCMI facility during the baseline year were conservatively excluded in quantifying incremental emissions.

Table 3.2-17. Construction—Localized Significance Determination without Mitigation

	Compliance with State Standards				*Compliance with Federal Standards*	
	Peak Day Emissions (lb/day)				*Annual Emissions (ton/yr)*	
Year	*CO*	*NO_X*	*PM10*	*PM2.5*	*NO_X*	*SO_X*
2014	96	186	43	12	7	0
Threshold	2,613	126	142	80	10	40
Significance Determination	No	**Yes**	No	No	No	No
2015	121	227	60	16	10	0
Threshold	2,613	126	142	80	10	40
Significance Determination	No	**Yes**	No	No	**Yes**	No
2016	20	32	9	2	3	0
Threshold	2,613	126	142	80	10	40
Significance Determination	No	No	No	No	No	No
2017	28	50	19	4	3	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2018	28	50	19	4	3	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2019	56	84	38	8	4	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No

Year	Compliance with State Standards				Compliance with Federal Standards	
	Peak Day Emissions (lb/day)				Annual Emissions (ton/yr)	
2020	56	84	38	8	4	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2021	2	2	7	1	0	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2022	0	0	0	0	0	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2023	7	9	1	0	1	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2024	7	9	1	0	1	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No

Table 3.2-18. Overlapping Construction and Operation—Localized Significance Determination without Mitigation

Year	Compliance with State Standards				Compliance with Federal Standards	
	Peak Day Emissions (lb/day)[a]				Annual Emissions (ton/yr)	
	CO	NO_X	*PM10*	*PM2.5*	NO_X[c]	SO_X
2011 CEQA Baseline[b]	131	214	10	8	37	0
2016						
Construction	20	32	9	2	3	0
Operation	16	14	0	0	2	0
Total	37	45	9	3	6	0
Threshold	2,613	126	142	80	10	40
CEQA Increment	-95	-169	0	-5	-32	0
Significance	No	No	No	No	No	No

Year	*Compliance with State Standards*				*Compliance with Federal Standards*	
	Peak Day Emissions (lb/day)[a]				*Annual Emissions (ton/yr)*	
	CO	*NO_X*	*PM10*	*PM2.5*	*NO_X*[c]	*SO_X*
Determination						
2017						
Construction	28	50	19	4	3	0
Operation	16	14	0	0	2	0
Total	44	63	19	5	5	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-87	-151	10	-3	-33	0
Significance Determination	No	No	No	No	No	No
2018						
Construction	28	50	19	4	3	0
Operation	37	45	9	3	6	0
Total	65	95	28	7	8	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-67	-119	19	-1	-29	0
Significance Determination	No	No	No	No	No	No
2019						
Construction	56	84	38	8	4	0
Operation	16	14	0	0	2	0
Total	72	97	38	8	7	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-59	-117	29	0	-31	0
Significance Determination	No	No	No	No	No	No
2020						
Construction	56	84	38	8	4	0
Operation	16	14	0	0	2	0
Total	72	97	38	8	7	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-59	-117	29	0	-31	0
Significance Determination	No	No	No	No	No	No

Year	*Compliance with State Standards*				*Compliance with Federal Standards*	
	Peak Day Emissions (lb/day)[a]				*Annual Emissions (ton/yr)*	
	CO	*NO_X*	*PM10*	*PM2.5*	*NO_X*[c]	*SO_X*
2021						
Construction	2	2	7	1	0.1	0
Operation	38	27	1	1	4	0
Total	40	29	8	2	4	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-91	-185	-1	-6	-34	0
Significance Determination	No	No	No	No	No	No
2022						
Construction	0	0	0	0	0	0
Operation	38	27	1	1	4	0
Total	38	27	1	1	4	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-93	-187	-9	-7	-34	0
Significance Determination	No	No	No	No	No	No
2023						
Construction	7	9	1	0	1	0
Operation	38	27	1	1	4	0
Total	45	36	2	1	5	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-86	-178	-8	-7	-33	0
Significance Determination	No	No	No	No	No	No
2024						
Construction	7	9	1	0	1	0
Operation	48	29	1	1	4	0
Total	55	39	2	1	5	0
Threshold	4,184	141	142	80	10	40
CEQA Increment	-76	-176	-8	-7	-33	0
Significance Determination	No	No	No	No	No	No

Year	Compliance with State Standards				Compliance with Federal Standards	
	Peak Day Emissions (lb/day)[a]				Annual Emissions (ton/yr)	
	CO	NO_X	PM10	PM2.5	NO_X[c]	SO_X

[a] Both onsite and offsite operational emissions are considered to occur within a 5-acre area. This is a conservative assumption because in reality, emissions would be spread over a much larger area, both on land and over water.
[b] CEQA Baseline reflects Berths 56-57 and 58-60 emissions only. The existing SCMI (Berth 260) facility is in a different location than the proposed project site and would affect different receptors, and was therefore not used in the CEQA baseline to calculate localized impacts. Operations at Berths 56-57 and 58-60 are appropriate to use in CEQA baseline to calculate localized impacts.
[c] The federal conformity NO_X *de minimis* level of 10 tpy applies to the proposed project increment rather than absolute emissions.

Impact Determination

Table 3.2-17 shows that without mitigation, localized construction emissions would exceed the SCAQMD LST threshold for NO_X in years 2014 and 2015; therefore, the proposed Project would potentially contribute to exceedances of the state ambient air quality standard for NO_2 in the immediate proposed project vicinity. Without mitigation, localized construction emissions would also exceed the federal threshold for NO_X in year 2015; therefore, the proposed Project would potentially contribute to exceedances of the federal ambient air quality standard for NO_2 in the immediate proposed project vicinity.

Construction and operational activities would overlap in years 2016 through 2024. Table 3.2-18 shows that—without mitigation—localized, overlapping construction and operational emissions would not exceed the SCAQMD LST or federal thresholds for any criteria pollutants and significant impacts would not occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-7.

Residual Impacts

Table 3.2-19 presents the peak day, localized construction emissions with mitigation and shows that NO_X emissions would be reduced after mitigation to below the level of significance.

Mitigation Measures MM AQ-6 through MM AQ-7, not quantified in the mitigated emissions calculations, could reduce construction emissions even further, depending on their effectiveness.

Table 3.2-19. Construction—Localized Significance Determination with Mitigation

	Compliance with State Standards				*Compliance with Federal Standards*	
	Peak Day Emissions (lb/day)				*Annual Emissions (ton/yr)*	
Year	*CO*	*NO_X*	*PM10*	*PM2.5*	*NO_X*	*SO_X*
2014	95	102	23	4	4	0
Threshold	2,613	126	142	80	10	40
Significance Determination	No	No	No	No	No	No
2015	121	106	32	5	4	0
Threshold	2,613	126	142	80	10	40
Significance Determination	No	No	No	No	No	No
2016	20	3	5	1	0	0
Threshold	2,613	126	142	80	10	40
Significance Determination	No	No	No	No	No	No
2017	28	13	12	2	1	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2018	28	13	12	2	1	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2019	55	11	23	4	1	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2020	55	11	23	4	1	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2021	2	1	5	1	0	0
Threshold	4184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2022	0	0	0	0	0	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No
2023	7	1	0	0	0	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No

	Compliance with State Standards				Compliance with Federal Standards	
	Peak Day Emissions (lb/day)				Annual Emissions (ton/yr)	
Year	CO	NO_X	PM10	PM2.5	NO_X	SO_X
2024	7	1	0	0	0	0
Threshold	4,184	141	142	80	10	40
Significance Determination	No	No	No	No	No	No

3.2.4.3.2 Operational Impacts

Impact AQ-3: The proposed Project would result in operational emissions that exceed a SCAQMD threshold of significance.

Table 3.2-20 presents the unmitigated peak daily criteria pollutant emissions associated with operation of the proposed Project. Emissions were estimated for four project study years: 2016, 2021, 2024, and 2042. Year 2016 represents the end of Phase I construction of the proposed Project and the start of operation of the new SCMI Research Center and Learning Facility. Year 2021 represents the completion of Berths 58–60 construction and the start of operation of the temporary NOAA facility. Year 2024 represents the completion of Berths 70–71 and the start of operation of the permanent NOAA facility, the Wave Tank, and full project buildout. Emissions in the horizon year 2042 were conservatively assumed to equal year 2024. In actuality, emissions in 2042 would likely be less as marine vessels and other equipment outlive their useful life and are replaced with cleaner equipment. Because there are currently no regulations to specifically require cleaner marine engines replacements or retrofits between years 2024 and 2042, marine engine emissions were assumed to remain constant. Land-side, vehicle sources, fugitive, and stationary source emissions were also assumed to remain constant because there are currently no regulations that require further retrofits of this equipment or sources.

Table 3.2-20 presents emissions associated with marine research vessels, land-side sources (forklifts, generators, etc.), on-road mobile sources (delivery, visitor, and employee vehicles), fugitive sources (landscaping and surface repainting), and miscellaneous stationary utility sources (burning of natural gas in onsite boilers and heaters).

Table 3.2-20. Peak Daily Operational Emissions—Proposed Project without Mitigation

	Peak Day Emissions (lb/day)						
Year	VOC	CO	NO_X	SO_X	PM10	PM2.5	DPM
2011 CEQA Baseline	16	198	295	0	12	11	11
2016							
Marine Vessels	9	171	181	0	4	4	4

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
Land-Side Sources	0	9	3	0	0	0	0
Vehicle Sources	21	181	86	1	7	3	1
Fugitive Sources	309	0	0	0	10	2	0
Utility Sources	0	0	0	0	0	0	0
Onsite Emissions	310	16	14	0	0	0	0
Offsite Emissions	29	345	256	1	21	9	5
Total	340	361	270	1	21	10	5
Threshold	55	550	55	150	150	55	N/A
CEQA Increment	324	164	-25	0	9	-1	-6
Significance Determination	**Yes**	No	No	No	No	No	N/A
2021							
Marine Vessels	15	306	278	0	7	6	7
Land-Side Sources	0	18	5	0	0	0	0
Vehicle Sources	52	440	168	2	22	10	3
Fugitive Sources	1,064	0	0	0	30	7	0
Utility Sources	0	1	0	0	0	0	0
Onsite Emissions	1,066	38	27	0	1	1	1
Offsite Emissions	65	726	424	2	59	23	9
Total	1,132	764	451	2	59	24	10
Threshold	55	550	55	150	150	55	N/A
CEQA Increment	1,116	566	157	2	47	14	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2024							
Marine Vessels	15	306	278	0	7	6	7
Land-Side Sources	0	26	5	0	0	0	0
Vehicle Sources	59	500	182	2	26	12	3
Fugitive Sources	1,816	0	0	0	36	9	0
Utility Sources	0	1	1	0	0	0	0
Onsite Emissions	1,819	48	29	0	1	1	1
Offsite Emissions	72	785	437	2	68	27	10
Total	1,892	833	466	2	69	27	11
Threshold	55	550	55	150	150	55	N/A

	Peak Day Emissions (lb/day)						
Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
CEQA Increment	1,876	635	172	2	56	17	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2042							
Marine Vessels	15	306	278	0	7	6	7
Land-Side Sources	1	26	5	0	0	0	0
Vehicle Sources	59	500	182	2	26	12	3
Fugitive Sources	1,816	0	0	0	36	9	0
Utility Sources	0	1	1	0	0	0	0
Onsite Emissions	1,819	48	29	0	1	1	1
Offsite Emissions	72	785	437	2	68	27	10
Total	1,892	833	466	2	69	27	11
Threshold	55	550	55	150	150	55	N/A
CEQA Increment	1,876	635	172	2	56	17	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A

Regional operations impacts were determined on an incremental basis by subtracting CEQA baseline emissions from the total proposed project emissions for each analysis year. Table 3.2-20 presents the peak day onsite operational emissions without mitigation. The table shows that the worst-case combination of operational activities would occur in 2024 when the proposed Project would be built out and the SCMI facilities, NOAA facilities, marine business park, café, and public plaza would be constructed and operational.

Impact Determination

Table 3.2-20 shows that without mitigation, the proposed Project's unmitigated peak daily operational emissions would exceed SCAQMD Significance Thresholds for VOC in analysis years 2016, 2021, 2024, and 2042. Peak daily operational emissions would exceed SCAQMD Significance Thresholds for CO in analysis years 2021, 2024, and 2042. Peak daily operational emissions would exceed SCAQMD Significance Thresholds for NO_X in analysis years 2021, 2024, and 2042. The largest contributor to operational VOC emissions would be re-application of architectural coatings, whereas the largest contributor to operational CO and NO_X emissions would be exhaust from marine vessels and on-road vehicles due to site visitors. Therefore, without mitigation, the proposed project operations would exceed the significance thresholds for VOC, CO and NO_X, and significant impacts would occur.

Mitigation Measures

Mitigation measures for proposed project operations were derived in consultation with LAHD staff and applicable measures of the CAAP.[3] These mitigation measures are required during operation and are to be implemented by LAHD.

Implement Mitigation Measures MM AQ-4 and MM AQ-7.

Lease Measures

The following measures are standard lease measures that would be included in the lease. The measures will reduce future air emissions and comply with Port air quality planning requirements.

LM AQ-1: Periodic Review of New Technology and Regulations. LAHD will require tenants to review, in terms of feasibility and benefits, any LAHD-identified or other new emissions-reduction technology, and report to LAHD.

LM AQ-2: Substitution of New Technology. If any kind of technology becomes available and is shown to be as good or as better in terms of emissions reduction performance than the existing measure, the technology could replace the existing mitigation measure pending approval of LAHD.

Table 3.2-21 summarizes the operational mitigation measures. Regulatory requirements assumed in the unmitigated emission calculations were previously presented in Table 3.2-6.

Table 3.2-21. Mitigation Measures Assumed in the Project Operational Emissions

Marine Vessels	*Land-Side Equipment*	*Vehicle Sources*	*Fugitive Sources*
Mitigation Measures Included in the Mitigated Emission Calculations			
			MM AQ-4: Implement SCAQMD's Super-Compliant Architectural Coating Standard
Mitigation Measures Not Included in the Mitigated Emission Calculations[a]			
MM AQ-7: Implement General Mitigation Measure			

[a] These mitigation measures were not included in the calculations because their effectiveness has not been established.

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, "Applicable Regulations."

[3] CAAP measures for operational impacts, such as OGV, CHE, and HHDV measures were considered but determined not applicable to the proposed project sources.

Residual Impacts

Table 3.2-22 shows that, following mitigation, the proposed Project's peak daily operational emissions for VOC, CO, and NO_X would be reduced but would remain above the level of significance in years 2021, 2024, and 2042. The largest contributor to VOC emissions would be vehicle sources, whereas the largest contributor to CO and NO_X emissions would remain exhaust from marine vessels and vehicle sources. Impacts would be significant and unavoidable.

Table 3.2-22. Peak Daily Operational Emissions—Proposed Project with Mitigation

	Peak Day Emissions (lb/day)						
Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
2011 CEQA Baseline	16	198	295	0	12	11	11
2016							
Marine Vessels	9	171	181	0	4	4	4
Land-Side Sources	0	9	3	0	0	0	0
Vehicle Sources	21	181	86	1	7	3	1
Fugitive Sources	12	0	0	0	10	2	0
Utility Sources	0	0	0	0	0	0	0
Onsite Emissions	13	16	14	0	0	0	0
Offsite Emissions	29	345	256	1	21	9	5
Total	43	361	270	1	21	10	5
Threshold	55	550	55	150	150	55	N/A
CEQA Increment	27	164	-25	0	9	-1	-6
Significance Determination	No	No	No	No	No	No	N/A
2021							
Marine Vessels	15	306	278	0	7	6	7
Land-Side Sources	0	18	4	0	0	0	0
Vehicle Sources	52	440	168	2	22	10	3
Fugitive Sources	43	0	0	0	30	7	0
Utility Sources	0	1	0	0	0	0	0
Onsite Emissions	45	38	27	0	1	1	1
Offsite Emissions	65	726	424	2	59	23	9
Total	110	764	451	2	59	24	10
Threshold	55	550	55	150	150	55	N/A

Year	*Peak Day Emissions (lb/day)*						
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*	*DPM*
CEQA Increment	95	566	157	2	47	14	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2024							
Marine Vessels	15	306	278	0	7	6	7
Land-Side Sources	0	26	5	0	0	0	0
Vehicle Sources	59	500	182	2	26	12	3
Fugitive Sources	73	0	0	0	36	9	0
Utility Sources	0	1	1	0	0	0	0
Onsite Emissions	76	48	29	0	1	1	1
Offsite Emissions	72	785	437	2	68	27	10
Total	148	833	466	2	69	27	10
Threshold	55	550	55	150	150	55	N/A
CEQA Increment	132	635	172	2	56	17	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A
2042							
Marine Vessels	15	306	278	0	7	6	7
Land-Side Sources	0	26	5	0	0	0	0
Vehicle Sources	59	500	182	2	26	12	3
Fugitive Sources	73	0	0	0	36	9	0
Utility Sources	0	1	1	0	0	0	0
Onsite Emissions	76	48	29	0	1	1	1
Offsite Emissions	72	785	437	2	68	27	10
Total	148	833	466	2	69	27	10
Threshold	55	550	55	150	150	55	N/A
CEQA Increment	132	635	172	2	56	17	-1
Significance Determination	**Yes**	**Yes**	**Yes**	No	No	No	N/A

[a] DPM was conservatively assumed to equal PM10 associated with diesel exhaust.
Emissions are rounded to the nearest pound.
Onsite operational emissions are comprised of marine vessel engine use at berth, land-side equipment use, on-road vehicles traveling and idling onsite, architectural coatings, and onsite natural gas use.
Offsite operational emissions are comprised of marine vessels transiting within and outside of the harbor, and on-road vehicles traveling offsite.

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Impact AQ-4: The proposed Project would not result in offsite ambient air pollutant concentrations during operation that exceed a threshold of significance.

SCAQMD has developed a methodology that can be used to evaluate localized impacts that may result from operational emissions. For small projects (5 acres or less), SCAQMD has developed a set of LST lookup tables much like the regional significance thresholds. For larger acreage projects, the use of the 5-acre LSTs is conservative because a large project would have its emission sources spread out over a larger area and therefore would produce more diluted concentrations near the project site. For the analysis, onsite emission sources would be concentrated near the water, where the research vessels would be docked. Emissions were quantified for the operations on the entire site and for vessels while at berth and were compared to the 5-acre LSTs. This constitutes a very conservative approach because in actuality emissions would be spread out and dispersed over a much larger area than the conservative 5-acre estimate.

As discussed under Impact AQ-2, operational impacts are determined on an incremental basis, that is, total emissions minus the CEQA baseline. The CEQA baseline for localized emissions reflects Berths 56, 57, and 58–60 emissions only and excludes Berth 260 emissions. The reason for this is that the proposed Project proposes that the SCMI facility, originally located on Berth 260, be relocated to Berths 56, 57, and 58–60, and, as such, the new SCMI location would affect different receptors. Therefore, operations at the Berth 260 SCMI facility during the Baseline year were conservatively excluded in quantifying incremental emissions.

Table 3.2-23 presents the peak day onsite operational emissions without mitigation. The table shows that the worst-case combination of operational activities would occur in 2024 when the proposed Project would be built out and the SCMI facilities, NOAA facilities, marine business park, café, and public plaza would be constructed and operational.

Table 3.2-23. Operation—Localized Significance Determination without Mitigation

	Compliance with State Standards				*Compliance with Federal Standards*	
	Peak Day Emissions (lb/day)[a]				*Annual Emissions (ton/yr)*	
Year	*CO*	*NO_X*	*PM10*	*PM2.5*	*NO_X*	*SO_2*
2011 CEQA Baseline[b]	19	13	1	1	0	0
2016	16	14	0	0	2	0
Threshold	2,613	126	34	20	10	40
CEQA Increment	-3	1	0	0	2	0
Significance Determination	No	No	No	No	No	No
2021	38	27	1	1	4	0
Threshold	2,613	126	34	20	10	40

Year	*Compliance with State Standards*				*Compliance with Federal Standards*	
	Peak Day Emissions (lb/day)[a]				*Annual Emissions (ton/yr)*	
	CO	*NO_X*	*PM10*	*PM2.5*	*NO_X*	*SO_2*
CEQA Increment	19	14	0	0	4	0
Significance Determination	No	No	No	No	No	No
2024	48	29	1	1	4	0
Threshold	2,613	126	34	20	10	40
CEQA Increment	29	17	0	0	4	0
Significance Determination	No	No	No	No	No	No
2042	48	29	1	1	4	0
Threshold	2,613	126	34	20	10	40
CEQA Increment	29	16	0	0	4	0
Significance Determination	No	No	No	No	No	No

[a] Both onsite and offsite operational emissions are considered to occur within a 5-acre area. This is a conservative assumption because in reality, emissions would be spread over a much larger area, both on land and over water.

[b] CEQA Baseline reflects Berths 56, 57, and 58-60 emissions only. The existing SCMI (Berth 260) facility is in a different location than the proposed site and would affect different receptors, and was therefore not used in the CEQA baseline to calculate localized impacts. Operations at Berths 56, 57, and 58-60 are appropriate to use in CEQA baseline to calculate localized impacts.

Impact Determination

Table 3.2-23 shows that, without mitigation, the proposed Project's unmitigated peak daily operational emissions would not exceed LST or federal thresholds for any criteria pollutants. Therefore, the proposed project operations would not result in significant impacts.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-5: The proposed Project would not generate on-road traffic that would contribute to an exceedance of the 1- or 8-hour CO standards.

Within an urban setting, vehicle exhaust is the primary source of CO. Consequently, the highest CO concentrations are generally found in close proximity to congested intersection locations. Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (i.e., congested intersection) increases. For purposes of providing a conservative, worst-case impact analysis, CO concentrations are typically analyzed at congested intersection locations, because if impacts are less than significant in close proximity to the congested intersections, impacts will also be less than significant at more distant sensitive receptor locations.

To ascertain the proposed Project's potential to generate localized air quality impacts, the Traffic Impact Assessment for the proposed Project (Appendix C) was reviewed to determine the potential for the creation of localized CO hot spots at congested intersection locations for operational analysis years 2016, 2024, and 2042. The SCAQMD recommends a hot spot evaluation of potential localized CO impacts when vehicle to capacity (V/C) ratios are increased by 2% or more at intersections with a level of service (LOS) of C or worse. The traffic impact analysis identified 19 key intersection locations along routes that accommodate much of the traffic traveling within the proposed project area. Of the key intersection locations, none of the intersections exceeded the SCAQMD screening criteria.

Impact Determination

Because significant impacts would not occur at the intersections with the highest traffic volumes located adjacent to sensitive receptors, no significant impacts are anticipated to occur at any other locations in the study area. The conditions yielding CO hotspots would not be worse than those occurring at the analyzed intersections. Consequently, the sensitive receptors that are included in this analysis would not be significantly affected by CO emissions generated by the net increase in traffic that would occur under the proposed Project.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: The proposed Project would not create an objectionable odor at the nearest sensitive receptor.

Impact Determination

Construction

Potential sources that may emit odors during construction activities include construction equipment exhaust and asphalt paving. Odors from these sources would be localized and generally confined to the proposed project site. The proposed Project would utilize typical construction techniques, and the odors would be typical of most construction sites. Additionally, odors would be temporary and intermittent, occurring when equipment is operating and during paving activities. Odor impacts during construction would be less than significant.

Operation

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project does not include any uses identified by the SCAQMD as being associated with odors and therefore would not produce objectionable odors.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-7: The proposed Project would not expose receptors to significant levels of TACs.

TAC Impacts

Proposed project construction and operations would emit TACs that could affect public health in the proposed project vicinity. A screening level health risk calculation was conducted to assess whether the proposed Project would have the potential to exceed the significance thresholds for TACs in Table 3.2-9.

SCAQMD's *Facility Prioritization Procedures for the AB 2588 Program*[4] (SCAQMD 2011b) provided the methodology for the screening level health risk

[4] The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the act are to collect emission

calculation. The prioritization procedures take into consideration the potency, toxicity, quantity, and volume of hazardous materials released from the facility, adjustment factors for receptor proximity, exposure period, averaging times, and multi-pathway factors for resident and worker receptors in calculating a total facility prioritization score. A score of 10 or more signifies a potentially high impact facility and requires that a health risk assessment (HRA) be conducted, under the AB 2588 program, to assess the risk to the surrounding community. A score above 1 but below 10 signifies a potentially intermediate impact and requires, under the AB 2588 program, that an HRA be conducted to assess potential risks. A score of 1 or below signifies a low potential for impacts on the surrounding community and does not require the facility to conduct an HRA. For the purposes of this analysis, a score of 1 is used as the HRA screening level; a score below 1 was interpreted to signify that health impacts would be below significance thresholds for TACs in Table 3.2-9.

SCAQMD's prioritization procedure was originally developed for the AB 2588 program, which is primarily concerned with onsite stationary sources. The inclusion of mobile sources, such as research vessels and off-road and on-road vehicles, conservatively overestimates the prioritization score because the analysis assumes that the mobile emission sources would be concentrated at a berth, whereas in actuality the sources and corresponding emissions would be dispersed over a much larger area, both on site and off site, on Port property and in the harbor, and would be located further away from the berth and from nearby human receptors.

Both construction and operational emissions were considered in quantifying the screening health impacts. Construction emissions were averaged over 70 years in quantifying residential cancer risk and over 40 years in quantifying offsite worker cancer risk. Non-cancer chronic impacts were analyzed using average hourly emission rates, and acute non-cancer impacts were analyzed using maximum hourly rates, per AB 2588 prioritization methodology (SCAQMD 2011b).

Furthermore, health impacts are based on ambient concentrations of TACs in the air, which are dependent on the geographical location of the emission sources and human receptors. The resulting health impacts are determined on an incremental basis by subtracting the CEQA baseline impacts from proposed project impacts. Therefore, as with to the localized criteria pollutant impacts discussed under Impacts AQ-2 and AQ-4, the CEQA baseline for localized TAC emissions reflects Berths 56–57 and 58–60 emissions only and conservatively excludes Berth 260 emissions. The reason for this is that the Project proposes that the SCMI facility, originally located on Berth 260, be relocated to Berths 56, 57, and 58–60, and, as such, the new SCMI location would affect different receptors than those which had been affected by the Berth 260 baseline location. Therefore, operations at the Berth 260 SCMI facility during the 2011 baseline year were conservatively excluded in quantifying incremental TAC emissions and associated health impacts.

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data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels.

Impact Determination

Table 3.2-24 presents the cancer risk screening level score for the proposed Project's construction and operational activities. Table 3.2-25 presents the non-cancer chronic health impact screening score, and Table 3.2-26 presents the acute health impact screening score. The tables show that the cancer risk, non-cancer chronic, and non-cancer acute impacts would each have a prioritization score of less than 1; the cancer risk and non-cancer chronic impacts in fact indicate a reduction from existing conditions. The cancer risk, non-cancer chronic, and non-cancer acute health impacts would therefore be less than significant.

Table 3.2-24. Overlapping Construction and Operation—Cancer Risk Screening without Mitigation

Year	*DPM Emissions (lb/yr)*[a]	
	Residential	*Worker*
2011 CEQA Baseline[b]	3,081	3,081
2016		
Construction	57	100
Operation	1,245	1,245
Total	1,302	1,346
CEQA Increment	-1,778	-1,735
Total Score	-39	-32
Priority Score	Low	Low
2021		
Construction	57	100
Operation	1,962	1,962
Total	2,019	2,062
CEQA Increment	-1,061	-1,018
Total Score	-23	-19
Priority Score	Low	Low
2024		
Construction	57	100
Operation	2,158	2,158
Total	2,215	2,258
CEQA Increment	-865	-822
Total Score	-19	-15
Priority Score	Low	Low
2042		

Construction	57	100
Operation	2,158	2,158
Total	2,215	2,258
CEQA Increment	-865	-822
Total Score	-19	-15
Priority Score	Low	Low

[a] Both onsite and offsite operational emissions are considered to occur within a 5-acre area. This is a conservative assumption because, in reality, emissions would be spread over a much larger area, both on land and over water.

[b] CEQA Baseline reflects Berths 56, 57, and 58-60 emissions only. The existing SCMI (Berth 260) facility is in a different location than the proposed site and would affect different receptors, and was therefore not used in the CEQA baseline to calculate localized impacts. Operations at Berths 56, 57, and 58-60 are appropriate to use in CEQA baseline to calculate localized impacts.

Table 3.2-25. Overlapping Construction and Operation—Non-Cancer Chronic Screening without Mitigation

Year	*DPM Emissions (lb/hr)*[a]	*Score* [b]
2011 CEQA Baseline [c]	0.47	
2016		
Construction	0.08	
Operation	0.22	
Total	0.30	
CEQA Increment	-0.17	
Total Score		-0.20
Priority Score		Low
2021		
Construction	0.01	
Operation	0.41	
Total	0.42	
CEQA Increment	-0.05	
Total Score		-0.06
Priority Score		Low
2024		
Construction	0.02	
Operation	0.44	
Total	0.45	
CEQA Increment	-0.02	

Year	*DPM Emissions (lb/hr)*[a]	*Score* [b]
Total Score		-0.02
Priority Score		Low
2042		
Construction	0.00	
Operation	0.44	
Total	0.44	
CEQA Increment	-0.04	
Total Score		-0.04
Priority Score		Low

[a] Both onsite and offsite operational emissions are considered to occur within a 5 acre area. This is a conservative assumption because in reality, emissions would be spread over a much larger area, both on land and over water.
[b] The total facility score is calculated per SCAQMD's Facility Prioritization Procedures for the AB2588 Program (SCAQMD 2011b).
[c] CEQA Baseline reflects B56, B57, and B58-60 emissions only. Existing SCMI (B260) facility is in a different location than the proposed site and would affect different receptors and was therefore not used in the CEQA baseline to calculate localized impacts. Operations at B56, 57, 58-60 are appropriate to use in CEQA baseline to calculate localized impacts.

Table 3.2-26. Overlapping Construction and Operation—Non-Cancer Acute Screening without Mitigation

Year	*Emissions (lb/hr)*[a]				*Score* [b]
	Acetaldehyde	*Benzene*	*Formaldehyde*	*Toluene*	
2011 CEQA Baseline [c]	0.0002	0.0000	0.0003	0.0000	
2016					
Construction	0.0124	0.0034	0.0248	0.0025	
Operation	0.1115	0.0303	0.2232	0.0223	
Total	0.1239	0.0337	0.2480	0.0248	
CEQA Increment	0.1238	0.0337	0.2476	0.0248	
Total Score					0.29
Priority Score					Low
2021					
Construction	0.0020	0.0005	0.0040	0.0004	
Operation	0.2487	0.0677	0.4977	0.0498	
Total	0.2507	0.0682	0.5017	0.0502	
CEQA Increment	0.2506	0.0682	0.5014	0.0502	
Total Score					0.58
Priority Score					Low

Year	Emissions (lb/hr)[a]				Score [b]
	Acetaldehyde	Benzene	Formaldehyde	Toluene	
2024					
Construction	0.0044	0.0012	0.0088	0.0009	
Operation	0.2753	0.0749	0.5508	0.0551	
Total	0.2796	0.0761	0.5596	0.0560	
CEQA Increment	0.2795	0.0761	0.5593	0.0560	
Total Score					0.65
Priority Score					Low
2042					
Construction	0.0000	0.0000	0.0000	0.0000	
Operation	0.2753	0.0749	0.5508	0.0551	
Total	0.2753	0.0749	0.5508	0.0551	
CEQA Increment	0.2751	0.0749	0.5505	0.0551	
Total Score					0.64
Priority Score					Low

[a] Both onsite and offsite operational emissions are considered to occur within a 5 acre area. This is a conservative assumption because in reality, emissions would be spread over a much larger area, both on land and over water.
[b] The total facility score is calculated per SCAQMD's Facility Prioritization Procedures for the AB2588 Program (SCAQMD 2011b).
[c] CEQA Baseline reflects B56, B57, and B58-60 emissions only. Existing SCMI (B260) facility is in a different location than the proposed site and would affect different receptors and was therefore not used in the CEQA baseline to calculate localized impacts. Operations at B56, 57, and 58-60 are appropriate to use in CEQA baseline to calculate localized impacts.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-8: The proposed Project would not conflict with or obstruct implementation of an applicable air quality plan.

Proposed project operations would produce emissions of nonattainment pollutants. The 2007 AQMP proposes emission reduction measures that are designed to bring the SCAB into attainment of the CAAQS and NAAQS. The attainment strategies in this plan includes mobile-source control measures and clean fuel programs that are enforced at the state and federal level on engine manufacturers and petroleum refiners and retailers; as a result, proposed project operations would comply with these control measures. SCAQMD also adopts AQMP control measures into SCAQMD rules and regulations, which are then used to regulate sources of air pollution in the SCAB. Therefore, compliance with these requirements would ensure

that the proposed Project would not conflict with or obstruct implementation of the AQMP.

In addition, as discussed in Section 3.2.3.3, "Regional and Local Regulations," the LAHD, in conjunction with the Port of Long Beach, developed the CAAP, a planning and policy document that sets goals and implementation strategies to reduce air emissions and health risks associated with Port operations. Each individual CAAP measure is a proposed strategy for achieving these emissions reduction goals.

The CAAP Update, adopted in November 2010, includes updated and new emission control measures as proposed strategies that support the goals expressed as Source-Specific Performance Standards and the Project-Specific Standard. 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.

Therefore, compliance with CAAP measures, Source-Specific Performance Standards, Project-Specific Standards, and San Pedro Bay Standards would ensure that the proposed Project would not conflict with or obstruct implementation of the CAAP.

Impact Determination

The proposed Project would not conflict with or obstruct implementation of the AQMP; therefore, significant impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact GHG-1: The proposed Project would produce GHG emissions that exceed CEQA thresholds.

Climate change, as it relates to human-made GHG emissions, is by nature a global impact. The issue of global climate change is, therefore, a cumulative impact. Nevertheless, for the purposes of this EIR, LAHD has opted to address GHG emissions as a proposed project–level impact. In actuality, an appreciable impact on global climate change would occur only when the proposed project GHG emissions combine with GHG emissions from other human-made activities on a global scale.

Impact Determination

Table 3.2-27 presents an estimate of proposed project–related GHG emissions in the form of CO_2e. Both construction- and operation-related GHG emissions are compared to the CEQA baseline emissions for significance determination. As shown, the proposed project GHG emissions would exceed the SCAQMD CEQA significance threshold of 3,000 mty, and would therefore result in a significant impact.

Table 3.2-27. GHG Emissions—Proposed Project without Mitigation

Year	*CO_2e (mty)*
2011 CEQA Baseline	1,789
2016	
Amortized Construction	363
Operation	9,042
Total	9,405
Threshold	3,000
CEQA Increment	7,616
Significance Determination	**Yes**
2017	
Amortized Construction	363
Operation	9,042
Total	9,405
Threshold	3,000
CEQA Increment	7,616
Significance Determination	**Yes**
2018	
Amortized Construction	363
Operation	9,042
Total	9,405
Threshold	3,000
CEQA Increment	7,616
Significance Determination	**Yes**
2019	
Amortized Construction	363
Operation	9,042
Total	9,405

Year	*CO_2e (mty)*
Threshold	3,000
CEQA Increment	7,616
Significance Determination	**Yes**
2020	
Amortized Construction	363
Operation	9,042
Total	9,405
Threshold	3,000
CEQA Increment	7,616
Significance Determination	**Yes**
2021	
Amortized Construction	363
Operation	24,916
Total	25,279
Threshold	3,000
CEQA Increment	23,490
Significance Determination	**Yes**
2022	
Amortized Construction	363
Operation	24,916
Total	25,279
Threshold	3,000
CEQA Increment	23,490
Significance Determination	**Yes**
2023	
Amortized Construction	363
Operation	24,916
Total	25,279
Threshold	3,000
CEQA Increment	23,490
Significance Determination	**Yes**
2024	
Amortized Construction	363
Operation	29,561

Year	*CO_2e (mty)*
Total	29,924
Threshold	3,000
CEQA Increment	28,135
Significance Determination	**Yes**
Note: OFFROAD 2011, EMFAC 2011, and output and energy emissions calculation worksheets are provided in Appendix B.	

Mitigation Measures

Mitigation measures MM AQ-1 through MM AQ-7 developed for criteria pollutant emissions as part of air quality impacts AQ-1 through AQ-8 would not serve to reduce GHG emissions because the mitigation measures reduce criteria pollutants but not fuel consumption.

The Port of Los Angeles Green Building Policy, which requires incorporation of energy and water efficiency measures into new and redeveloped buildings pursuant to LEED standards, as well as the purchase of renewable energy from LADWP, would facilitate minimization of greenhouse emissions generated by the proposed Project. Although LEED standards provide for use of solar panels, to further expand on this policy a mitigation to further facilitate use of solar panels is proposed:

Table 3.2-28. Project Applicability Review of Potential GHG Emission Reduction Strategies

Operational Strategy	*Applicability to Proposed Project*
California Solar Initiative	MM GHG-1 and future regulatory measures planned by the California Public Utilities Commission
Source: (AG 2010).	

MM GHG-1: Solar Panels. LAHD will review the feasibility of including the City Dock site on its Inventory of Potential PV Solar Sites at POLA from the December 2007 Climate Action Plan. This measure is not quantified.

Residual Impacts

Proposed project GHG emissions would remain above the significance threshold; therefore, impacts would be significant and unavoidable.

Impact GHG-2: The proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

The state of California has adopted laws and policies directed at regulating and reducing GHG emissions, as detailed in Section3.2.3, “Applicable Regulations,”

AB 32, specifically, aims to reduce statewide GHG emissions to 1990 levels by 2020 and instructs 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. Activities since the adoption of AB32 are presented in Section 3.2.3 "Applicable Regulations." The proposed Project would use stationary and mobile equipment compliant with state and federal emission requirements and would adhere to control measures adopted by the State of California during construction and operation and would therefore comply with the goals of AB 32. Consequently, compliance with the laws and policies detailed in Section 3.2.3, "Applicable Regulations," would ensure that construction and operation of the proposed Project would not result in a significant GHG impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

3.2.4.3.3 Summary of Impact Determinations

Table 3.2-29 summarizes the CEQA impact determinations of the proposed Project related to air quality and GHG, as described in the detailed discussion in Section 3.2.4.3. Identified potential impacts may be based on federal, state, and City of Los Angeles significance criteria; LAHD criteria; and the scientific judgment of the report preparers based on substantial evidence gathered from relevant studies.

For each type of potential impact, the table describes the impact, notes the CEQA impact determinations, describes any applicable mitigation measures, and notes the residual impacts (i.e., the impact remaining after mitigation). All impacts, whether significant or not, are included in this table.

Table 3.2-29. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality and Greenhouse Gases Associated with the Proposed Project

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2. AIR QUALITY AND GREENHOUSE GASES			
Construction			
AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance.	Significant	**MM AQ-1: Implement Harbor Craft Engine Standards.** All harbor craft used during the construction phase of the proposed Project will, at a minimum, be repowered to meet EPA Tier 2. Additionally, where available, harbor craft will meet EPA Tier 3 or cleaner marine engine emission standards. Analysis conservatively reflects the use of engines that meet EPA Tier 2 standards.	Significant and unavoidable

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
		This harbor craft measure will be met unless one of the following circumstances exists, and the contractor is able to provide proof of its existence: ▪ A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement. ▪ A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved but funds are not yet available. ▪ A contractor has ordered a control device for a piece of equipment planned for use on the proposed 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 have attempted to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the proposed Project has the controlled equipment available for lease. **MM AQ-2: Implement Fleet Modernization for Construction Equipment.** ▪ Tier Specifications: a. <u>From the start of construction through December 31, 2014</u>: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, will meet Tier-3 off-road emission standards at a minimum. In addition, all construction equipment greater than 50 hp will be retrofitted with a CARB-verified Level 3 Diesel Emission Control Strategy (DECS). Any emissions control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 DECS for a similarly sized engine as defined by CARB regulations. b. <u>From January 1, 2015</u>: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, will meet Tier-4 off-road emission standards at a minimum. Any emissions control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 DECS for a similarly	

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*

sized engine as defined by CARB regulations.

A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit will be provided at the time of mobilization of each applicable unit of equipment. The above "Tier Specifications" measures will be met, unless one of the following circumstances exists, and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable within 200 miles of the Port of Los Angeles, including through a leasing agreement. If this circumstance exists, the equipment must comply with one of the options contained in the Step-Down Schedule as shown in Table 3.2-14. At no time will equipment meet less than a Tier 1 engine standard with a CARB40-verified Level 2 DECS.
- The availability of construction equipment will be reassessed in conjunction with the years listed in the above Tier Specifications on an annual basis. For example, if a piece of equipment is not available prior to January 1, 2015, the contractor will reassess this availability on January 1, 2015.
- Construction equipment will incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards.

Table 3.2-14. Compliance Step-Down Schedule for Non-Road Construction Equipment

Compliance Alternative	*Engine Standard*[a]	*CARB-Verified DECS*	*PM Emissions*[b] *(g/bhp-hr)*	*NO_X Emissions (g/bhp-hr)*
1	Tier 4	N/A	0.01	0.3
2	Tier 3	Level 3	0.02	2.9
3	Tier 2	Level 3	0.02	4.7
4	Tier 1	Level 3	0.06	6.9
5	Tier 2	Level 2	0.08	4.7
6	Tier 2	Level 1	0.11	4.7
7	Tier 2	Uncontrolled	0.15	4.7
8	Tier 1	Level 2	0.2	6.9

[a] Equipment less than Tier 1, Level 2 will not be permitted.

[b] Stated emission levels are for engine hp ratings to 176 bhp and above. Emission levels for engine bhp ratings below 176 hp are marginally higher (0.02–0.08 g/bhp-hr depending on hp, Tier, and Vehicle Diesel Emission Control level).

g/bhp-hr = grams per brake horsepower hour

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
		MM AQ-3: Implement Additional Fugitive Dust Controls. The calculation of fugitive dust (PM10) from proposed project earth-moving activities assumes a 61% reduction from uncontrolled levels to simulate three times per day watering of the site and use of other measures (listed below) to ensure compliance with SCAQMD Rule 403 (SCAQMD 2005). The construction contractor will reduce fugitive dust emissions by 74% from uncontrolled levels (SCAQMD 2007a). The proposed project construction contractor will specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan and will include holiday and weekend periods when work may not be in progress. Measures to reduce fugitive dust include, but are not limited to, the following: ▪ Active grading sites will be watered every two hours. ▪ Contractors will apply approved non-toxic chemical soil stabilizers according to manufacturer's specifications to all inactive construction areas or replace groundcover in disturbed areas (previously graded areas inactive for ten days or more). ▪ Construction contractors will provide temporary wind fencing around sites being graded or cleared. ▪ Trucks hauling dirt, sand, or gravel will be covered in accordance with Section 23114 of the California Vehicle Code. ▪ Construction contractors will 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. Pave road and road shoulders. ▪ The use of clean-fueled sweepers will be required pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on site or on roads adjacent to the site to reduce fugitive dust emissions. ▪ A construction relations officer will be appointed to act as a community liaison concerning onsite construction activity including resolution of issues related to PM10 generation. ▪ Traffic speeds on all unpaved roads will be reduced to 15 mph or less.	

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
		▪ Temporary traffic controls such as a flag person will be provided during all phases of construction to maintain smooth traffic flow. ▪ Construction activities that affect traffic flow on the arterial system will be conducted during off-peak hours to the extent practicable. ▪ The grading contractor will suspend all soil disturbance activity when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas will be stabilized if construction is delayed. **MM AQ-4: Implement SCAQMD's Super-Architectural Coatings Compliant Standard**. Architectural coatings used on site will meet SCAQMD's super-compliant VOC standard of 10 grams of VOC per liter. **MM AQ-5: Implement the Clean Trucks Program for Construction Haul Trucks**. Heavy duty diesel trucks used for hauling must meet the EPA 2007 emission standards for on-road heavy duty diesel engines (EPA 2006) by 2012. The CTP applies to heavy duty trucks used during construction activities. **MM AQ-6: Implement Best Management Practices**. The following types of measures are required on construction equipment (including on-road trucks), as determined feasible and appropriate: ▪ Use diesel oxidation catalysts and catalyzed diesel particulate trap. ▪ Maintain equipment according to manufacturers' specifications. ▪ Install high-pressure fuel injectors on construction equipment vehicles. ▪ Re-route construction trucks away from congested streets or sensitive receptor areas. LAHD will implement a process by which to select additional BMPs to further reduce air emissions during construction. LAHD will determine the BMPs once the contractor identifies and secures a final equipment list and project scope. LAHD will then meet with the contractor to identify potential BMPs and work with the contractor to include such measures in the contract. BMPs will be based on BACT guidelines and may also include changes to construction practices and design to reduce or eliminate environmental impacts. **MM AQ-7: Implement General Mitigation Measure.** For any of the above mitigation measures,	

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
		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 could replace the existing measure pending approval by LAHD. For construction, measures will be set at the time a specific construction contract is advertised for bid.	
AQ-2: The proposed Project would result in offsite ambient air pollutant concentrations during construction that exceed a threshold of significance.	Significant	Implement Mitigation Measures **MM AQ-1 through MM AQ-7**.	Less than significant
Operations			
AQ-3: The proposed Project would result in operational emissions that exceed a SCAQMD threshold of significance.	Significant	Implement Mitigation Measures **MM AQ-4 and MM AQ-7.**	Significant and unavoidable
AQ-4: The proposed Project would not result in offsite ambient air pollutant concentrations during operation that exceed a threshold of significance.	Less than significant	No mitigation is required.	Less than significant
AQ-5: The proposed Project would not generate on-road traffic that would contribute to an exceedance of the 1- or 8-hour CO standards.	Less than significant	No mitigation is required.	Less than significant
AQ-6: The proposed Project would not create an objectionable odor	Less than significant	No mitigation is required.	Less than significant

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
at the nearest sensitive receptor.			
AQ-7: The proposed Project would not expose receptors to significant levels of TACs.	Less than significant	No mitigation is required.	Less than significant
AQ-8: 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
GHG-1: The proposed Project would produce GHG emissions that exceed CEQA thresholds.	Significant	**MM GHG-1: Solar Panels.** LAHD will review the feasibility of including the City Dock site on its Inventory of Potential PV Solar Sites at POLA from the December 2007 Climate Action Plan. This measure is not quantified.	Significant and unavoidable
GHG-2: The proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.	Less than significant	No mitigation is required.	Less than significant

3.2.4.4 Mitigation Monitoring

Table 3.2-30. Mitigation Monitoring for Air Quality and Greenhouse Gases

Mitigation Measure	**MM AQ-1: Implement Harbor Craft Engine Standards.**
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-1 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-2: Implement Fleet Modernization for Construction Equipment.**
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-2 in the contract specifications for

	construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-3: Implement Additional Fugitive Dust Controls.**
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-3 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-4: Implement SCAQMD's Super-Compliant Architectural Coating Standard**.
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-4 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-5: Implement the Clean Trucks Program for Construction Haul Trucks**.
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-5 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-6: Implement Best Management Practices.**
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-6 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-7: Implement General Mitigation Measure.**
Timing	During specified construction phases.
Methodology	LAHD will include Mitigation Measure MM AQ-7 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM GHG-1: Solar Panels.**
Timing	During operation.
Methodology	LAHD will include Mitigation Measure MM GHG-1 in project design and lease agreements with tenants.

Responsible Parties	LAHD, SCMI, NOAA, other tenants
Residual Impacts	Significant and unavoidable

3.2.4.5 Significant Unavoidable Impacts

- The proposed Project would produce peak daily construction emissions that would exceed significance thresholds and result in significant and unavoidable impacts for VOC and NO_X under CEQA. The proposed Project would also produce overlapping construction and operational emissions during the construction period that would exceed significance thresholds and result in significant and unavoidable impacts for VOC, CO and NO_X.
- The proposed Project would produce peak daily operational emissions that would exceed significance thresholds and result in significant and unavoidable impacts for VOC, CO and NO_X.
- The proposed Project would produce GHG emissions that would exceed SCAQMD CEQA significance thresholds, resulting in a significant and unavoidable impact.