3.2

AIR QUALITY AND METEOROLOGY

3.2.1 Introduction

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

3.2.2 Environmental Setting

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

3.2.2.1 Regional Climate and Meteorology

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

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

The proximity of the Eastern Pacific High and a thermal low pressure system in the desert interior to the east produce a sea breeze regime that prevails within the 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 toward 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 northeast of the SCAB 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 Port's Inner Harbor area. During strong sea breezes, this flow can bend around the north side of the Palos Verdes 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 National Ambient Air Quality Standards (NAAQS). For most pollutants, maximum concentrations must not exceed an NAAQS more than once per year, and they must not exceed the annual standards. The California Air Resources Board (CARB) establishes the California Ambient Air Quality Standards (CAAQS), which are generally more stringent and include more pollutants than the NAAQS. California standards for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (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. Maximum pollutant concentrations must not equal or exceed the CAAQS.

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. These pollutants are called "criteria" air pollutants because they are regulated by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called the primary standards. Another set of limits intended to prevent environmental and property damage is the secondary standards. The criteria pollutants of greatest concern in this air quality assessment 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.

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

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

Pollutant	*Adverse Effects*
Ozone	(a) Short-term exposures: (1) pulmonary function decrements and localized lung edema in humans and animals and (2) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary

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

Source: SCAQMD 2006a.

[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 2002 and EPA 2004.

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

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

[d] CAAQSs have also been established for hydrogen sulfide, vinyl chloride, and visibility reducing particles. They are not shown in this table because they are not pollutants of concern for the proposed Project.

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

Generally, concentrations of photochemical pollutants, such as ozone, are highest during the summer months and coincide with the season of maximum solar insolation. Concentrations of inert pollutants, such as CO, tend to be the greatest during the winter months and are a product of light wind conditions and surface-based temperature inversions that are frequent during that time of year. These conditions limit atmospheric dispersion. However, in the case of PM10 impacts from fugitive dust sources, maximum concentrations may occur during high wind events or near man-made ground-disturbing activities, such as vehicular activities on roads and earth moving during construction activities.

Because most of the proposed project-related emission sources would be diesel-powered, diesel particulate matter (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 toxic air contaminant by the 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 toxic air contaminant.

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 1-hour ozone, a nonattainment area for 8-hour ozone, a nonattainment area for PM10, and a nonattainment area for PM2.5, and a maintenance area for CO.[1] The SCAB is in attainment of the NAAQS for SO_2, NO_2, and lead (EPA 2005). 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 the number of times allowed by the standard. CARB currently designates the SCAB as an "extreme" nonattainment area for 1-hour ozone and a nonattainment area for both PM10 and PM2.5. The air basin is in attainment of the CAAQS for CO, SO_2, NO_2,

[1] The SCAB has been achieving the federal 1-hour CO air quality standard since 1990, and the federal 8-hour CO standard since 2002. Effective June 11, 2007, the U.S. EPA redesignated SCAB as in attainment for CO. A redesignation to attainment has already been made for the state CO standards.

sulfates, and lead and is unclassified for hydrogen sulfide and visibility-reducing particles. (CARB 2008.)

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 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 (Port of Los Angeles 2006). The station locations are:

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

As discussed below, for 2 years LAHD has collected PM10 data with the proposed Project at its Wilmington Station and PM2.5 data at all four of its stations. However, to show trends in pollutant concentrations over periods longer than 2 years, and for criteria pollutants other than PM10 and PM2.5, it was necessary to use data from the network of monitoring stations operated by SCAQMD.

Of the SCAQMD monitoring stations, the most representative station for the proposed project vicinity is the North Long Beach Station because it is the closest

SCAQMD station to the proposed project site. Table 3.2-2 shows the highest pollutant concentrations recorded at the North Long Beach Station for 2005 to 2007, the most recent complete 3-year period of data available. As shown in the table, the following standards were exceeded at the North Long Beach Station over the 3-year period: ozone (state 1-hour standards), PM10 (state 24-hour and annual standards), and PM2.5 (national 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, lead, and sulfates between 2005 and 2007.

Pollutant sampling data are available for February 2006 through January 2007 from the Port monitoring program at the time of this assessment. Samples were collected as 24-hour averages every 3 days. The data are summarized in Table 3.2-3. Data collected concurrently at the SCAQMD North Long Beach Station are also presented for comparison. The table shows that PM10, concentrations at the Wilmington Station are lower than those at the North Long Beach Station. For PM2.5, concentrations at the Port monitoring sites are lower than those at the North Long Beach Station for maximum 24-hour averages and are comparable to concentrations at the North Long Beach Station for period averages. For elemental carbon PM2.5, the Source-Dominated Station has the highest concentrations, and the Coastal Boundary Station has the lowest concentrations. Elemental carbon PM2.5 was not measured at the North Long Beach Station.

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*		
				2005	*2006*	*2007*
Ozone (ppm)	1 hour	NA	0.09	**0.091**	0.081	0.099
	8 hours	0.08	0.07	0.069	0.058	0.073
CO (ppm)	1 hour	35	20	4.2	4.2	3.3
	8 hours	9	9	3.51	3.36	2.59
NO_2 (ppm)	1 hour	NA	0.18	0.136	0.102	0.107
	Annual	0.053	0.030	0.024	0.022	0.020
SO_2 (ppm)	1 hour	NA	0.25	0.041	0.027	0.037
	24 hours	0.14	0.04	0.010	0.010	0.010
	Annual	0.03	NA	0.002	0.002	0.003
PM10 ($\mu g/m^3$)	24 hours	150	50	**66** [b]	**78.0**	**232.0**
	Annual	NA	20	**29.7**	**30.9**	**33.5**
PM2.5 ($\mu g/m^3$)	24 hours	35	NA	**53.8**	**58.5**	**82.8**
	Annual	15	12	**16.0**	**14.1**	**14.6**
Lead ($\mu g/m^3$)	30 days	NA	1.5	Not available	Not available	Not available
	Calendar quarter	1.5	NA	0.01	0.01	0.01

Sulfates (μg/m^3)	24 hours	NA	25	Not available	Not available	Not available

Note:

Exceedances of the standards are highlighted in bold. Although the NAAQS were not exceeded at the North Long Beach Station for CO and PM10 from 2004 to 2006, EPA has classified the SCAB being in as nonattainment for these pollutants because violations have occurred at other monitoring stations in the SCAB.

μg/m^3 micrograms per cubic meter

ppm: parts per million

NA: Not applicable

The state 1-hour ozone standard was exceeded on 0 days in 2004, 1 day in 2005, and 0 days in 2006, and 1 day in 2007. The national 8-hour ozone standard was not exceeded.

The state 24-hour PM10 standard was exceeded 4 days in 2005, 5 days in 2006, and 6 days in 2007. The national PM10 standard was exceeded once in 2007.

The national 24-hour PM2.5 standard was exceeded on 0 days in 2005, 0 days in 2006, and 1 day in 2007.

Source: SCAQMD (www.aqmd.gov); CARB (http://www.arb.ca.gov/adam/welcome.html); EPA (http://www.epa.gov/aqspubl1/)

Table 3.2-3. Maximum Pollutant Concentrations Measured for the Port of Los Angeles Air Quality Monitoring Program

Pollutant	*Averaging Period*	*Port of Los Angeles Monitoring Stations*				*SCAQMD Monitoring Station*
		Wilmington Community Station	*Coastal Boundary Station*	*San Pedro Station*	*Source-Dominated Station*	*North Long Beach Station*
PM10 (μg/m^3)	24 hours	60.5	--	--	--	78
	Period average	27.8	--	--	--	30.9
PM2.5 (μg/m^3)	24 hours	36.2	25.9	23.8	31.4	58.5
	Period average	12.4	9.8	10.7	13.5	14.1
Elemental carbon PM2.5 (μg/m^3)	24 hours	5.2	4.6	6.7	9.3	--
	Period average	1.5	1.1	1.5	2.5	--

Notes:

For PM10, the SCAQMD North Long Beach Station measures a 24-hour sample every 6 days, compared to every 3 days for the Port monitoring stations. Therefore, only one-half of the Port monitoring station samples (every other sample) has a corresponding sample from the North Long Beach Station. For PM2.5, all monitoring sites measure a 24-hour sample every 3 days.

The Port PM10 and PM2.5 data were collected between February 2006 and January 2007. The Port's elemental carbon PM2.5 data were collected between February 2005 and January 2006. Data from the SCAQMD North Long Beach Station were collected between February 2006 and December 2006.

PM10 is not measured at the Coastal Boundary, San Pedro, or Source-Dominated Stations.

Elemental carbon PM2.5 is not measured at the SCAQMD North Long Beach Station.
Source: Port of Los Angeles 2006.

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 onroad 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

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 percent of the background airborne cancer risk in the SCAB is due to particulate emissions from diesel-powered on- and offroad 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 2008). MATES III determined that diesel exhaust remains the major contributor to air toxics risk, accounting for approximately 84 percent 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 percent 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) which indicates that the two ports contributed approximately 21 percent 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-mile by 20-mile study area.

As discussed in Section 1.6.2.1, the Port of Los Angeles, in conjunction with the Port of Long Beach, has developed the San Pedro Bays Clean Air Action Plan (CAAP) that targets all emissions, but is focused primarily on TACs (the CAAP is also discussed further in Section 3.2.4.4). The Port of Los Angeles has also developed the Sustainable Construction Guidelines as discussed in Section 3.2.3.4 to reduce emissions, including TACs, 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 both are directly emitted into the atmosphere (i.e., primary particles) and are formed through atmospheric chemical reactions from precursor gases (i.e., 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 (SCAQMD et al. 2006). 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 EIR/EIS 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 the SCAQMD (SCAQMD 2006d).

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 semivolatile particles (sulfates and hydrocarbons) that coagulate to form particles.

The research regarding UFPs is at its infancy but suggests the UFPs might be more dangerous to human health than the larger PM10 and PM2.5 particles (termed fine particles) due to size and shape. Because of the smaller size, UFPs are able to travel more deeply into the lung (the alveoli) and are deposited in the deep lung regions more efficiently than fine particles. UFPs are inert; therefore, normal bodily defense does not recognize the particle. UFPs might have the ability to travel across cell layers and enter into the bloodstream and/or into individual cells. With a large surface area-to-volume ratio, other entities might attach to the particle and travel into the cell as a kind of "hitchhiker."

Current UFP research primarily involves roadway exposure. Preliminary studies suggest that over 50 percent of an individual's daily exposure is from driving on highways. Levels appear to drop off rapidly as one moves away from major roadways. Little research has been done directly on ships and offroad 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, and it actively participates in the CARB testing at the Port and will comply with all future regulations regarding UFPs. In addition, measures included in the CAAP aim to reduce all emissions 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. Atmospheric deposition occurs in both a wet and dry form. Wet deposition occurs in the form of precipitation or cloud water and is associated with the conversion in the atmosphere of directly emitted pollutants into secondary pollutants such as acids. Dry deposition occurs in the form of directly emitted pollutants or the conversion of gaseous pollutants into secondary PM. Atmospheric deposition can produce watershed acidification, aquatic toxic pollutant loading, deforestation, damage to building materials, and respiratory problems.

CARB and the State Water Resources Control Board are in the process of examining the need to regulate atmospheric deposition for the purpose of protecting both fresh and saltwater bodies from pollution. Port emissions deposit into both local waterways and regional land areas. Emission sources from the proposed alternatives would produce DPM, which contains trace amounts of toxic chemicals. Through the CAAP, the Port will reduce air pollutants from its future operations, which will work toward 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 Gas Emissions

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs). GHGs are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons [HFCs] and perfluorocarbons [PFCs]) and sulfur hexafluoride (SF_6).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be about 61°F cooler (AEP 2007). However, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. According to the Intergovernmental Panel on Climate Change (IPCC 2007), the atmospheric concentration of CO_2 in 2005 was 379 ppm compared to the pre-industrial levels of 280 ppm. In addition, the Fourth U.S. Climate Action Report concluded, in assessing current trends, that CO_2 emissions increased by 20% from 1990 to 2004, while methane and nitrous oxide emissions decreased by 10% and 2%, respectively.

There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures. Scientific evidence indicates a trend of increasing global temperatures near the earth's surface over the past century due to increased human-induced levels of GHGs.

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 and/or change in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees (IPCC 2001). Other, longer-term environmental impacts of global warming may include sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack (for example, estimates include a 30 to 90% reduction in snow pack in the Sierra Nevada mountain range). Current data suggest that in the next 25 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, the California Climate Change Center (Roland-Holst 2006) predicted that California could witness the following events:

- Temperature rises between 3 to 10.5ºF.
- 6 to 20 inches or more of sea level rise.
- 2 to 4 times as many heat-wave days in major urban centers.
- 2 to 6 times as many heat-related deaths in major urban centers.
- 1 to 1.5 times more critically dry years.
- 10 to 55 percent increase in the risk of wildfires.

Currently, there are no federal standards for GHGs emissions. Recently, the U.S. Supreme Court ruled that the harms associated with climate change are serious and well recognized, that the EPA must regulate GHGs as pollutants, and that, unless the agency determines that GHGs do not contribute to climate change, the EPA must promulgate regulations for GHG emissions from new motor vehicles (*Massachusetts et al. v. Environmental Protection Agency*, 549 U.S. 497 (2007). Additionally, in November 2007 and August 2008, the Ninth Circuit U.S. Court of Appeals ruled that a NEPA document must contain a detailed GHG analysis. (*Center for Biological Diversity v. National Highway Safety Administration* 508 F. 3d 508 [2007] was vacated and replaced by *Center for Biological Diversity v. National Highway Safety Administration* 2008 DJDAR 12954 [August 18, 2008].) However, no federal regulations have been set at this time. Currently, control of GHGs is generally regulated at the state level and approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

To date, 12 states, including California, have set state GHG emission targets. Executive Order S-3-05 and the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, promulgated the California target to achieve 1990 GHG levels by the year 2020. The target-setting approach allows progress to be made in addressing climate change and is a forerunner to the setting of emission limits. A companion bill, Senate Bill (SB) 1368, similarly addresses global warming, but from the perspective of electricity generators selling power into the state. The legislation requires that imported power meet the same greenhouse gas standards that power plants in California meet. SB 1368 also sets standards for CO_2 for any long-term power production of electricity at 1,000 pounds per megawatt hour.

The World Resources Institute's GHG Protocol Initiative identifies six GHGs generated by human activity that are believed to be contributors to global warming (WRI/WBCSD 2007): CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6.

These are the same six GHGs that are identified in AB 32 and by EPA. Appendix D4 contains descriptions of the natural and human-made sources of emissions for each of these GHGs.

The different GHGs have varying global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. By convention, CO_2 is assigned a GWP of 1. By comparison, CH_4 has a GWP of 21, which means that it has a global warming effect 21 times greater than CO_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 (IPCC 1996). 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. Appendix D4 lists the GWP for each GHG.

The air quality analysis for the proposed Project and alternatives includes estimates of GHG emissions generated by the proposed Project and alternatives for existing and future conditions, as presented in Sections 3.2.2.3 and 3.2.4.3, respectively. Of the six major GHGs, the analysis includes CO_2, CH_4, and N_2O. HFCs, PFCs, and SF_6 are not included because they are not pollutants of concern for the proposed Project or alternatives. To be consistent with international convention, the GHG emissions in this report are expressed in metric units (metric tons [tonnes] of CO_2e in this case).

Port's Climate Action Plan and Sustainability Plan

LAHD is an active participant in a number of GHG plans and programs. LAHD has been a member of the California Climate Action Registry (CCAR) since March 29, 2006, and has submitted GHG inventories of LAHD-controlled activities for 2006 and 2007 as discussed in Section 3.2.3.2.14. In addition, 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 and has developed a Climate Action Plan (described below) consistent with city policy.

In May 2007, the City of Los Angeles Mayor's Office released the Green LA initiative, which is an action plan to lead the nation in fighting global warming. The Green LA Plan presents a citywide framework for confronting global climate change to create a cleaner, greener, more sustainable Los Angeles. The Green LA Plan directs LAHD 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, LAHD's Climate Action Plan covers all currently listed GHG emissions related to Port activities (such as Port buildings and Port workforce operations). LAHD would complete annual GHG inventories of the Port and its customers and report these to the Climate Action Registry. The first of these inventories would be reported in 2008 for the year 2006.

In addition to the Climate Action Plan, LAHD is also active in integrating GHG reductions into sustainability planning efforts. LAHD has adopted a Sustainability Assessment and Plan Formulation (LAHD 2008) in accordance with the mayor's office directive that will incorporate environmental programs and reports, including LAHD's Climate Action Plan (LAHD 2007). LAHD is also a signatory to the California Sustainable Goods Movement Program and is participating in the University of Southern California's Sustainable Cities Program, which is looking at GHGs associated with international goods movement.

3.2.2.3 San Pedro Waterfront CEQA Baseline Emissions

This section discusses the CEQA baseline conditions, sources, and activities; the NEPA baseline is discussed in Section 3.2.4.1.15. The CEQA baseline for determining the significance of potential proposed project impacts is December 2006. In December 2006, the proposed project area included cruise terminal operations, bulk cargo operations, Ports O'Call, recreational ferries and passenger boat operations, tug operations, fishing fleets, and marine gas docks.

Marine emission sources from water uses include cruise ships, the Catalina Express ferries at Berth 96, tugboats, commercial bulk ships, commercial fishing boats, crewboats, excursion vessels, and Port Police and fire boats. Cruise operations were the largest source of emissions. In the baseline year, two permanent berths operated at the Inner Harbor Cruise Terminal at Berths 91–92 and 93. In addition, cruise vessels occasionally docked at a temporary location at Berth 87. A total of 258 cruise vessels docked at the three berths in 2006 (Port of Los Angeles 2008). In addition to cruise operations, Berth 87 was also occasionally used to berth cargo and bulk carrier vessels. In 2006, one cargo vessel and four bulk carrier vessels berthed and unloaded their cargo at Berth 87.

Land-based emission sources included terminal equipment (forklifts and trucks) and onroad motor vehicles associated with the cruise terminals and Ports O'Call (passenger cars, trucks, busses, and shuttles).

The following assumptions were made in calculating baseline emissions from marine sources:

- Baseline emissions from marine sources were based on the total number of engine operating hours as reported by Starcrest (Starcrest 2008).
- Vessel emissions were calculated based on engine size defaults, loads, and emission factors specified in the 2005 Port inventory (Starcrest 2007).
- Fifty-nine percent of cruise ships complied with the Vessel Speed Reduction Program (VSRP) to 20 nautical miles (nm).
- Tugboats were used to assist cargo and bulk carrier ships destined for Berth 87 as part of the baseline. Therefore, the tugboat emissions associated with these ship assists were included in the baseline emissions. Tugboats were not used to assist cruise ships at Berths 91–92, 93, and 87.
- Tugboats based within the proposed project site were also used to assist ships destined for other berths at the Port. Baseline emissions for these tugboats were calculated for that portion of travel between the tugboats' homebase and the Angels Gate on their way to or from assisting these ships. These emissions were included because the proposed Project would change the location of the tugboats' homebase and therefore change the distance traveled by the tugboats to and from the assisted ship. However, tugboat emissions during the actual ship assist were not included in the baseline emissions because the ships destined for other berths are not part of the proposed Project, and the associated tugboat emissions would not be affected by the proposed Project.
- Tugboats used 15 parts per million (ppm) sulfur fuel.
- The average tugboat auxiliary engine was a Tier 1 standard engine, and the average tugboat propulsion engine was a Tier 0 standard engine (Starcrest 2008).
- Catalina Express ferries plugged into an electrical power system overnight. Auxiliary engines were not turned on until just before passenger loading. Main engines were not turned on until just after all passengers had boarded.

Baseline emissions from land-based sources were based on model runs of the CARB URBEMIS 2007 model, Version 9.2.4, and OFFROAD2007. The following assumptions were made in calculating baseline emissions from land-based sources:

- All motor vehicles (including fleet mix) were estimated based on the trip generation rates for each proposed project component provided in the traffic study (Fehr & Peers 2008). Default trip lengths from URBEMIS2007 were used.
- The average age of delivery trucks was assumed to be the average fleet age in the URBEMIS2007 model.

- Terminal equipment included 11 diesel forklifts, 25 propane forklifts, and 2 fuel trucks at the cruise terminals.
- Terminal equipment included 10 diesel forklifts at Berth 87.

Table 3.2-4 summarizes the peak daily emissions associated with baseline year operations. Baseline peak daily emissions are compared to future proposed project peak daily emissions to determine CEQA significance for the proposed Project and alternatives.

Table 3.2-5 summarizes the average daily emissions associated with operation of the cruise terminals in the 2006 baseline year. The average daily emissions represent annual emissions divided by 365 days per year (the Port operates 365 days of the year) and are a good indicator of operations over the long term since terminal operations can vary from day-to-day depending on ship arrivals. Peak daily emissions, in contrast, represent theoretical upper-bound estimates of activity levels at the terminal. Therefore, peak daily emissions would occur infrequently and are based upon a lesser-known and therefore more theoretical set of conservative assumptions. However, peak daily operational emissions were used in the significance determination for Impact AQ-3 consistent with SCAQMD guidance. The average daily emissions are provided for informational purposes and are not used for significance determination.

Table 3.2-4. Baseline (2006) Peak Daily Operational Emissions (CEQA Baseline)

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Cruise vessel transit	497	1,039	13,213	18,514	1,897	1,517
Cruise vessel hotelling	291	607	7,693	12,487	1,173	938
Berth 87 Cargo and Bulk Carrier vessel transit	21	48	620	767	92	74
Berth 87 Cargo and Bulk Carrier vessel hotelling	7	18	233	315	37	30
Harbor craft	53	480	1,721	1	62	57
Motor vehicles	229	2,286	401	3	297	62
Terminal equipment	6	25	54	0.4	3	3
Total	1,105	4,503	23,935	32,088	3,562	2,682

Notes:

Emissions assume maximum theoretical daily activity levels, such as all three Inner Harbor berths being occupied at the same time. Such levels would rarely occur during day-to-day terminal operations.

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

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

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Cruise vessels do not require tugboat assistance. Operation of other harbor craft in the Port is relatively uniform from day to day. Therefore, harbor craft peak and average daily emissions were assumed to be equivalent.						
Motor vehicles include passenger cars, trucks, busses, and shuttles. Motor vehicle activity is assumed to relatively uniform from day to day. Therefore, motor vehicle peak and average daily emissions were assumed to be equivalent.						
Terminal equipment includes equipment at the Cruise Terminal and Berth 87.						

Table 3.2-5. Baseline (2006) Average Daily Operational Emissions (CEQA Baseline)

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Cruise vessel transit emissions	98	204	2,517	2,196	281	225
Cruise vessel hoteling emissions	69	143	1,756	1,765	205	164
Berth 87 Cargo and Bulk Carrier vessel transit emissions	0.6	1.4	18.1	11.0	1.5	1.2
Bert 87 Cargo and Bulk Carrier vessel hotelling emissions	0.3	0.7	9.4	11.1	1.1	0.9
Harbor craft	53	480	1,721	1	62	57
Motor vehicles	229	2,286	401	3	297	62
Terminal equipment	2	7	14	0.1	1	1
Total	**452**	**3,123**	**6,437**	**3,987**	**849**	**511**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

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

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

Motor vehicles include passenger cars, trucks, busses, and shuttles. Motor vehicle activity is assumed to relatively uniform from day to day. Therefore, motor vehicle peak and average daily emissions were assumed to be equivalent.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

Operation of other harbor craft in the Port is relatively uniform from day to day. Therefore, harbor craft peak and average daily emissions were assumed to be equivalent.

3.2.2.3.1 Greenhouse Gas Emissions

Table 3.2-6 presents an estimate of the GHG emissions generated within California borders from the 2006 baseline operations.[2] As discussed further in Section 3.2.3.2, the analysis of GHG emissions within the State of California is consistent with the goals of the CCAR. The emission sources for which baseline GHG emissions were calculated include motor vehicles, cruise terminal equipment, ship and harbor craft emissions, on-terminal electricity usage, and the Waterfront Red Car Line[3]. The GHG emission calculation methodology is described in Appendix D4.

Table 3.2-6. Annual Operational GHG Emissions—CEQA Baseline (2006)

Project Scenario/ Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Vessel transit and maneuvering	34,994	0.2	1.6	35,488
Vessel hoteling	17,461	0.1	0.8	17,710
Harbor craft	25,571	0.1	1.2	25,934
Motor vehicles	29,681	5.6	5.7	31,578
Terminal equipment	180	0.0	0.0	181
AMP electricity usage	NA	NA	NA	NA
On-terminal electricity usage	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	21,383	0.2	0.1	21,417
Year 2006 Total	**129,270**	**6.3**	**9.4**	**132,308**

Notes:

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

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its GWP. The GWPs are 1 for CO_2, 21 for CH_4, and 310 for N_2O.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

[2] In the case of electricity consumption, the GHG emissions may also be generated by out-of-state power plants.
[3] For purposes of this analysis, GHG emissions for Red Car vehicle operations were calculated for electricity consumption while operating within the project area, defined as Swinford St. (Cruise Ship Terminal) southward.

Project Scenario/ Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Motor vehicles include passenger cars, trucks, busses, and shuttles. Terminal equipment includes equipment at the Cruise Terminal and Berth 87. Ships include cruise vessels plus Berth 87 calls.				

3.2.2.4 Sensitive Receptors

The impact of air emissions on sensitive members of the population is a special concern. Sensitive land uses are defined as locations where particularly pollutant-sensitive members of the population may reside or where the presence of air pollutant emissions could adversely affect use of the land. Sensitive members of the population include those that may be more negatively impacted by poor air quality than other members of the population, such as children, the elderly, or the infirmed. Schools, hospitals, and convalescent homes are considered relatively sensitive land uses because children, the elderly, and the infirmed are more susceptible to respiratory distress and other air-quality related health problems than the general public. Sensitive land uses known to exist that could be affected by the heavy construction or operation at the Inner Harbor and Outer Harbor Cruise Ship Terminal areas (where the largest concentration of emissions would occur) are shown in Figure 3.2-1. The closest sensitive receptors to the proposed project site are as follows:

- closest sensitive receptors to Inner Harbor Cruise Terminal:
  - residential receptor located 0.25 mile west of the Inner Harbor Cruise Terminal;
  - recreational receptor—promenade, located directly west and adjacent to the terminal;
  - Barton Hill Elementary School, located 0.7 mile west of terminal;
  - Toberman Child Care Center, located 0.8 mile southwest of terminal;
  - Crow Flora Boarding, located 1 mile southwest of terminal; and
  - San Pedro Peninsula Hospital, located 1.9 miles southwest of terminal; and
- closest sensitive receptors to Outer Harbor Cruise Terminal:
  - residential and recreational receptor—marina, located directly north and adjacent to the terminal;
  - Point Fermin Elementary School, located 0.8 mile north;
  - Carmen's Cry Baby Care, located 1 mile northwest;
  - Crow Flora Boarding, located 1.8 mile southwest of terminal; and
  - San Pedro Peninsula Hospital, located 2.4 miles southwest of terminal.

3.2.3 Applicable Regulations

The federal Clean Air Act of 1969 (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 State Implementation Plan 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 Air Quality Management Plan (AQMP). The 2007 AQMP 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 ozone and other planning requirements, including compliance with the NAAQS for PM10 (SCAQMD et al. 2007). 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 et al. 2007). Since it will be more difficult to achieve the 8-hour ozone NAAQS compared to the one-hour NAAQS, the 2007 AQMP contains substantially more emission reduction measures compared to the 2003 AQMP. The SCAQMD released the Draft Program Environmental Impact Report for the 2007 AQMP in March 2007 (SCAQMD 2007a). The 2007 AQMP has been submitted as part of the SIP to the EPA for approval.

3.2.3.1.2 IMO MARPOL Annex VI

The International Maritime Organization (IMO) MARPOL Annex VI, which came into force in May 2005, set new international NO_X emission limits on Category 3 (>30 liters per cylinder displacement) marine engines installed on new vessels retroactive to the year 2000. For oceangoing vessel main propulsion engines

K:\GIS\PROJECTS\POLA\01074.07\MAPDOC\AQ\20080816\FIG3_2_1_SENSITIVE_RECEPTOR_LOCS.MXD SLM (09-2-08)

SOURCE: USA Imagery (05-15-06; 0.5m)

ICF Jones & Stokes
an ICF International Company

Figure 3.2-1
Sensitive Receptor Locations
San Pedro Waterfront Project

(<130 revolutions-per-minute [rpm] engine speed), the NO_X limits are about 6% lower than the average emissions from pre-Annex VI ships used in the *Port of Los Angeles Inventory of Air Emissions 2005* (Starcrest 2007).

3.2.3.1.3 Emission Standards for Nonroad Diesel Engines

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

3.2.3.1.4 Emission Standards for Marine Diesel Engines

To reduce emissions from Category 1 (at least 50 horsepower [hp] but < 5 liters per cylinder displacement) and Category 2 (5 to 30 liters per cylinder displacement) marine diesel engines, EPA established emission standards for new engines, referred to as Tier 2 marine engine standards. The Tier 2 standards have been phased in from 2004 to 2007 (year of manufacture), depending on the engine size. (EPA 1999.)

3.2.3.1.5 Emission Standards for Onroad Trucks

To reduce emissions from onroad, heavy-duty diesel trucks, EPA established a series of increasingly strict emission standards for new engines, starting in 1988. The EPA promulgated the final and cleanest standards with the *2007 Heavy-Duty Highway Rule* (EPA 2001). The PM emission standard of 0.01 gram per horsepower-hour (g/hp-hr) is required for new vehicles beginning with model year 2007. Also, the NO_X and nonmethane hydrocarbon (NMHC) standards of 0.20 g/hp-hr and 0.14 g/hp-hr, respectively, would be phased in together between 2007 and 2010 on a percent of sales basis: 50% from 2007 to 2009 and 100% in 2010. Currently, the strictest standards will be phased in starting in 2007 (EPA 2001).

3.2.3.1.6 Highway Diesel Fuel Rule

With this rule, EPA set sulfur limitations for onroad diesel fuel to 15 ppm starting June 1, 2006 (EPA 2006).

3.2.3.1.7 General Conformity Rule

Section 176(c) of the CAA states that a federal agency cannot support an activity unless the agency determines that the activity will conform to the most recent EPA-approved State Implementation Plan. This means that projects using federal funds or requiring federal approval must not:

- cause or contribute to any new violation of a NAAQS;
- increase the frequency or severity of any existing violation; or
- delay the timely attainment of any standard, interim emission reduction, or other milestone.

Based on the present attainment status of the SCAB, a federal action would conform to the State Implementation Plan if its annual emissions remain below 100 tons of CO or PM2.5, 70 tons of PM10, or 10 tons of NO_X or VOC (40 CFR Part 93). These *de minimis* thresholds apply to the federal project, which may include construction and/or operation, depending on the Federal authority. If the proposed action exceeds one or more of the *de minimis* thresholds, a more rigorous conformity determination is the next step in the conformity evaluation process.

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

3.2.3.1.8 Conformity Statement

LAHD regularly provides SCAG with its Port-wide cargo forecasts for development of the AQMP. The 1997 passenger vessel calls projections are used to estimate the passenger vehicles, hired vehicles, and delivery trucks emissions from Port activities. These activities are included in the Regional Transportation Plan (RTP) of the Metropolitan Planning Organization (MPO) and, thus, were included in the most recent EPA-approved 1997/1999 SIP and the 2007 SIP, should the EPA approve the 2007 SIP. Pursuant to Section 176(c) of the Federal Clean Air Act, the conformity analysis and findings will be made outside of this document and will be finalized before the federal agency, in this case the USACE, issues a Record of Decision (ROD) on the EIS. A more detailed conformity statement will be included in the Final EIS to support the ROD depending on potential changes to the federal components proposed Project and/or alternatives developed in response to public comment on the draft EIS/EIR.

3.2.3.2 State Regulations and Agreements

3.2.3.2.1 California Clean Air Act

The California Clean Air Act of 1988, as amended in 1992 (CCAA), 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 AB 2650

AB 2650 (Lowenthal) was signed into law by Governor Davis and became effective on January 1, 2003. Under AB 2650, shipping terminal operators are required to limit truck-waiting times to no more than 30 minutes at the Ports of Los Angeles, Long Beach, and Oakland, or face fines of $250 per violation. Collected fines are to be used to provide grants to truck drivers to replace and retrofit their vehicles with cleaner engines and pollution-control devices. A companion piece of pending legislation (AB 1971) would ensure that the intent of AB 2650 is not circumvented by moving trucks with appointments inside the terminal gates to wait.

3.2.3.2.3 AB 471

In October 2004, AB 471 was passed by the California Legislature and codified in Health and Safety Code (HSC) sections 39630-39632. AB 471 prohibited cruise ships from conducting onboard incineration while operating within 3 miles of the California coast. On November 17, 2005, CARB adopted the Airborne Toxic Control Measure for Cruise Ship Onboard Incineration as title 17, CCR, 93113. This measure implements AB 471 by clarifying the limit for incineration along the California coast as 3 nm and establishing recordkeeping and reporting requirements.

In October 2005, the California Legislature enacted SB 771, which amended HSC sections 39630-39632. SB 771 expands the requirements of AB 471 to include all oceangoing ships of 300 gross registered tons or more. This law became effective November 28, 2007.

In accordance with the methodology developed by Starcrest in the 2005 Port Inventory, incinerators are not included in estimating emissions because incinerators were reportedly not used within the study area. Starcrest reported that interviews with the vessel operators and marine industry indicated that vessels do not use incinerators while at berth or near coastal waters (Starcrest 2007).

3.2.3.2.4 Heavy Duty Diesel Truck Idling Regulation Heavy Duty Diesel Truck Idling Regulation

This CARB rule affected heavy-duty diesel trucks in California starting February 1, 2005. The rule requires that heavy-duty trucks do not idle for longer than 5 minutes at a time. However, truck idling for longer than 5 minutes while queuing is allowed if the queue is located beyond 100 feet of any homes or schools.

3.2.3.2.5 California Diesel Fuel Regulations

With this rule, CARB set sulfur limitations for diesel fuel sold in California for use in onroad and offroad motor vehicles (CARB 2004a). Harbor craft were originally excluded from the rule but were later included by a 2004 rule amendment (CARB 2005d). 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 starting January 1, 2006, and 15-ppm sulfur starting September 1, 2006.

3.2.3.2.6 Measures to Reduce Emissions from Goods Movement Activities

In April 2006, the CARB approved the *Emission Reduction Plan for Ports and Goods Movement in California* (CARB 2006e). This plan proposes measures that would reduce emissions from the main sources associated with port cargo-handling activities, including ships, harbor craft, terminal equipment, and delivery trucks. Although these measures were designed for activities associated with goods movement, they also apply to the heavy-duty delivery trucks at the cruise terminals.

In December 2005, CARB approved the Ocean-Going Vessel Auxiliary Diesel Engine Regulation (Title 13, CCR, Section 2299.1), which required ship auxiliary engines operating in California waters beginning on January 1, 2007 to use marine diesel oil with a maximum sulfur content of 0.5%or use marine gas oil. By January 1, 2010, these source activities were required to meet a marine gas oil sulfur limit of 0.1% (CARB 2006e). The rule was challenged, and on August 30, 2007, CARB ceased enforcement of the rule pursuant to an injunction ordered by a federal district court. CARB filed an appeal and requested a stay of the injunction pending the appeal. This stay was granted on October 23, 2007, and CARB again began enforcing the rule. A federal appeals court rejected the rule on February 27, 2008. This ruling means that the state must seek federal approval before imposing pollution limits on the ocean-going vessels visiting the ports. On March 10, 2008, CARB decided to continue to enforce the Ocean-Going Vessel Auxiliary Diesel Engine

Regulation while litigation involving the regulation remains active. Due to these recent developments and the future uncertainty of the regulation, the impacts of this regulation were conservatively not assumed in the unmitigated emission calculations for the future conditions of the proposed Project and alternatives.

In December 2006, CARB approved the Regulation for Mobile Cargo-Handling Equipment (CHE) at Ports and Intermodal Rail Yards (Title 13, CCR, Section 2479), which is designed to use best available control technology (BACT) to reduce diesel PM and NO_X emissions from mobile cargo-handling equipment at ports. Since January 1, 2007, the regulation has imposed emission performance standards on new and in-use terminal equipment that vary by equipment type. The regulation also includes recordkeeping and reporting requirements. The effects of this regulation are accounted for in the unmitigated OFFROAD2007 emission factors used in this study.

3.2.3.2.7 Statewide Portable Equipment Registration Program

The Statewide Portable Equipment Registration Program establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB 2005c). 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 would apply to proposed dredging and barge equipment.

3.2.3.2.8 AB 1493—Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley), enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will 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 percent in 2030. (CARB 2004.)

3.2.3.2.9 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 (CA 2005).

Some literature equates these reductions to 11% by 2010 and 25% by 2020.

3.2.3.2.10 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 act 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 are 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/NEPA purposes, nor has CARB adopted such a significance threshold.

3.2.3.2.11 Senate Bill 97 Chapter 185, Statutes of 2007

SB 97 requires the Office of Planning and Research (OPR) to prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by CEQA. The California Resources Agency is required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The Guidelines will apply retroactively to any incomplete environmental impact report, negative declaration, mitigated negative declaration, or other related document. In the interim, on June 19, 2008, the OPR issued a Technical Advisory on CEQA and Climate Change (OPR 2008).

3.2.3.2.12 Executive Order S-01-07

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

3.2.3.2.13 SB 1368 GHG Standard for Electrical Generation

SB 1368 authorizes the California Public Utilities Commission (CPUC), in consultation with the California Energy Commission (CEC) and CARB, to establish GHG emissions standards for baseload generation for investor-owned utilities. It requires the CEC to adopt a similar standard for local publicly owned or municipal utilities. The CPUC adopted rulemaking implementing the legislation in January 2007. The California Energy Commission adopted similar regulations in June 2007. The standard for both is 1,000 pounds of CO_2 per megawatt (MWh).

3.2.3.2.14 California Climate Action Registry

Established by the California Legislature in 2000, the California Climate Action Registry (CCAR) is a nonprofit public-private partnership that maintains a voluntary registry for GHG emissions. The purpose of the CCAR is to help companies, organizations, and local agencies establish GHG emissions baselines for purposes of complying with future GHG emission reduction requirements. LAHD is a voluntary member of the CCAR and 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 the CCAR's General Reporting Protocol (Version 3.0, April 2008).
- Report final GHG emissions estimates on the CCAR website.

LAHD has been a member of CCAR since March 29, 2006, and has submitted GHG inventories of Harbor Department controlled activities for 2006 and 2007. Organizations that join the CCAR are specifically recognized by AB 32. As a result, LAHD is assured that CARB will incorporate emissions reporting protocols developed by the CCAR into the state's new mandatory GHG emissions reporting program to the maximum extent feasible.

3.2.3.2.15 May 2008 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 (California State Attorney General's Office 2008). 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.

3.2.3.3 Local Regulations and Agreements

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 and alternatives are listed below. With the possible exception of dredging equipment during construction, the emission sources associated with the proposed Project and alternatives are considered mobile sources. Therefore, the sources are not subject to the SCAQMD rules that apply to stationary sources, such as Regulation XIII (New Source Review), Rule 1401 (New Source Review of Toxic Air Contaminants), or Rule 431.2 (Sulfur Content of Liquid Fuels).

- **SCAQMD Rule 402—Nuisance.** This rule prohibits discharge of air contaminants or other material that
  - cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public;
  - endanger the comfort, repose, health, or safety of any such persons or the public; or
  - cause, or have a natural tendency to cause, injury, or damage to business or property.
- **SCAQMD Rule 403— Fugitive Dust.** This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During construction of the proposed Project or one of the alternatives, 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.
- **SCAQMD Rule 1403 —Asbestos Emissions from Demolition/Renovation Activities.** The purpose of this rule is to limit emissions of asbestos, a toxic air contaminant, from structural demolition/renovation activities. The rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials. The rule also includes notification requirements for any intent to disturb asbestos-containing materials; emission control measures; and asbestos-containing material 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.
- **Port of Los Angeles/Port of Long Beach Vessel Speed Reduction Program (VSRP)**. Under this voluntary program, LAHD has requested that ships coming into the Port reduce their speed to 12 knots or less within 20 nm of the Point Fermin Lighthouse. This reduction of 3 to 10 knots per ship (depending on the ship's cruising speed) can substantially reduce emissions from the main propulsion engines of the ships. The program started in May 2001. The CAAP adopted the VSRP as control measure OGV-1, and it expands the program out to 40 nm from the Point Fermin Lighthouse.

3.2.3.4 Los Angeles Harbor Department Clean Air Policy

LAHD has had a Clean Air Program in place since 2001 and began monitoring and measuring air quality in surrounding communities in 2004. Through the 2001 Air Emissions Inventory, LAHD has been able to identify emission sources and relative contributions in order to develop effective emissions reduction strategies. LAHD's Clean Air Program has included progressive programs such as alternative maritime power (AMP), use of emulsified fuel and diesel oxidation catalysts (DOCs) in yard equipment, alternative fuel testing, and the VSRP.

In late 2004, LAHD developed a plan to reduce air emissions through a number of near-term measures. The measures were primarily focused on decreasing NO_X, but also PM and SO_X. In August 2004, a policy shift occurred, and Mayor James K. Hahn established the No Net Increase Task Force to develop a plan that would achieve the goal of No Net Increase (NNI) in air emissions at the Port relative to 2001 levels. The plan identified 68 measures to be applied over the next 25 years that would reduce PM and NO_X emissions to the baseline year of 2001. The 68 measures included near-term measures; local, state, and federal regulatory efforts; technological innovations; and longer-term measures still in development.

LAHD, in conjunction with the Port of Long Beach and with guidance from SCAQMD, CARB, and EPA, has adopted the CAAP to expand upon existing and develop new emission-reduction strategies. The CAAP was initiated in response to a new mayor and Board of Harbor Commissioners. The CAAP was released as a draft plan for public review on June 28, 2006, and was approved by both the Los Angeles and Long Beach Boards of Harbor Commissioners on November 20, 2006. The CAAP focuses on reducing emissions with two main goals: (1) reduce port-related air emissions in the interest of public health and (2) accommodate growth in trade. The plan includes near-term measures implemented largely through the CEQA/NEPA process, tariffs, and new leases at both ports.

This EIS/EIR analysis assumes that the proposed Project and alternatives would comply with the CAAP. Proposed mitigation measures applied to reduce air emissions and public health impacts are largely consistent with, and in some cases exceed, the CAAP's emission-reduction strategies. These measures also would extend beyond the 5-year CAAP timeframe to the end of the lease period in 2038. Table 3.2-23 details how mitigation measures for the proposed Project and the alternatives compare to measures identified in the CAAP.

3.2.3.4.1 LAHD Sustainable Construction Guidelines

In February 2008, the LAHD Board of Harbor Commissioners adopted the *Los Angeles Harbor Department Sustainable Construction Guidelines for Reducing Air Emissions* (LAHD Construction Guidelines). These guidelines will be used to establish air emission criteria for inclusion in construction bid specifications. The

LAHD Construction Guidelines 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 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 LAHD 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 LAHD Construction Guidelines include, but are not limited to:

1. All ships and barges used primarily to deliver construction-related materials for LAHD construction contracts will comply with the Vessel Speed Reduction Program and use low-sulfur fuel within 40 nautical miles of Point Fermin.
2. Harbor craft will meet EPA Tier 2 engine emission standards. This requirement will increase to EPA Tier 3 engine emission standards by January 1, 2011.
3. All dredging equipment will be electric.
4. Onroad heavy-duty trucks will comply with EPA 2004 onroad emission standards for PM10 and NO_X and will be equipped with a CARB-verified Level 3 device. Emission standards will increase to EPA 2007 onroad emission standards for PM10 and NO_X by January 1, 2012.
5. Construction equipment (excluding onroad trucks, derrick barges, and harbor craft) will meet EPA Tier-2 nonroad standards. The requirement will increase to Tier 3 by January 1, 2012, and Tier 4 by January 1, 2015. In addition, construction equipment will be retrofitted with a CARB-certified Level 3 diesel emissions control device.
6. Comply with SCAQMD Rule 403 regarding fugitive dust and other fugitive dust control measures.
7. Additional best management practices, based largely on best available control technology (BACT), will be required on construction equipment (including onroad trucks) to further reduce air emissions.

This EIR analysis assumes that the proposed Project and its alternatives 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. Table 3.2-141 identifies the mitigation and monitoring requirements for these measures.

3.2.4 Impacts and Mitigation Measures

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

3.2.4.1 Methodology

Air pollutant emissions of VOC, CO, NO_X, SO_X, PM10, and PM2.5 were estimated for construction and operations of the proposed Project and alternatives. To determine their significance, the emissions were compared to Significance Criteria AQ-1 and AQ-3 identified in Section 3.2.4.2. The criteria pollutant emission calculations are presented in Appendix D1.

Dispersion modeling of CO, NO_X, PM10, and PM2.5 emissions was performed to estimate maximum offsite pollutant concentrations in the air from emission sources attributed to the proposed Project and alternatives. The predicted ambient concentrations associated with construction and operations of the proposed Project and alternatives were compared to Significance Criteria AQ-2 and AQ-4, respectively. The complete dispersion modeling report is presented in Appendix D2.

Dispersion modeling of vehicle traffic also was performed at high traffic volume roadway intersections affected by truck trips generated by the proposed Project and alternatives. The maximum predicted CO “hot spot” concentrations near the intersection were compared to Significance Criterion AQ-5.

The potential for odors generated by the proposed Project and alternatives at sensitive receptors in the vicinity was assessed qualitatively and compared to Significance Criterion AQ-6.

A health risk assessment (HRA) of toxic air contaminant emissions associated with construction and operations of the proposed Project and alternatives was conducted in accordance with a protocol that the LAHD prepared and SCAQMD reviewed (Port of Los Angeles 2008). Maximum predicted health risk values in the communities adjacent to the proposed project site were compared to Significance Criterion AQ-7. The HRA analyzed proposed project emissions and human exposure to the emissions during the 70-year period from 2009 to 2078. The complete HRA is presented in Appendix D3.

The consistency of the proposed Project and alternatives with the AQMP was addressed in accordance with Significance Criterion AQ-8. GHG emissions were addressed in AQ-9.

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

The emission estimates, dispersion modeling, and health risk estimates presented in this document were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available for this study.

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

3.2.4.1.1 Methodology for Determining Construction Emissions

Proposed construction activities for the proposed Project and alternatives would involve the use of offroad construction equipment, dredging equipment, cranes, pile drivers, onroad trucks, tugboats, and heavy duty haul trucks. 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, and PM2.5. In addition, offroad 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.

Construction emissions include exhaust emissions from heavy equipment used during the construction phase of the proposed Project and alternatives. These emissions were estimated using the following methodology. LAHD supplied the equipment usage and scheduling data needed to calculate emissions for the proposed construction activities (LAHD 2007). A worst-case day was identified based on the time period during which the maximum amount of construction activity would take place at a particular proposed project component. The construction schedule analysis was used to identify the type and number of equipment that would be operating in an 8-hour day during the period of maximum activity. The number of each type of equipment was entered into a spreadsheet. Emission factors from the CARB's OFFROAD2007, EMFAC2007, and LAHD Inventory of Air Emissions were identified for each type of equipment, heavy-duty trucks, and marine vessels, respectively. In some cases, the horsepower rating of the equipment was required in order to estimate emissions.

To estimate peak daily construction emissions for comparison to SCAQMD emission thresholds, emissions were first calculated for the individual construction activities (e.g., cruise terminals, parking lots, promenade, red car trolley extensions, etc.). Peak daily emissions then were determined by summing emissions from overlapping construction activities as indicated in the proposed construction schedule (Table 2-5). Figure 3.2-2 presents the layout of the 40 construction components along the proposed project site. The SCAQMD emission thresholds are discussed in Section 3.2.4.2.

The 54-month period in which the bulk of the construction activities would simultaneously occur was broken down on a project-by-project component basis in order to evaluate the construction activities that would occur during a calendar year period. The proposed project components for which each individual construction activity would occur were grouped into each calendar year. Once the 12-month period was identified, all construction activities that would occur at that location were included in the emission calculations. Table 2-5 shows the 12-month/calendar year period that was evaluated for each proposed project component for each alternative.

In many cases, some activities would be completed within the 12-month calendar activity period and other activities would begin. Because construction activities vary substantially from day to day and construction is expected to spread into several phases over a 6-year period (2009 to 2014), an estimate of peak daily construction emissions was conducted. Based on the estimated construction schedule, material transport needs, construction employment, and travel distances were quantified.

The LAHD has provided the number and type of equipment that would be used during each month, along with the estimated number of hours per day that the equipment would be operation. Once the emission had been estimated for each emitting process, the worst-case daily emissions were evaluated relative to the significant criteria and significant impacts identified. For the heavy-duty construction equipment activities, the maximum emissions would occur in 2010. However, it should be noted that the maximum number of construction crews for building assembly and renovations would occur in 2011. Because of the predicted high number of vehicle activities associated with the construction worker vehicle trips, material/supply delivery trucks, and cruise ship tourist activities, the maximum emission year for the combined construction and operational activities would be expected to occur in 2011. The other milestone years included in the air quality analysis are 2015, 2022, and 2037.

The specific approaches to calculating emissions for the various emission sources during construction of the proposed Project are discussed below. Table 3.2-7 includes a synopsis of the regulations and agreements that were assumed as part of the proposed Project and alternatives in the construction calculations. The construction emission calculations are presented in Appendix D1.

LAHD Construction Guideline measures are included as mitigation in this study consistent with the guidelines. Mitigation measures would be incorporated into proposed project construction bid specifications.

Table 3.2-7. Regulations and Agreements Assumed in the Unmitigated Construction Emissions

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

Note:

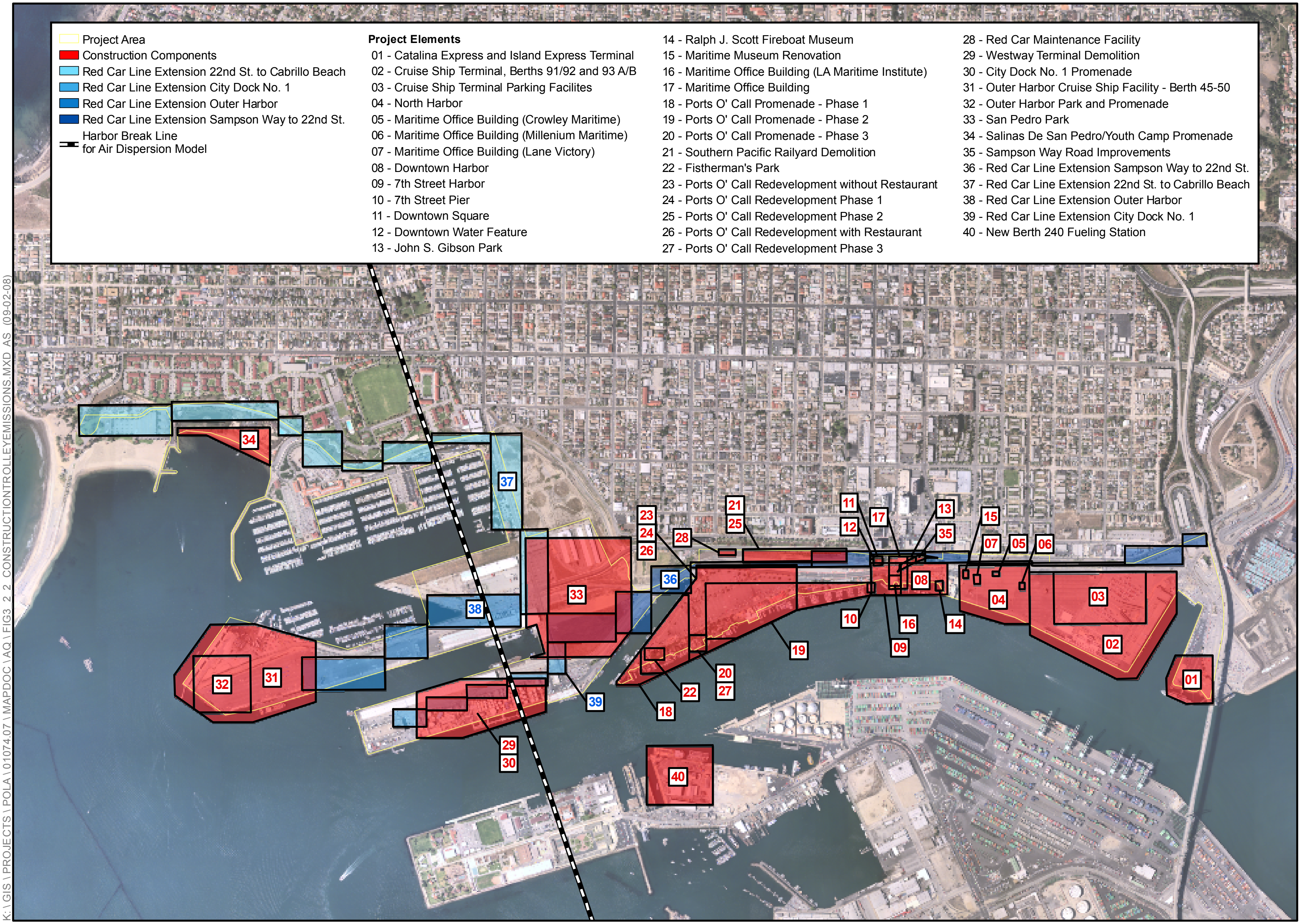
This table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the emission calculations for the proposed Project. A description of each regulation or agreement is provided in Section 3.2.3.

3.2.4.1.2 Offroad Construction Equipment

Emissions of VOC, CO, NO_X, SO_2, PM10, and PM2.5 from diesel-powered construction equipment were calculated using emission factors derived from the CARB OFFROAD 2007 Emissions Model (CARB 2007). Using the SCAB fleet information, the OFFROAD model was run for each of the construction years of 2009 through 2014. 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 offroad engine emission standards.

3.2.4.1.3 Onroad Trucks Used during Construction

Emissions from onroad, heavy-duty diesel trucks during construction were calculated using emission factors generated by the EMFAC2007 onroad mobile source emission factor model for a truck fleet representative of the SCAB (CARB 2007). The EMFAC2007 model output shows that, on a per-mile basis, emission factors will



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0 0.5 1 Kilometers

SOURCE: ICF Jones & Stokes

ICF Jones & Stokes
an ICF International Company

Figure 3.2-2
Construction and Trolley Components
San Pedro Waterfront Project

steadily decline in future years, as older trucks are replaced with newer, cleaner trucks that meet the required state and federal onroad engine emission standards.

Other assumptions regarding onroad trucks during construction are as follows:

- Trucks hauling debris or fill materials would travel 90% of the trip distance on site at 25 miles per hour (mph), and 10% at 10 mph. All other construction-related trucks would travel off site with a trip distance of 40 miles at 55 mph, 25 mph for 0.5 mile, and at 10 mph for 0.25 mile.
- Nonincidental truck idling times would be 20 minutes for concrete truck trips and 5 minutes for all other truck trips.

3.2.4.1.4 Tugboats Used during Construction

During construction, tugboats would be used to haul dredge sediment in barges off site for disposal at sea (e.g., LA-2). Figure 3.2-3 presents route of the tugboats hauling dredged and excavated materials from the harbor cuts to the LA-2 disposal site.

Emissions from tugboat main and auxiliary engines were calculated using Entec (Entec 2002) emission factors for medium- and high-speed diesel marine engines, respectively, as reported by Starcrest (Starcrest 2007). 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 uncontrolled Entec emission factors for all construction phases, both with and without mitigation, because a tugboat used for construction may come from outside the tugboat fleet currently serving the Port.

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 2004a).

Other assumptions regarding tugboats during construction are as follows:

- During dredging activities, a tugboat would operate at 8 hours per day hauling a barge off site for sediment disposal at sea. The round-trip distance would be 2 nm.
- Crew survey boats would operate for a maximum 2 hours per day during construction of the new harbors.

3.2.4.1.5 Fugitive Dust

The evaluation of fugitive dust incorporates all sources of dust (e.g., demolition and grading) that might be produced during the construction phase. The SCAQMD factors were used to determine the fugitive dust generated by heavy-duty equipment, trucks, and automobiles travelling both on site and off site. Fugitive dust emissions (PM10) from loading, dumping, and construction equipment traveling over unpaved surfaces were estimated using the emissions factors in the Western Regional Air Partnership's Fugitive Dust Handbook (WRAP 2006). A general emission factor for all types of construction activity is 0.11 ton of PM10/acre/month and is based on a 1996 best available control measure study conducted by Midwest Research Institute (MRI) for the SCAQMD. The single composite factor of 0.11 ton of PM10/acre/month assumes that all construction activity produces the same amount of dust on a per-acre basis. In other words, the amount of dust produced is not dependent on the type of construction but merely on the area of land being disturbed by the construction activity. A second assumption is that most land affected by construction activity does not involve large-scale cut and fill operations. For the large-scale excavation and dredging operations for the new harbors, a worst-case composite emission factor of 0.42 ton of PM10/acre/month was used for the construction of the three new harbors. Unmitigated grading emissions were reduced by 75% from uncontrolled levels to reflect required compliance with SCAQMD Rule 403. According to SCAQMD guidance, watering the site three times per day pursuant to Rule 403 would reduce fugitive dust emissions by 75% (SCAQMD 2005f). The dust-control methods for the proposed Project and alternatives would be specified in the dust-control plan that must be submitted to the SCAQMD per Rule 403.

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

3.2.4.1.6 Worker Commute Trips during Construction Activities

Emissions from worker trips during construction were calculated using the URBEMIS2007 land use emission model. LAHD's construction estimates provided detailed information about the number of crew and manhours required for each proposed project component. The number of vehicle trips was determined based on the URBEMIS2007 default average commute distance for passenger vehicles in the SCAB (SCAQMD 2007).

3.2.4.1.7 Methodology for Determining Operational Emissions

Operational emission sources include cruise ships, harbor craft, terminal equipment, and motor vehicles. The sources would generate emissions of diesel exhaust in the form of VOC, CO, NO_X, SO_X, PM10, and PM2.5. Onroad motor vehicles would generate vehicle exhaust and paved road dust emissions. These sources plus electricity usage at Ports O'Call, the cruise ship terminals, and other non-industrial

SOURCE: ICF Jones & Stokes

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Figure 3.2-3
Tugboat Construction Haul Route
San Pedro Waterfront Project

sources also generate GHG emissions. Figure 3.2-4 presents the locations of operational emission sources at the proposed Project and alternatives sites.

Information on proposed operational emission sources was obtained from LAHD staff, the traffic study conducted as part of this draft EIS/EIR (see Section 3.11 and Appendix M.1), and the *Port of Los Angeles Inventory of Air Emissions 2005* (Starcrest 2007).

Table 3.2-8 includes a synopsis of the regulations that were assumed in the unmitigated emissions calculations. Current in-place regulations are treated as proposed project elements rather than mitigation because they represent enforceable rules with or without approval of the proposed Project or one of the alternatives. Only current regulations and agreements were assumed as part of the unmitigated emissions of the proposed Project and alternatives for the various analysis years.

CAAP measures planned for future implementation at a project level are treated as mitigation in this study consistent with the CAAP's implementation plan. Mitigation measures would be incorporated into proposed project leases as enforceable lease measures. Therefore, the unmitigated emissions of the proposed Project and alternatives assume no future CAAP measure implementation.

Table 3.2-8. Regulations and Agreements Assumed as Part of the Unmitigated Emissions for the Proposed Project and Alternatives

Cruise Vessels	*Harbor Craft*	*Terminal Equipment*	*Trucks*
Vessel Speed Reduction Program— 80% compliance in 2009, 2011, 2015, 2022, and 2037 **AB 471 / SB 771—** Prohibits waste incineration.	**California Diesel Fuel Regulations—**15-ppm sulfur fuel. **Engine Standards for Marine Diesel Engines—**Tier 2 standards gradually phased in due to normal tugboat fleet turnover.	**Emission Standards for Nonroad Diesel Engines—**Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal terminal equipment fleet turnover. **California Diesel Fuel Regulations—**15 ppm sulfur fuel.	**Emission Standards for Onroad Trucks—**Tiered standards gradually phased in over all years due to normal truck fleet turnover. **California Diesel Fuel Regulations—**15-ppm sulfur fuel. **AB 2650—**On-terminal trucks are subject to idling limits. **Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling**—Diesel trucks are subject to idling limits.
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 emissions of the proposed Project and alternatives. A description of each regulation or agreement is provided in Section 3.2.3.			

The specific approaches to calculating emissions for the various emission sources during operation of the proposed Project and alternatives are discussed below.

The operational emission calculations are presented in Appendix D1.

3.2.4.1.8 Cruise Ships

Emissions from the main engines, auxiliary engines, and boilers on cruise ships were calculated using Entec emission factors (Entec 2002), as reported in the *Port of Los Angeles Inventory of Air Emissions 2005* (Starcrest 2007).

Most cruise ships are fitted with diesel engine generators, also known as diesel-electric engines. In the electric drive arrangement, the diesel engine is directly coupled to a generator, and the electricity produced drives an electric motor. Since power for the propulsion and ship service support is provided by the same diesel engine generators and since the propulsion and ship service support are integrated through a common electric distribution system, the terms “main” and “auxiliary” engines that are often used in describing container or cargo vessel engines are not used in describing diesel-electric configurations.

To estimate annual or average daily unmitigated emissions, the ship engines were assumed to use residual fuel with an average sulfur content of 2.7% (27,000 ppm). A sulfur content of 2.7% represents a worldwide average for residual fuel (Entec 2002). LAHD has completed a study regarding low sulfur fuel availability and has verified that the ships calling at the Port are consistent with the worldwide average of 2.7% sulfur content (Starcrest 2005). Ship boilers were assumed to operate between the fairway and the berth, and at berth. Peak daily emissions were estimated assuming that vessels burning 4.5% sulfur fuel would call at the cruise terminals.

Without mitigation, the emission factors and fuels for cruise ships were assumed to remain unchanged in future years, except for NO_X emission factors, which are affected by IMO MARPOL Annex VI NO_X limits. In estimating annual or average daily unmitigated emissions, cruise ships were assumed to be compliant with IMO MARPOL Annex VI NO_X limits based on a 45% compliance rate in 2006 (Starcrest 2007) and based on a fleet turnover rate of 4% (Wahlström 2006).

The methodology in the *Port of Los Angeles Inventory of Air Emissions 2005* was used to calculate ship emissions during transit and hoteling (Starcrest 2007). This methodology uses assumptions regarding engine load factors and associated energy output during each trip segment. During transit, engine load factors were determined using the propeller law, which states that the engine load factor is proportional to the speed of the ship cubed. A true low-load scenario would not occur in a diesel-electric configuration because one or more engines would be automatically turned off as the vessel reduces speed, to maintain optimum engine operation and load distribution. Therefore, the diesel-electric configuration does not require that emission factors for main engines be adjusted, on a per kWh basis, to account for low-load.

Other assumptions regarding cruise ships are as follows:

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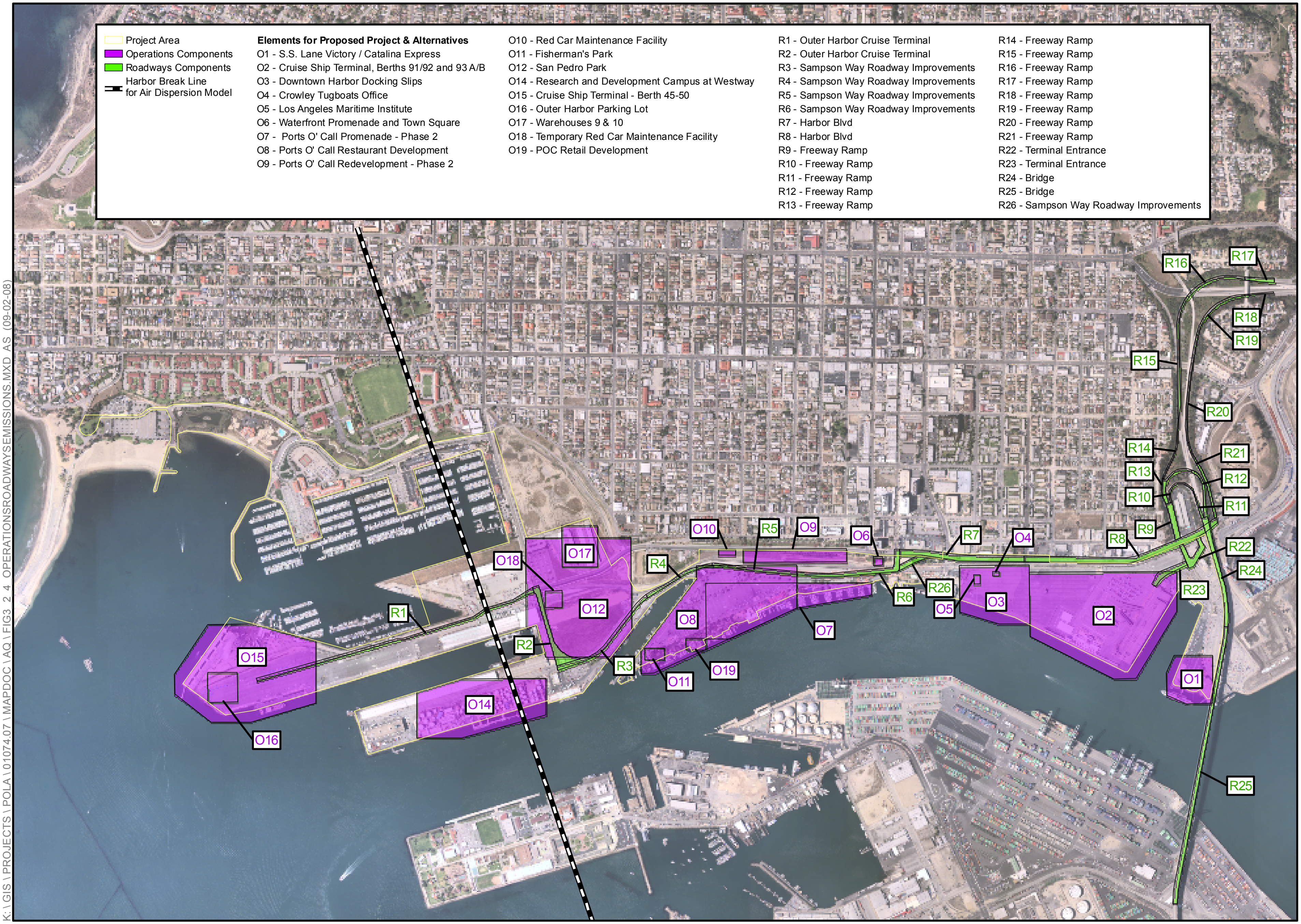

SOURCE: ICF Jones & Stokes

ICF Jones & Stokes
an ICF International Company

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0 0.5 1 Kilometers

Figure 3.2-4
Operations and Roadways Components
San Pedro Waterfront Project

- Emissions from ships in transit were calculated from the berth to the edge of SCAQMD waters (roughly a 50-mile, one-way trip) for the air emissions. Figure 3.2-5 presents the cruise ships transit in inner and outer harbors and the ocean.
- The VSRP compliance rate in 2006 would be 80% to 20 nautical miles, without mitigation (Port of Los Angeles 2008). The unmitigated compliance rate for all future analysis years was assumed to remain at the 2006 level of 80%.
- During hoteling (without AMP), ships would redistribute engine load to continue to provide only the power required for services (e.g., lighting, comfort heating/cooling). Boilers were also assumed to continue operating during hoteling. With AMP, only boilers would operate.
- A hoteling duration of 12 hours would apply to all scenarios and years (Fehr & Peers 2008).
- Most cruise ships would proceed directly to the berth and would not spend time in anchorage (Starcrest 2008a).
- Cruise vessels would maneuver through the harbor without the use of assist tugboats (Starcrest 2008).
- The vessels with the activities and sizes listed in Table 3.2-9 would call at the Inner and Outer Harbor Cruise Terminals. Figure 3.2-5 presents the estimated cruise vessel emission sources at the hoteling points and along the routes of the cruise vessels between the Inner and Outer Harbors to 40 nm out to sea. The vessel sizes are based on actual data for year 2006 and a LAHD-projected fleet mix for future years. The vessel activity is based on berth size and availability projected for the proposed Project and alternatives.

Table 3.2-9. Activities and Sizes of Vessels That Would Call at the Inner and Outer Harbor Cruise Terminals—Proposed Project

Years	*Vessel Activities and Sizes*
Peak Scenarios	
Years 2009 through 2013	All vessels calling at the Inner Harbor Cruise Terminal would be 57,000-kW vessels. Each of the three Inner Harbor berths would be occupied. The Outer Harbor Cruise Terminal would not be built until 2013. Therefore, no vessel calls are associated with that terminal prior to the end of 2013.
Years 2013 through 2037	Half of the vessels calling at the Inner Harbor Cruise Terminal would be 57,000-kW vessels and half would be 73,800-kW vessels. This assumption is based on the proposed berth size at the Inner Harbor Cruise Terminal. Each of the two Inner Harbor berths would be occupied. All vessels calling at the Outer Harbor Cruise Terminal would be 73,800-kW vessels. This assumption is based on the proposed berth size at the Outer Harbor Cruise Terminal. Each of the two Outer Harbor berths would be occupied.
Average Scenarios	
Years 2009 through 2013	All vessels calling at the Inner Harbor Cruise Terminal would be 57,000-kW vessels. Berth occupation is based on the number of vessels expected during the course of the

Years	Vessel Activities and Sizes
	year. The Outer Harbor Cruise Terminal would not be built until 2013. Therefore, no vessel calls are associated with that terminal prior to the end of 2013.
Years 2013 through 2037	Half of the vessels calling at the Inner Harbor Cruise Terminal would be 57,000-kW vessels, and half would be 73,800-kW vessels. This assumption is based on the proposed berth size at the Inner Harbor Cruise Terminal. Berth occupation is based on the number of vessels expected during the course of the year. Half of the vessels calling at the Outer Harbor Cruise Terminal would be 57,000-kW vessels, and half would be 73,800 kW vessels. Berth occupation was based on the number of vessels expected during the course of the year.

3.2.4.1.9 Tugboats, Catalina Express, and Other Harbor Craft

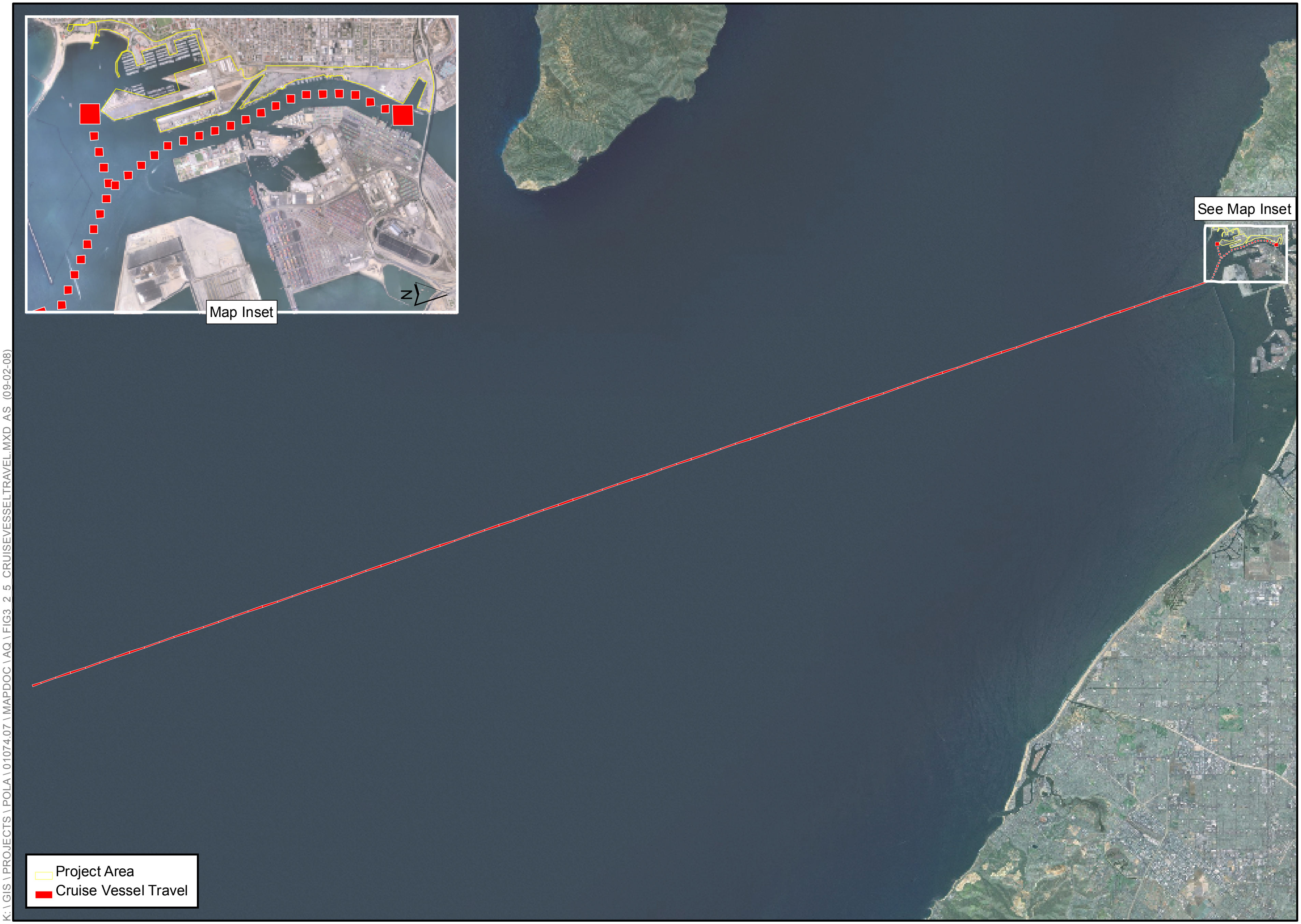
The analysis of the proposed Project and alternatives considered emissions associated with harbor craft, including assist tugboats, ferries, commercial fishing, crew boats, excursion boats, and government boats. It was assumed that the number of harbor craft trips would not change from the CEQA or NEPA baseline due to the proposed Project and alternatives.

Although tugboats are not used to assist cruise ships in most operations, the proposed Project includes the relocation of Crowley and Millennium tugboat operations to the North Harbor. Therefore, although the number of tugboats would not change due to the proposed Project, the location of base tugboat operations and therefore transit times to the harbor gates would change.

The proposed Project includes the relocation of the Catalina Express Terminal berthing facilities from Berth 96 to the existing location of the S.S. Lane Victory at Berth 94. This change of location would not affect ferry emissions.

Other assumptions regarding harbor craft are as follows:

- Emission factors for harbor craft are based on emission factors reported in the 2005 Port inventory (Starcrest 2007).
- Older harbor craft engines would gradually be replaced with new engines meeting EPA Tier 2 standards (EPA 1999), based on default marine engine lifetimes developed by CARB (CARB 2004c).
- The diesel fuel used in harbor craft would have average sulfur content of 15 ppm, as is required for California harbor craft in accordance with California Diesel Fuel Regulations (CARB 2004a).
- The relocation of tugboats to the North Harbor Cut in the Inner Harbor would result in a reduced transit time for the tugboats to the harbor gate.



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SOURCE: ICF Jones & Stokes

ICF Jones & Stokes
an ICF International Company

Figure 3.2-5
Cruise Vessel Travel
San Pedro Waterfront Project

- Tugboat activity includes trips made between the tugboat home base and Angels Gate on their way to or from assisting ships destined for other berths at the Port. These emissions were included because the proposed Project would change the location of the tugboats' homebase and therefore change the distance traveled by the tugboats to and from the assisted ship. However, tugboat emissions during the actual ship assist were not included in the proposed project emissions because the ships destined for other berths are not part of the proposed Project, and the associated tugboat emissions would not be affected by the proposed Project.
- Catalina Express ferries are plugged into an electrical power system overnight, and their auxiliary engines are not turned on until just prior to passenger loading. Main engines are turned on after passenger boarding is completed.

3.2.4.1.10 Terminal Equipment

Terminal equipment includes forklifts and diesel fuel trucks used at the Cruise terminals and the Berth 87 cargo terminal. The following assumptions were made in calculating emissions from terminal equipment without mitigation:

- Cruise Terminal:
  - 11 diesel forklifts,
  - 25 propane forklifts, and
  - 2 diesel fuel trucks
- Berth 87 cargo terminal:
  - 10 diesel forklifts.

Emissions of VOC, CO, NO_X, PM10, and PM2.5 from terminal equipment were calculated using emission factors derived from the CARB OFFROAD2007 Emissions Model (CARB 2007). The OFFROAD model was run using the terminal equipment population at the Berths 87–93 Inner Harbor Cruise Terminal in 2006. With each future analysis year, the equipment population was allowed to age in the OFFROAD 2007 model until reaching its CARB-defined useful lifetime, at which point the equipment would be assumed to be replaced by new equipment meeting current emission standards. The new replacement equipment would then age in a similar manner.

Emission factors for SO_X were determined from the fuel consumption rate of the terminal equipment and the sulfur content of the diesel fuel used in the equipment. The sulfur content in diesel fuel was assumed to be 15 ppm, which represents the maximum allowable sulfur content in diesel fuel sold in California (CARB 2004a).

To calculate emissions, the predicted terminal equipment usage for each future year was multiplied by the OFFROAD emission factors. The terminal equipment usage for both Inner Harbor and Outer Harbor Cruise Terminals in each analysis year was scaled from the year 2006 usage in proportion to the annual predicted number of cruise ships.

3.2.4.1.11 Motor Vehicles

Emissions from onroad passenger vehicles, shared ride vehicles (i.e., taxi/limo/shuttle buses), full size coach buses, and heavy-duty diesel delivery trucks during operations for the proposed Project and alternatives were calculated using the URBEMIS2007 model, using emission factors generated by the EMFAC2007 onroad mobile source emission factor model (CARB 2007a). Figure 3.2-4 presents the locations of operational and roadway vehicle emission sources. The motor vehicle fleet age distribution representative of the SCAB was incorporated into EMFAC2007. Other assumptions regarding motor vehicles during operations are as follows:

- Emission calculations are based on the daily trip generation data and vehicle fleet mix provided by Fehr & Peers (2008).
- The URBEMIS2007 model was used to calculate the PM10 and PM2.5 emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.

The vehicle fleet age distribution provided by Fehr & Peers and used in EMFAC2007 was based on the California Vehicle Registration Program. To estimate future year emission factors, the age distribution of the baseline motor vehicle fleet was increased by the time step between year 2006 and each future project year to determine the vehicle fleet age distribution for each project year. The EMFAC2007 model output shows that, on a per-mile basis, emission factors will steadily decline in future years, as older trucks are replaced with newer, cleaner trucks that meet the required state and federal onroad engine emission standards.

Other assumptions regarding onroad trucks during operations are as follows:

- The average one-way truck trip distances from the proposed project boundaries would be 20 miles.
- Trucks would travel at a trip distance of 0.25 mile at 10 mph, 0.5 mile at 25 mph, and 40 miles at 55 mph.
- Truck idling time would be 20 minutes for concrete trucks and 5 minutes for all other trucks.

Roadway Intersection Modeling

The roadway intersection modeling for the proposed Project and alternatives was conducted using CALINE4. In general, the *Transportation Project-Level Carbon Monoxide Protocol* (University of California Davis 1997) was followed for the CO air quality assessment. This document, commonly referred to as the Caltrans Protocol, was developed for use by Caltrans. The model input data, set-up, and modeling results are briefly described in this section.

Modeled Intersection Selection and Traffic Volume

Traffic volume is a primary project-related input to the CO model. For 2015 and 2037, carbon monoxide concentrations were estimated for the following three intersections with the highest traffic volumes. The numbers in parenthesis refer to the identification numbers of intersections analyzed in Section 3.11, "Transportation an Circulation (Ground)," as shown on Figure 3.11-1.

- Gaffey Street and 1st Street (9),
- Gaffey Street and I-110 ramps (10), and
- Harbor Boulevard and O'Farrell Street (29);

Additional intersections that had lower traffic volumes than those listed above were also selected for analysis in order to provide greater geographic distribution of locations analyzed along the main traffic corridors, Gaffey Street and Harbor Boulevard, as follows:

- additional 2015 intersections:
  - Harbor Boulevard and Swinford Street/SR-47 ramps (26), and
  - Gaffey Street and 5th Street (8).
- additional 2037 intersections:
  - Harbor Boulevard and 7th Street (22).

The traffic volumes are provided for each intersection for the proposed Project and alternatives. The highest traffic volumes for each intersection were used in the modeling.

Meteorology Inputs

The AM, PM, and weekend peak hours were modeled for the intersections with the worst-case meteorology per the guidance. Specifically, either the morning or early evening (which has the same meteorology for coastal locations) winter period with a ground-based inversion was considered with low wind speed and temperature, as specified in the Caltrans Protocol.

Modeled CO Concentration

The CALINE4 model predicts 1-hour CO concentrations at each receptor location. The 8-hour CO concentrations were estimated using a persistence factor of 0.7, recommended in the guidance for the urban location. The background 1-hour and 8-hour CO concentrations for the 2004–2006 period at the North Long Beach CO monitoring station were obtained from the EPA air website. The second highest maximum 1-hour and 8-hour CO concentrations at the monitoring site within the 3-year period are 4.0 ppm and 3.3 ppm, respectively.

Traffic volumes were based on the traffic study and the projected changes in traffic volumes in future years for both with and without the proposed Project and alternatives.

3.2.4.1.12 Greenhouse Gases

Greenhouse gas emissions associated with the proposed Project and alternatives were calculated based on methodologies provided in the CCAR General Reporting Protocol, version 3.0 (CCAR 2008). This protocol is the guidance document that LAHD and other CCAR members must use to prepare annual Port-wide GHG inventories for the CCAR. Therefore, for consistency, the CCAR General Reporting Protocol also was used in this study. However, to adapt the protocol for NEPA/CEQA purposes, a modification to the protocol's operational and geographical boundaries was necessary.

The construction sources for which GHG emissions were calculated include:

- offroad diesel construction equipment,
- onroad trucks,
- other motor vehicles,
- marine cargo vessels used to deliver equipment to the site,
- tugboats assisting cargo vessels, and
- crane/derrick barges.

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

- cruise vessels,
- cargo vessels calling at Berth 87 (applies to 2006 CEQA baseline only),
- tugboats,
- Catalina Express ferries,
- other harbor craft,
- cruise terminal equipment,
- onroad trucks,
- other motor vehicles,
- electricity consumption by terminal and commercial activates related to the proposed Project, such as Ports O'Call,
- AMP electricity consumption (for the mitigated proposed Project),
- on-terminal electricity consumption by loading equipment (replaces diesel- and propane-fueled equipment for the mitigated proposed Project), and

- Waterfront Red Car Line electricity consumption.

The adaptation of the CCAR General Reporting Protocol methodologies to these proposed emission sources for the proposed Project and alternatives is described in Appendix D1.

GHG Operational and Geographical Boundaries

Under the CCAR General Reporting Protocol, emissions associated with construction and operation of the proposed Project and alternatives would be divided into three categories:

- Scope 1: direct emissions from sources owned or operated by LAHD,
- Scope 2: indirect emissions from purchased and consumed electricity, and
- Scope 3: indirect emissions from sources not owned or operated by LAHD.

Examples of Scope 1 sources are terminal equipment, LAHD vehicles, and Port-based tugboats. An example of Scope 2 emissions would be indirect GHG emissions from electricity consumption on the terminal. Because LAHD generally does not own ships, trucks, or construction equipment, these mobile sources would be considered Scope 3 emissions.

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

For the purposes of this NEPA/CEQA document, GHG emissions were calculated for all proposed Project-related sources (Scopes 1, 2, and 3). Because CCAR does not require reporting of Scope 3 emissions, CCAR has not developed a protocol for determining the operational or geographical boundaries for some Scope 3 emissions sources, such as ships. Therefore, for those sources that travel beyond California borders (for the proposed Project and alternatives, ships), GHG emissions were based on the following routes:

- For cruise and cargo ships, ocean transit along the shipping routes within California state borders between the Port and the California 3-mile jurisdictional boundary west of Point Conception (northern route) and the California-Mexico border extended westward (southern route). The analysis assumed that all proposed project ships would follow these routes.

This approach is consistent with the CCAR goal of reporting all GHG emissions within California (CCAR 2007).

This document acknowledges that GHG emissions from ships visiting the proposed Project berths would extend beyond state borders. However, for the purposes of this NEPA/CEQA document, and after consulting CCAR (Camp pers. comm.), the Port elected to address GHG emissions quantitatively within state borders and qualitatively outside of state borders. Emissions outside of state borders are also discussed qualitatively in the Cumulative Analysis (Section 4.2.2.10). This methodology is also consistent with other types of air quality analyses, which address emissions within the area of which the regulating agency has control. For example, while the document discloses that criteria pollutants are emitted from ships outside state boundaries and that these pollutants contribute to worldwide pollution rates, the scope of analysis is limited to the South Coast Air Basin to be consistent with thresholds established by the SCAQMD.

In the case of electricity consumption, all GHG emissions were calculated regardless of whether they are generated by in-state or out-of-state power plants because the consumption of electricity would occur within California borders. This approach is consistent with CCAR guidance. Electricity usage by the Waterfront Red Car Line was calculated only for vehicle operations in the proposed project area, defined as Swinford Street (Cruise Ship Terminal) southward. Electricity usage was not calculated for potential Waterfront Red Car Line services that are not components of the proposed Project and that might extend outside of the proposed project area.

This overall approach for assessing the impacts of GHG emissions is consistent with the CCAR goal of reporting all GHG emissions within the state of California and emissions for electricity used within the state even if generated outside the state boundaries. (CCAR 2007.)

Mitigation to address GHG emissions is included in this study as mitigation measures. Like CAAP measures, GHG mitigation measures would be incorporated into proposed project leases as enforceable lease measures. Mitigation measures were developed using AB-32 Guidelines (Section 3.2.3.2.10) and the May 2008 Memo from the California State Attorney General's Office (Section 3.2.3.2.15).

3.2.4.1.13 CEQA Impact Determination

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the proposed project vicinity that exist at the time of the NOP. 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 draft EIS/EIR, the CEQA baseline for determining the significance of potential impacts of the proposed Project and alternatives is 2006.

The CEQA baseline for the proposed Project and alternatives includes cruise vessels, vessels calling at Berth 87, Crawley and Millennium tugboats, Catalina Express ferries, commercial fishing vessels, crew boats, excursion vessels, government vessels, terminal equipment, delivery trucks, and motor vehicles associated with passenger and worker transport.

The CEQA baseline represents the setting at a fixed point in time (2006) and differs from the No-Project Alternative (Alternative 6—discussed in Section 2.5.1.6) in that the No-Project Alternative addresses what is likely to happen at the site over time, starting from the existing conditions. The No-Project Alternative allows for growth at the proposed project site that would occur without additional approvals.

3.2.4.1.14 NEPA Impact Determination

The evaluation of significance under NEPA typically is defined by comparing the proposed Project and alternatives to the NEPA baseline, which discusses the construction of site improvements and operations that could occur without federal action and without permits from the USACE.

The NEPA baseline for this proposed Project is the No-Federal-Action Alternative (Alternative 5), which would allow construction and operation of upland elements without any improvements within the Los Angeles Harbor waters. Therefore, the NEPA baseline does not include any dredging or filling of the North Harbor, Downtown Harbor, or 7th Street Harbor; berth development in the Outer Harbor; or any other wharf construction or upgrades that would require permits from the USACE under Section 10 of the RHA, Section 404 of the CWA, or—for any transportation of dredged material for ocean dumping—Section 103 of the MPRSA. It also does not include terminal development in the Outer Harbor, which would directly depend on in-water activities requiring a Corps permit. Similar to the CEQA No-Project Alternative (Alternative 6), the NEPA No-Federal-Action Alternative (Alternative 5) allows for growth at the proposed project site that would occur without additional federal approvals.

The peak daily construction emissions associated with the NEPA baseline, which includes emissions associated with the landside construction equipment, construction truck trips, and workers vehicle trips, are presented in Table 3.2-10. The average daily and peak daily operational emissions associated with the NEPA baseline are presented in Tables 3.2-11 and 3.2-12, respectively. The construction and operational emissions include the same mitigation measures that are described for Alternative 5. For this reason, the NEPA baseline operational emissions are in some cases lower than the CEQA baseline emissions discussed in Section 3.2.4.1.14.

The average daily emissions in Table 3.2-11 represent the annual emissions divided by 365 days per year. Average daily emissions are a good indicator of terminal operations over the long term since terminal operations can vary substantially from day to day depending on ship arrivals. The average daily emissions are provided for informational purposes only and are not considered in the significance determination.

The peak daily emissions in Table 3.2-12 are compared to future project peak daily emissions to determine NEPA significance for the proposed Project and alternatives with the same corresponding milestone calendar year. Peak daily emissions represent theoretical upper-bound estimates of activity levels at the proposed project site. Therefore, in contrast to average daily emissions, peak daily emissions would occur infrequently and are based upon a more theoretical set of conservative assumptions.

Table 3.2-10. Peak Daily Construction Emissions—NEPA Baseline

	Daily Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2009	49	332	971	2	65	22
Project Year 2010	315	2,173	6,023	10	305	127
Project Year 2011	300	2,057	5,709	10	295	122
Project Year 2012	164	1,107	3,044	5	158	69
Project Year 2013	82	542	1,447	2	106	43
Project Year 2014	62	396	1,038	1	37	24

Notes:

NEPA baseline emissions include as project elements the same mitigation measures identified for Alternative 5.

Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

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

Table 3.2-11. Average Daily Operational Emissions—NEPA Baseline

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Cruise vessels	184	383	4,541	3,139	432	346
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0.01	0.1	0.1
Total—Project Year 2011	**363**	**1,929**	**6,348**	**3,141**	**660**	**436**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2015						
Cruise vessels	118	245	2,714	486	148	118
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	157	1,745	357	3	553	112
Terminal equipment	0.1	0.3	1	0.0	0.03	0.03
Total—Project Year 2015	**319**	**2,608**	**4,263**	**490**	**750**	**276**
Project Year 2022						
Cruise vessels	118	245	2,693	486	148	118
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	127	1,320	235	4	577	115
Terminal equipment	0.10	0.3	0.4	0.0	0.01	0.01
Total—Project Year 2022	**285**	**2,336**	**3,937**	**491**	**766**	**272**
Project Year 2037						
Cruise vessels	118	245	2,676	486	148	118
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	71	749	119	4	607	120
Terminal equipment	0.0	0.3	0.1	0.0	0.0	0.0
Total—Project Year 2037	**229**	**1,765**	**3,803**	**491**	**796**	**277**

Notes:

NEPA baseline emissions include as project elements the same mitigation measures identified for Alternative 5.

Emissions represent annual emissions divided by 365 days per year of operation.

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

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

Motor vehicles include passenger cars, trucks, busses, and shuttles.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

1 **Table 3.2-12.** Peak Daily Operational Emissions—NEPA Baseline

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Cruise vessels	929	1,938	24,621	36,087	3,598	2,879
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.2	1	3	0.0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,088**	**3,826**	**2,969**
Project Year 2015						
Cruise vessels	677	1,413	17,514	20,006	2,151	1,721
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	157	1,745	357	3	553	112
Terminal equipment	0.2	1	2	0.0	0.1	0.1
Total—Project Year 2015	**879**	**3,776**	**19,064**	**20,010**	**2,754**	**1,879**
Project Year 2022						
Cruise vessels	677	1,413	17,514	20,006	2,151	1,721
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	127	1,320	235	4	577	115
Terminal equipment	0.10	1	1	0.0	0.03	0.02
Total—Project Year 2022	**844**	**3,504**	**18,758**	**20,011**	**2,770**	**1,875**
Project Year 2037						
Cruise vessels	677	1,413	17,514	20,006	2,151	1,721
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	71	749	119	4	607	120
Terminal equipment	0.1	1	0.2	0.0	0.01	0.01
Total—Project Year 2037	**788**	**2,933**	**18,641**	**20,011**	**2,800**	**1,880**

Notes:

NEPA baseline emissions include as project elements the same mitigation measures identified for Alternative 5.

Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

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

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available. Motor vehicles include passenger cars, trucks, busses, and shuttles. Terminal equipment includes equipment at the Cruise Terminal and Berth 87.						

3.2.4.2 Thresholds of Significance

The following thresholds were used in this study to determine the significance of the air quality impacts of the proposed Project and alternatives, both from a CEQA and NEPA perspective. The thresholds were primarily based on standards established by the City of Los Angeles in the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006), except for AQ-9 (Greenhouse Gas Emissions), which is separately defined and evaluated.

3.2.4.2.1 Construction Thresholds

The *L.A. CEQA Thresholds Guide* (City of Los Angeles 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 and its alternatives:

- combustion emissions from construction equipment;
- type, number of pieces, and usage for each type of construction equipment;
- estimated fuel usage and type of fuel (diesel, gasoline, natural gas) for each type of equipment;
- emission factors for each type of equipment;
- fugitive dust;
- for 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; and
  - type and number of pieces of equipment to be used;
- other mobile source emissions;

- number and average length of construction worker trips to the proposed project site, per day; and
- 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 (2007). The following factors are used to determine significance for construction-related air emissions.

AQ-1: A project would have a significant impact if its construction-related emissions would exceed any of the SCAQMD thresholds of significance in Table 3.2-13.

Table 3.2-13. SCAQMD Thresholds for Construction Emissions

Air Pollutant	*Emission Threshold (pounds/day)*
Volatile organic compounds (VOCs)	75
Carbon monoxide (CO)	550
Nitrogen oxides (NO_X)	100
Sulfur oxides (SO_X)	150
Particulates (PM10)	150
Particulates (PM2.5)	55
Lead	3
Source: SCAQMD 2008.	

AQ-2: A project would have a significant impact if its construction would result in offsite ambient air pollutant concentrations that exceed the SCAQMD thresholds of significance in Table 3.2-14.[4] However, to evaluate project impacts to ambient NO_2 levels, the analysis in this draft EIS/EIR replaced the use of the current SCAQMD NO_2 thresholds with the revised and more stringent 1-hour CAAQS of 338 $\mu g/m^3$.

Table 3.2-14. SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Construction

Air Pollutant	*Ambient Concentration Threshold*
Nitrogen dioxide (NO_2)	

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

Air Pollutant	*Ambient Concentration Threshold*
1-hour average	0.18 ppm (338 µg/m^3)
annual average	0.03 ppm
Particulates (PM10 or PM2.5)	
24-hour average	10.4 µg/m^3
Sulfate	
24-hour average	1.0 µg/m^3
Carbon monoxide (CO)	
1-hour average	20 ppm (23,000 µg/m^3)
8-hour average	9.0 ppm (10,000 µg/m^3)

Notes:

The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from construction activities is added to the background concentration for the project vicinity and compared to the threshold.

The PM10 and PM2.5 threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

The SCAQMD has also established a threshold for sulfates, but it is currently not requiring a quantitative comparison to these thresholds (SCAQMD 2007).

Because construction emissions vary from day-to-day and move from location-to-location over the course of a year, SCAQMD does not currently require an analysis of annual PM10 or NO_2 pollutant concentrations from construction activities (Port of Los Angeles 2006c). Therefore, this study analyzed 24-hour PM10 and 1-hour NO_2 concentrations.

Source: SCAQMD 2008.

The highest NO_X emissions during construction would occur in 2010. During the course of the construction phase, it is expected that the construction of both Downtown Harbor and 7th Street Harbor would use the same equipment at different months during the calendar year 2010 (See Table 3.2-18 below). With the subtraction of one peak day of harbor activity in 2010, the year 2011 would be the peak daily construction period for NO_X, as well as VOC and CO. Therefore, 2011 is considered to be the year with the highest NO_X construction emissions compared with the other scenario years.

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. The following factors are used to determine significance for operations-related air emissions.

AQ-3: A project would have a significant impact if its operational emissions would exceed 10 tons per year of VOCs or any of the SCAQMD thresholds of significance in Table 3.2-15. For determining CEQA significance in this draft EIS/EIR, these thresholds are compared to the net change in emissions of the proposed Project and alternatives relative to CEQA baseline (2006) conditions. For determining NEPA significance, these thresholds are compared to the net change in emissions of the proposed Project and alternatives relative to NEPA baseline emissions.

Table 3.2-15. SCAQMD Thresholds for Operational Emissions

Air Pollutant	*Emission Threshold (pounds/day)*
Volatile organic compounds (VOCs)	55
Carbon monoxide (CO)	550
Nitrogen oxides (NO_X)	55
Sulfur oxides (SO_X)	150
Particulates (PM10)	150
Particulates (PM2.5)	55
Lead	3
Source: SCAQMD 2008	

AQ-4: A project would have a significant impact if its operations would result in offsite ambient air pollutant concentrations that would exceed any of the SCAQMD thresholds of significance in Table 3.2-16.[5] However, to evaluate project impacts to ambient NO_2 levels, the analysis replaced the use of the current SCAQMD NO_2 thresholds with the more stringent revised 1-hour and annual CAAQSs of 338 and 56 µg/m^3, respectively.

Table 3.2-16. SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Operations

Air Pollutant	*Ambient Concentration Threshold*
Nitrogen dioxide (NO_2)	
1-hour average	0.18 ppm (338 µg/m^3)
annual average	0.03 ppm (56 µg/m^3)
Particulates	
24-hour average (PM10 and PM2.5)	2.5 µg/m^3
annual average (PM10)	1.0 µg/m^3

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

Air Pollutant	*Ambient Concentration Threshold*
Carbon monoxide (CO)	
1-hour average	20 ppm (23,000 μg/m^3)
8-hour average	9.0 ppm (10,000 μg/m^3)

Notes:

The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from project operations is added to the background concentration for the project vicinity and compared to the threshold.

The PM10 threshold is an incremental threshold. For CEQA significance, the maximum increase in concentration relative to the CEQA baseline is compared to the threshold. For NEPA significance, the maximum increase in concentration relative to the NEPA baseline is compared to the threshold.

Source: SCAQMD 2008.

AQ-5: A project would have a significant impact if the project-generated onroad 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-hour 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: A project would have a significant impact if it would create an objectionable odor at the nearest sensitive receptor.

AQ-7: A project would have a significant impact if it would expose receptors to significant levels of toxic air contaminants. 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 noncancer hazard index is greater than or equal to 1.0 (project increment) or 3.0 (facilitywide).

AQ-8: A project would have a significant impact if it would conflict with or obstruct implementation of an applicable AQMP.

AQ-9: CEQA Threshold. To date, there is little guidance and no local, regional, state, or federal regulations to establish a threshold of significance to determine the project-specific impacts of GHG emissions on global warming. In addition, the City has not established such a threshold. Therefore, LAHD, for purposes of the proposed Project and alternatives, is using the following as its CEQA threshold of significance:

- A project would result in a significant CEQA impact if CO_2e emissions would exceed CEQA baseline emissions.

In absence of further guidance, this threshold is thought to be the most conservative, as any increase over baseline is designated as significant.

NEPA Threshold. The USACE has established the following position under NEPA. There are no science-based GHG significance thresholds, nor has the federal government or the state adopted any by regulations. In the absence of an adopted or science-based GHG standard, the USACE will not use the LAHD's proposed AQ-9 CEQA standard, propose a new GHG standard, or make a NEPA impact determination for GHG emissions anticipated to result from the proposed Project or any of the alternatives. Rather, in compliance with the CEQ and Corps NEPA implementing regulations, the anticipated emissions relative to the NEPA baseline will be disclosed for the proposed Project and each alternative without expressing a judgment as to their significance.

3.2.4.3 Impacts and Mitigation

3.2.4.3.1 Proposed Project

Impact AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Construction of the proposed Project would result in the temporary generation of emissions of CO, ROG, NO_X, SO_X, PM10, and PM2.5. Emissions would originate from mobile and stationary construction equipment exhaust, tugboat and small boat exhaust, delivery truck exhaust, employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, VOCs from architectural coatings, and asphalt paving materials. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Overall, a 54-month active construction period is anticipated, starting in the third quarter of 2009 and concluding around the fourth quarter of 2014. (The construction schedule was estimated by the LAHD's construction management and engineering teams. The actual construction schedule will not be known until the construction contractors submit their workplan after the completion of the final EIS/EIR.) The total amount of construction, the duration of construction, and the intensity of construction activity could have a substantial effect on the amount and concentration of construction emissions and the resulting impacts occurring at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecast. If construction is delayed or occurs over a longer time period, emissions could be reduced because of 1) a more modern and cleaner burning construction equipment fleet mix, and/or 2) a less-intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). The construction equipment mix and duration for each construction stage is detailed in the construction spreadsheets provided in the Appendix D1.

Table 3.2-17 presents a summary of the peak daily criteria pollutant emissions associated with construction of the proposed Project without mitigation. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-17. Summary of Peak Daily Construction Emissions—Proposed Project without Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	423	1,666	5,411	4	797	323
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Proposed Project minus non-Federal emissions)	374	1,334	4,440	2	732	301
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2010 Peak Daily Construction Emissions	1,224	5,444	16,393	14	3,220	1,136
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Proposed Project minus non-Federal emissions)	909	3,271	10,370	4	2,915	1,009
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	929	4,397	12,779	12	2,836	948
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Proposed Project minus non-Federal emissions)	629	2,340	7,070	2	2,541	826

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	694	3,080	9,129	8	1,867	646
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Proposed Project minus non-Federal emissions)	530	1,973	6,085	3	1,709	577
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	319	1,275	3,892	3	1,045	329
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Proposed Project minus non-Federal emissions)	237	733	2,445	1	939	286
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2014 Peak Daily Construction Emissions	267	1,018	3,166	3	373	170
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Proposed Project minus non-Federal emissions)	205	622	2,128	2	336	146
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction associated with the Federal project.. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

In a case where more than one possible combination of activities occurred during the course of a construction phase, total daily emissions were calculated for all possible combinations, and the combination producing the greatest emissions was reported in

Table 3.2-17. The emissions shown in the tables represent the construction activities that combine to produce the peak daily emissions for each construction phase.

CEQA Impact Determination

Peak daily construction emissions associated with the proposed Project would exceed the daily construction emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during the construction period from 2009 through 2014. The peak daily SO_X emissions would be less than significant in all construction years. Therefore, significant impacts under CEQA would occur for VOC, CO, NO_X, PM10, and PM2.5.

Mitigation Measures

Mitigation measures for proposed project construction were derived, where feasible, from the proposed NNI measures, PCAC-recommended measures, LAHD's Construction Guidelines, and consultation with LAHD. Table 3.2-18 summarizes all construction mitigation measures and regulatory requirements assumed in the mitigated emission calculations.

Table 3.2-18. Regulations, Agreements, and Mitigation Measures Assumed in the Construction Emissions with Mitigation

Offroad Construction Equipment	*Onroad Trucks*	*Tugboats*	*Fugitive Dust*
Part 1. Regulations and Agreements Included in the Mitigated Emission Calculations			
Emission Standards for Nonroad Diesel Engines—Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal construction equipment fleet turnover. **California Diesel Fuel Regulations**—15 ppm sulfur starting September 1, 2006.	**Emission Standards for Onroad Trucks**—Tiered standards gradually phased in over all years due to normal truck fleet turnover. **California Diesel Fuel Regulations**—15 ppm sulfur starting September 1, 2006. **Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling**—Diesel trucks are subject to idling limits.	**California Diesel Fuel Regulations**—500 ppm sulfur starting January 1, 2006 and 15 ppm sulfur starting September 1, 2006.	**SCAQMD Rule 403 Compliance**— 75% reduction in fugitive dust due to watering three times per day.
Part 2. Mitigation Measures Included in the Mitigated Emission Calculations			
MM AQ-2: Dredging Equipment Electrification. **MM AQ-4: Fleet**	**MM AQ-3: Fleet Modernization for Onroad Trucks** —This measure is more stringent than Emission Standards	**MM AQ-1: Harbor Craft Engine Standards** —Cleanest existing marine engine emission standards or	**MM AQ-5: Additional Fugitive Dust Controls**—90% reduction.

Offroad Construction Equipment	*Onroad Trucks*	*Tugboats*	*Fugitive Dust*
Modernization for Construction Equipment—This measure is more stringent than Emission Standards for Nonroad Diesel Engines (above).	for Onroad Trucks (above).	EPA Tier 2 or Tier 3, where available.	
Part 3. Mitigation Measures Not Included in the Mitigated Emission Calculations [a]			
MM AQ-6: Best Management Practices. **MM AQ-7: General Mitigation Measure.** **MM AQ-8: Special Precautions near Sensitive Sites.**			
[a] These mitigation measures were not included in the calculations because their effectiveness has not been established.			

The following mitigation measures would reduce criteria pollutant emissions associated with proposed project construction. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.5.

MM AQ-1. ***Harbor Craft Used During Construction*.**

All harbor craft used during the construction phase of the proposed Project shall, at a minimum, be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2. Additionally, where available, harbor craft shall meet the proposed EPA Tier 3 (which are proposed to be phased-in beginning 2009) or cleaner marine engine emission standards**.**

The above harbor craft measure shall 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 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; or
- 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 attempt 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. *Dredging Equipment Electrification.*

All dredging equipment shall be electric.

MM AQ-3. *Fleet Modernization for Onroad Trucks.*

1. Trucks hauling materials such as debris or fill shall be fully covered while operating off Port property.
2. Idling shall be restricted to a maximum of 5 minutes when not in use.
3. Standards/Specifications:

   - January 1, 2009 to December 31, 2011: All onroad heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with EPA 2004 onroad PM emission standards and be the cleanest available with respect to NO_X (0.10g/bhp-hr PM10 and 2.0 g/bhp-hr NO_X). In addition, all onroad trucks shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
   - Post-January 2011: All onroad heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with 2010 emission standards, where available. In addition, all onroad trucks shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

     A copy of each unit's certified EPA rating, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment

The above standards/specifications shall 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 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; or

- 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 attempt 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-4. ***Fleet Modernization for Construction Equipment.***

1. Construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards.
2. Idling shall be restricted to a maximum of 5 minutes when not in use.
3. Tier Specifications:
   - January 1, 2009, to December 31, 2011: All offroad diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels, shall meet Tier 2 offroad emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
   - January 1, 2012, to December 31, 2014: All offroad diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels, shall meet Tier 3 offroad emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
   - Post-January 1, 2015: All offroad diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy 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 shall be provided at the time of mobilization of each applicable unit of equipment.

The above standards/specifications shall 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 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; or
- 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 attempt 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-5. *Additional Fugitive Dust Controls.*

The calculation of fugitive dust (PM10) from unmitigated proposed project earth-moving activities assumes a 75% reduction from uncontrolled levels to simulate rigorous watering of the site and use of other measures (listed below) to ensure proposed project compliance with SCAQMD Rule 403.

The construction contractor shall further reduce fugitive dust emissions to 90% from uncontrolled levels. The construction contractor shall designate personnel to monitor the dust control program and to order increased watering or other dust control measures, as necessary, to ensure a 90% control level. Their duties shall include holiday and weekend periods when work may not be in progress.

The following measures, at minimum, must be part of the contractor Rule 403 dust control plan:

- Active grading sites shall be watered one additional time per day beyond that required by Rule 403;
- Contractors shall apply approved nontoxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas;
- Construction contractors shall provide temporary wind fencing around sites being graded or cleared;
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code;

- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads or wash off tires of vehicles and any equipment leaving the construction site;
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed; and
- Trucks hauling materials such as debris or fill shall be fully covered while operating off LAHD property.

MM AQ-6. ***Best Management Practices*****.**

The following types of measures are required on construction equipment (including onroad trucks):

1. Use diesel oxidation catalysts and catalyzed diesel particulate traps.
2. Maintain equipment according to manufacturers' specifications.
3. Restrict idling of construction equipment to a maximum of 5 minutes when not in use.
4. Install high-pressure fuel injectors on construction equipment vehicles.

LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list.

Because the effectiveness of the above measure has not been established, it is not quantified in this study.

MM AQ-7. ***General Mitigation Measure.***

For any of the above mitigation measures (MM AQ-1 through AQ-6), 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 the LAHD.

Because the effectiveness of the above measure has not been established, it is not quantified in this study.

MM AQ-8. ***Special Precautions near Sensitive Sites*****.**

When construction activities are planned within 1,000 feet of sensitive receptors (defined as schools, playgrounds, day care centers, and hospitals), the construction contractor shall notify each of these sites in writing at least 30 days before construction activities begin.

Because the effectiveness of the above measure has not been established, it is not quantified in this study.

Residual Impacts

Table 3.2-19 presents a summary of 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. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction year were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, data on emissions by equipment type and proposed project activity can be found in Appendix D6.

During construction, Mitigation Measures MM AQ-1 through MM AQ-5 would lower the peak daily construction emissions of all analyzed pollutants. However, VOC, CO, NO_X, and PM2.5 emissions would remain significant under CEQA for all construction years, and PM10 emissions would be significant in years 2009–13. SO_X would remain less than significant for all construction years.

Mitigation Measures MM AQ-6 through MM AQ-8, which were not included in the mitigated emissions calculations, could further reduce construction emissions, depending on their effectiveness. However, emissions of VOC, NO_X, CO, PM10, and PM2.5 would likely remain significant.

Table 3.2-19. Summary of Peak Daily Construction Emissions—Proposed Project with Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	256	1,404	3,538	4	194	119
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Proposed Project minus non-Federal emissions)	207	1,072	2,567	2	129	97
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2010 Peak Daily Construction Emissions	618	3,843	10,142	15	494	268
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Proposed Project minus non-Federal emissions)	303	1,670	4,119	5	189	141
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	415	2,782	7,614	12	374	174

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Proposed Project minus non-Federal emissions)	115	725	1,905	2	79	52
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
2012 Peak Daily Construction Emissions	346	2,127	5,706	8	276	143
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Proposed Project minus non-Federal emissions)	182	1,020	2,662	3	118	74
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2013 Peak Daily Construction Emissions	191	1,057	2,708	3	164	87
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Proposed Project minus non-Federal emissions)	109	515	1,261	1	58	44
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**
2014 Peak Daily Construction Emissions	170	911	2,299	3	94	69
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Proposed Project minus non-Federal emissions)	108	515	1,261	2	57	45
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions associated with the Federal project. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for

Project Year	Peak Daily Construction Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Alternative 5.						

NEPA Impact Determination

The NEPA incremental construction emissions for the proposed Project are calculated by subtracting the NEPA baseline construction emissions from the proposed project construction emissions. The resulting NEPA increment would exceed the emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during one or more construction years. Therefore, significant impacts under NEPA would occur for proposed project construction. The NEPA increment for SO_X would be less than significant.

Mitigation Measures

Implement MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-19 above 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.

During construction, Mitigation Measures MM AQ-1 through MM AQ-5 would lower the peak daily construction emissions of all analyzed pollutants. However, emissions would remain significant under NEPA for VOC, CO, NO_X, PM10, and PM2.5. Emissions of SO_X would remain less than significant in all analyzed years.

Mitigation Measures MM AQ-6 through MM AQ-8, which were not included in the mitigated emissions calculations, could further reduce construction emissions, depending on their effectiveness. However, emissions of VOC, CO, NO_X, PM10, and PM2.5 would likely remain significant.

Impact AQ-2: Proposed project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Dispersion modeling of onsite construction emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2.

Table 3.2-20 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from construction without mitigation. The table shows that the maximum offsite 1-hour and 8-hour CO concentrations would not exceed SCAQMD thresholds. The maximum offsite 24-hour increment increase in PM10 and PM2.5 concentrations as well as the 1-hour NO_2 concentration would exceed the SCAQMD significance thresholds for both CEQA and NEPA.

Table 3.2-20. Maximum Offsite Ambient Concentrations—Proposed Project Construction without Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without Background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1 hour	263	2,680	**2,943**	**2,943**	338
CO	1 hour	4,809	10,797	15,606	15,606	23,000
	8 hours	4,008	2,083	6,091	6,091	10,000
PM10	24 hours	-	198.8	**198.8**	**163.3**	10.4
PM2.5	24 hours	-	92.0	**92.0**	**61.7**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under CEQA would occur.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-21 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of mitigation measures, offsite ambient concentrations from construction activities would be temporary over the life of construction activities but significant for NO_2, PM10, and PM2.5; however, they would be less than significant for CO.

Table 3.2-21. Maximum Offsite Ambient Concentrations—Proposed Project Construction with Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold[a] ($\mu g/m^3$)*
NO_2	1 hour	263	2,585	**2,848**	**2,848**	338
CO	1 hour	4,809	10,231	15,040	15,040	23,000
	8 hours	4,008	1,994	6,002	6,002	10,000
PM10	24 hours	-	58.0	**58.0**	**36.7**	10.4
PM2.5	24 hours	-	48.3	**48.3**	**30.4**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-21 above presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of these mitigation measures, offsite ambient concentrations from construction activities would be temporary over the life of construction activities but significant for NO_2, PM10, and PM2.5; however, they would be less than significant for CO.

Impact AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Table 3.2-22 presents the unmitigated average daily criteria pollutant emissions associated with operation of the proposed Project. The average daily emissions represent the annual emissions divided by 365 days per year. Average daily emissions are a good indicator of terminal operations over the long term since terminal operations can vary substantially from day to day depending on ship arrivals. Emissions were estimated for four proposed project study years: 2011, 2015, 2022, and 2037. Comparisons of average daily emissions to the CEQA baseline (2006) and the NEPA baseline emissions are presented for informational purposes only; CEQA and NEPA significance are determined by subtracting CEQA and NEPA baselines from peak daily emissions (Table 3.2-23) and comparing to CEQA and NEPA thresholds.

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

- Annual cruise ship calls are estimated to be 269 in 2011, 275 in 2015, 282 in 2022, and 287 in 2037.
- Three Inner Harbor berths would be available in 2011; two Inner Harbor berths and two Outer Harbor berths would be available in 2015 and thereafter.
- Harbor vessel trips, other than cruise ship vessel trips, would not change from 2006 operations as a result of the proposed Project. However, the Crowley and Millennium tugboats would be relocated to the North Harbor, thereby reducing their transit distance to Angels Gate.
- Without mitigation, the VSRP compliance rate for cruise ships was assumed to be 80% for all project years (to 20 nm). This represents the actual cruise vessel compliance rate in 2006 (Port of Los Angeles 2008).
- The proposed Project would generate 488, 744, 852, and 1,118 peak daily truck trips to the cruise terminals, Ports O'Call, and other small proposed project sites in 2011, 2015, 2022, and 2037, respectively.

1 **Table 3.2-22.** Average Daily Operational Emissions without Mitigation—Proposed Project

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	144	300	3,670	3,195	411	329
Vessel hoteling	78	162	1,978	1,975	231	185
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1	12	11	0.01	0.5	0.4
Total—Project Year 2011	**401**	**1,967**	**7,544**	**5,172**	**871**	**604**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Proposed Project minus CEQA baseline	-51	-1,156	1,107	1,185	22	93
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Proposed Project minus NEPA baseline	38	37	1,195	2,031	211	168
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	143	299	3,644	3,179	410	328
Vessel hoteling	79	166	2,014	2,019	236	189
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	193	1,974	405	4	627	127
Terminal equipment	0.8	12	8	0.01	0.4	0.3
Total—Project Year 2015	**462**	**2,990**	**7,415**	**5,203**	**1,325**	**692**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Proposed Project minus CEQA baseline	10	-133	978	1,216	476	181
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Proposed Project minus NEPA baseline	143	382	3,152	4,713	575	416
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	147	307	3,713	3,260	420	336
Vessel hoteling	82	170	2,052	2,071	242	194
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	161	1,508	269	4	660	131
Terminal equipment	0.5	12	5	0.01	0.2	0.2
Total—Project Year 2022	435	2,755	7,104	5,335	1,372	706
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Proposed Project minus CEQA baseline	-17	-368	667	1,348	523	195
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Proposed Project minus NEPA baseline	150	420	3,168	4,844	606	434
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	149	312	3,757	3,293	424	339
Vessel hoteling	83	173	2,076	2,107	247	197
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	99	920	146	5	747	147
Terminal equipment	0.3	12	3	0.01	0.1	0.1
Total—Project Year 2037	**377**	**2,176**	**7,047**	**5,406**	**1,467**	**729**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Proposed Project minus CEQA baseline	-75	-947	610	1,419	618	218
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Proposed Project minus NEPA baseline	148	411	3,244	4,915	671	452
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Ship and motor vehicle emissions include transport within the SCAB.

Motor vehicles include passenger cars, trucks, busses, and shuttles.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

For the NEPA significance determination in this table, NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

Table 3.2-23 summarizes peak daily unmitigated emissions estimated for the proposed project operations in 2011, 2015, 2022, and 2037. Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal. Therefore, in contrast to average daily emissions, peak daily emissions would occur infrequently and would be based upon a lesser known and therefore more theoretical set of conservative assumptions. Comparisons to the CEQA baseline (2006) and the NEPA baseline emissions are presented to determine CEQA and NEPA significance, respectively.

Table 3.2-23. Peak Daily Operational Emissions without Mitigation—Proposed Project

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	2	22	19	0.02	0.9	0.8
Total—Project Year 2011	**1,175**	**3,590**	**28,267**	**38,473**	**4,075**	**3,167**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	70	-913	4,332	6,384	513	485
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Proposed Project minus NEPA baseline	67	105	1,838	2,385	249	199
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	950	2,096	25,257	35,062	3,612	2,890
Vessel hoteling	431	897	11,374	18,177	1,723	1,378
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	193	1,974	405	4	627	127
Terminal equipment	1.4	22	15	0.02	0.7	0.6
Total—Project Year 2015	**1,621**	**5,528**	**38,395**	**53,245**	**6,015**	**4,444**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	516	1,025	14,460	21,157	2,453	1,762
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Proposed Project minus NEPA baseline	743	1,753	19,331	33,235	3,261	2,565
Thresholds	55	550	55	150	150	55

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	950	2,096	25,257	35,062	3,612	2,890
Vessel hoteling	431	897	11,374	18,177	1,723	1,378
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	161	1,508	269	4	660	131
Terminal equipment	0.8	22	9	0.02	0.3	0.3
Total—Project Year 2022	**1,588**	**5,282**	**37,974**	**53,245**	**6,044**	**4,444**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	483	779	14,039	21,157	2,482	1,762
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Proposed Project minus NEPA baseline	744	1,779	19,216	33,234	3,274	2,569
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	950	2,096	25,257	35,062	3,612	2,890
Vessel hoteling	431	897	11,374	18,177	1,723	1,378
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	99	920	146	5	747	147
Terminal equipment	0.5	22	5	0.02	0.1	0.1
Total—Project Year 2037	**1,525**	**4,694**	**37,847**	**53,246**	**6,131**	**4,460**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	420	191	13,912	21,158	2,569	1,778
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Proposed Project minus NEPA baseline	737	1,762	19,206	33,235	3,331	2,580
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Ship and motor vehicle emissions include transport within the SCAB.

Motor vehicles include passenger cars, trucks, busses, and shuttles.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

For the NEPA significance determination in this table, NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5. Most NEPA baseline emissions are lower than CEQA baseline emissions because NEPA baseline includes mitigation measures.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

The peak daily emission estimates for proposed project operations include the following assumptions, which were chosen to identify a maximum theoretical activity scenario:

- **Ships at Berth:** The peak-day scenario assumes that the largest combination of ships in the proposed project's fleet that could be simultaneously accommodated at the wharf would call at each terminal. The peak scenario also assumes that each available berth would be occupied. The time each vessel is assumed to hotel equals 12 hours. Without mitigation, the peak emissions also assume that each ship uses residual fuel with a worst-case sulfur content of 4.5%.
- **Cruise Ships:** 80% of cruise ships are assumed to comply with VSRP to 20 nm.
- **Motor Vehicles:** The number of vehicle trips generated by the proposed Project was provided by the traffic study for each analysis year. The traffic study divided the trip generation rates for the proposed Project into two scenarios, weekday trips and weekend trips, because most cruise ships arrive or depart on Friday, Saturday, Sunday, or Monday (the cruise terminals, Ports O'Call, and other businesses are open both weekdays and weekends). Given the trip generation analysis, the peak number of vehicles trips and delivery truck trips would occur on weekdays with the highest traffic volumes (Friday or Monday). The peak day represents the highest weekday trip generation rates during the peak cruise season.

- **Terminal Equipment:** Terminal equipment data were provided by LAHD. It was assumed that approximately 38 pieces of terminal equipment (11 diesel forklifts, 25 propane forklifts, and two fuel trucks) would operate during the peak period (i.e., when cruise ships are hoteling at the port).

Due to the lengthy construction period, from 2009 to 2014, operational activities would overlap with construction activities. SCAQMD has requested that total proposed project emissions be estimated during a year when construction and operational activities substantially overlap. The year 2011 was chosen as a representative year during which construction and operation activities would overlap. Table 3.2-24 shows the combined total of peak daily construction and operational emissions for 2011.

The net changes in combined (construction plus operational) emissions relative to the CEQA baseline and NEPA baseline operational emissions are compared with SCAQMD operational thresholds.

Table 3.2-24. Peak Daily Construction and Operational Emissions without Mitigation—Proposed Project

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Maximum daily construction emissions	929	4,397	12,779	12	2,836	948
Maximum daily operational emissions	1,175	3,590	28,267	38,473	4,075	3,167
Total: **Construction and Operation— Project Year 2011**	**2,104**	**7,987**	**41,046**	**38,485**	**6,911**	**4,115**
<u>CEQA Impacts</u>						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA baseline	999	3,484	17,111	6,396	3,349	1,433
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
<u>NEPA Impacts</u>						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA baseline	696	2,445	8,908	2,387	2,790	1,025
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Ship and motor vehicle emissions include transport within the SCAB.						
For the NEPA significance determination in this table, NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.						
Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.						
The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.						

CEQA Impact Determination

Proposed project unmitigated peak daily emissions minus the CEQA baseline would be above CEQA thresholds and thus significant under CEQA for all pollutants in all project analysis years, with the exception of CO in years 2011 and 2037.

The year 2011 was chosen as the year that best represents a time when construction and operation activities would overlap. During this year, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Mitigation Measures

The mitigation measures included for proposed project operations were based on potentially PCAC-recommended measures, the CAAP, and additional consultation with LAHD. Table 3.2-25 details how the mitigation measures for the proposed Project compare to those identified in the CAAP. Table 3.2-26 summarizes all operational mitigation measures and regulatory requirements included in the mitigated emissions calculations.

Table 3.2-25. Comparison between Clean Air Action Plan Control Measures and the Proposed Project Mitigation Measures

CAAP Measure Number	*CAAP Measure Name*	*CAAP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
HDV-1	Performance Standards for Onroad Heavy-Duty Vehicles (HDVs)	All frequent-caller trucks and semi-frequent-caller container trucks, model year (MY) 1992 and older, shall meet or be cleaner than EPA's 2007 onroad emissions standard (0.015 g/bhp-hr for PM) and the cleanest available NO_X standard at time of	**MM AQ-15. Truck Emission Standards.** Onroad heavy-duty diesel trucks (above 14,000 pounds) entering the cruise terminal building shall achieve EPA's 2007 Heavy-Duty Highway Diesel Rule emission	The CAAP Truck Plan [Clean Truck Program (CTP)] specifically exempts delivery trucks at the cruise terminal. MM AQ-15 incorporates the Clean Truck Program provisions at these locations and therefore exceeds CTP

CAAP Measure Number	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
		replacement. Semi-frequent-caller container trucks, MY1993–2003, shall be equipped with the maximum CARB-verified emissions-reduction technologies currently available.	standards for onroad heavy-duty diesel engines (EPA 2001a) in the following percentages: 20% in 2009, 40% in 2012, and 80% in 2015 and thereafter.	requirements.
HDV-2	Alternative-Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	Construct liquefied natural gas (LNG) or compressed natural gas (CNG) refueling stations.	No applicable measure.	This measure shall be implemented directly by the ports of Los Angeles and Long Beach. The Port of Long Beach, in conjunction with the Port of Los Angeles, recently released an RFP seeking proposals to design, construct, and operate a public LNG fueling and maintenance facility on Port of Los Angeles property.
OGV-1	Ocean Going Vessel (OGV) Vessel Speed Reduction (VSR)	OGVs that call at the ports of Los Angeles and Long Beach shall not exceed 12 knots (kts) within 20 nm of Point Fermin (extending to 40 nm in future).	**MM AQ-11. Vessel Speed-Reduction Program.** Ships calling at the Inner Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: 30% of all calls in 2009 and 100% of all calls in 2013 and thereafter. Ships calling at the Outer Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following	MM AQ-11 complies with OGV-1.

CAAP Measure Number	*CAAP Measure Name*	*CAAP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
			implementation schedule: 100% of all calls in 2013 and thereafter.	
OGV-2	Reduction of At-berth OGV Emissions	Each port shall develop the infrastructure required to provide shore-power capabilities to all container and cruise ship berths. On a case-by-case basis, other vessel types, like specially outfitted tankers or reefer terminals, shall be evaluated for the application of shore power.	**MM AQ-9. Alternative Maritime Power (AMP) for Cruise Vessels.** Cruise vessels calling at the Inner Harbor Cruise Terminal shall use AMP at the following percentages while hoteling in the Port: 30% of all calls in 2009 and 80% of all calls in 2013 and thereafter. Ships calling at the Outer Harbor Cruise Terminal shall use AMP while hoteling at the Port as follows (minimum percentage): 97% of all calls in 2013 and thereafter. Additionally, by 2013, all ships retrofitted for AMP shall be required to use AMP while hoteling, with a compliance rate of 100%, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship.	MM AQ-9 complies with OGV-2.
OGV-3, OGV-4	OGV-3: Auxiliary Engine Fuel Standards OGV-4: OGV Main Engine Fuel Standards	Require ship's main and auxiliary engines to operate using marine gas oil (MGO) fuels with sulfur content ≤ 0.2% in their auxiliary engines, while inside the VSR zone (described in OGV-1). The program shall	**MM AQ-10. Low-Sulfur Fuel.** All ships (100%) calling at the Inner and Outer Harbor Cruise Terminals shall use low-sulfur fuel	MM AQ-10 complies with OGV-3 and OGV-4. The CAAP assumes full compliance of OGV-4 pending technical feasibility and fuel availability.

CAAP Measure Number	*CAAP Measure Name*	*CAAP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
		start out at 20 nm from Point Fermin and be extended to 40 nm from Point Fermin.	(maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) beginning on Day 1 of operation. Ships with mono-tank systems or having technical issues prohibiting use of low sulfur fuel would be exempt from this requirement. The tenant shall notify the Port of such vessels prior to arrival and shall make every effort to retrofit such ships within one year. The following minimum annual participation rates were assumed in the air quality analysis: Inner Harbor • 30% of all calls in 2009, and • 90% of all calls in 2013 and thereafter. Outer Harbor: • 90% of all calls in 2013. Low-sulfur fuel requirements shall apply independently of AMP participation.	
OGV-5	OGV-5 OGV Main and Auxiliary Engine	Requires implementation of emission-reduction engine technologies, such as sea water scrubbers, slide valves, and selective	**MM AQ-12. New Vessel Builds.** All new vessel builds shall incorporate NO_X, PM and GHG control	MM AQ-12 complies with OGV-5. OGV engine standards have not kept pace with other engine standards, such

CAAP Measure Number	*CAAP Measure Name*	*CAAP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
	Emission Improvements	catalytic reduction (SCR) technology, as well as establishment of a Technology Advancement Program. Implementation shall be via leases and voluntary.	devices on ships' engines. These control devices include, but are not limited to, the following technologies, where appropriate: (1) SCR technology, (2) exhaust gas recirculation, (3) in-line fuel emulsification technology, (4) DPFs or exhaust scrubbers, (5) common rail direct fuel injection, (6) low-NO_X burners for boilers, (7) implementation of fuel economy standards by vessel class and engine, and (8) diesel-electric pod-propulsion systems.	as those for trucks and terminal equipment. New vessels destined for California service should be built with these technologies.
CHE-1	CHE-1 Performance Standards for CHE	Beginning in 2007, all yard tractor purchases shall meet: Cleanest available NO_X engine and 0.01 g/bhp-hr PM (fuel neutral), By the end of 2010, all yard tractors shall meet EPA's 2007 onroad standards, By the end of 2012, all pre-2007 onroad or Tier 4 offroad CHE ≤ 750 hp shall meet 2007/Tier 4 engine standards, By the end of 2012, all CHE > 750 hp shall meet Tier 4 standards, and Implementation: leases.	**MM AQ-13. Clean Terminal Equipment.** All terminal equipment shall be electric, where available. All terminal equipment other than electric forklifts at the cruise terminal building shall implement the following measures: Beginning in 2009, all non-yard tractor purchases shall be either (1) the cleanest available NO_X alternative-fueled engine meeting 0.015 g/bhp-hr for PM or (2) the cleanest available NO_X diesel-fueled	MM AQ-13 will meet or exceed CAAP measure CHE-1.

CAAP Measure Number	*CAAP Measure Name*	*CAAP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
			engine meeting 0.015 g/bhp-hr for PM. If there are no engines available that meet 0.015 g/bhp-hr for PM, the new engines shall be the cleanest available (either fuel type) and shall have the cleanest VDEC; By the end of 2012, all non-yard tractor terminal equipment less than 750 hp shall meet the EPA Tier 4 nonroad engine standards; and By the end of 2014, all terminal equipment shall meet EPA Tier 4 nonroad engine standards.	
HC-1	Performance Standards for Harbor Craft	This measure shall focus on harbor craft that have not already been repowered/retrofitted (including construction-related harbor craftlike dredges and support vessels). When candidate vessels are identified, the ports of Los Angeles and Long Beach shall assist/require the owner/operator to repower or retrofit propulsion and auxiliary engines. For nonconstruction-related candidates, port of Los Angeles and Long Beach staff members shall assist the owners in applying for Carl Moyer Program incentive funding for the cleanest available engine that meets the emissions and cost effectiveness requirements. It should be	**MM AQ-18. Engine Standards for Tugboats.** Tugboats calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): 30% in 2010 and 100% in 2014. Tugs calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 3 as follows (minimum percentages): 20% in 2015, 50% in 2018, and 100% in 2020.	MM AQ-17 and MM AQ-18 are consistent with HC-1.

CAAP Measure Number	*CAAP Measure Name*	*CAAP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
		noted that several tugs operating at the Port of Long Beach are home ported on private property (not port property) and therefore shall not be affected by this measure.	**MM AQ-17. AMP for Tugboats.** Crowley and Millennium tugboats calling at the North Harbor cut shall use AMP while hoteling at the Port as follows (minimum percentage): 100% compliance in 2014.	

Table 3.2-26. Regulations, Agreements, and Mitigation Measures Assumed as Part of the Proposed Project with Mitigation Emissions

Cruise Ships	*Tugboats and Ferries*	*Terminal Equipment*	*Trucks*	*Shuttle Busses*
Part 1. Regulations and Agreements				
Vessel Speed Reduction Program—80% compliance with VSR assumed to 20 nm. Assembly Bill (AB) 471/Senate Bill (SB) 771—Prohibits waste incineration within 3 miles of coast.	California Diesel Fuel Regulations—100% compliance with 15-ppm sulfur fuel. Engine Standards for Marine Diesel Engines—Tier 2 standards gradually phased in due to normal tugboat fleet turnover.	Emission Standards for Nonroad Diesel Engines—Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal terminal equipment fleet turnover. California Diesel Fuel Regulations—15-ppm sulfur fuel.	Emission Standards for Onroad Trucks —Tiered standards gradually phased in over all years due to normal truck fleet turnover. California Diesel Fuel Regulations—15 ppm sulfur regulations starting September 1, 2006. AB 2650—On-terminal trucks are subject to idling limits. Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling—Diesel trucks are subject to idling limits.	No applicable regulations.
Part 2. Mitigation Measures				
MM AQ-9. Alternative Maritime Power (AMP) for Cruise Vessels. Cruise vessels calling at the Inner Harbor Cruise Terminal shall use AMP at the following percentages while hoteling in	**MM AQ-17. AMP for Tugboats.** Crowley and Millennium tugboats calling at the North Harbor cut shall use AMP while hoteling at	**MM AQ-13. Clean Terminal Equipment.** All terminal equipment shall be electric, where available.	**MM AQ-15. Truck Emission Standards.** Onroad heavy-duty diesel trucks (above 14,000 pounds) entering the cruise terminal building shall achieve EPA's 2007 Heavy-	**MM AQ-14. LNG-Powered Shuttle Busses.** All shuttle buses shall

Cruise Ships	*Tugboats and Ferries*	*Terminal Equipment*	*Trucks*	*Shuttle Busses*
the Port: 30% of all calls in 2009 and 80% of all calls in 2013 and thereafter. Ships calling at the Outer Harbor Cruise Terminal shall use AMP while hoteling at the Port as follows (minimum percentage): 97% of all calls in 2013 and thereafter. Additionally, by 2013, all ships retrofitted for AMP shall be required to use AMP while hoteling, with a compliance rate of 100%, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship. This portion of the mitigation measure is not quantified. Use of AMP shall enable ships to turn off the engines they require for ship service loads during hoteling, leaving the boiler as the only source of direct emissions. An increase in regional power plant emissions associated with AMP electricity generation is also assumed. Including emissions from ships' boilers and regional power plants, ships hoteling with AMP reduce their criteria pollutant emissions by 70% to 90%, depending on the pollutant, compared with ships hoteling without AMP and burning residual fuel in the boilers. **MM AQ-10. Low-Sulfur Fuel.** All ships (100%) calling at the Inner and Outer Harbor Cruise Terminals shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships)	the Port as follows (minimum percentage): 100% compliance in 2014. **MM AQ-18. Engine Standards for Tugboats.** Tugboats calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): 30% in 2010 and 100% in 2014. Tugs calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 3 as follows (minimum percentages): 20% in 2015, 50% in 2018, and 100% in 2020. **MM AQ-21. Catalina Express Ferry Engine Standards.** Ferries calling at the Catalina Express Terminal shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): 30% in 2010 and 100% in 2014.	All terminal equipment other than electric forklifts at the cruise terminal building shall implement the following measures: Beginning in 2009, all non-yard tractor purchases shall be either (1) the cleanest available NO_X alternative-fueled engine meeting 0.015 g/bhp-hr for PM or (2) the cleanest available NO_X diesel-fueled engine meeting 0.015 g/bhp-hr for PM. If there are no engines available that meet 0.015 g/bhp-hr for PM, the new engines shall be the cleanest available (either fuel type) and shall have the cleanest VDEC; By the end of 2012, all non-yard tractor terminal equipment less than 750 hp shall meet the EPA Tier 4 nonroad engine standards; and By the end of 2014, all terminal equipment shall meet EPA Tier 4	Duty Highway Diesel Rule emission standards for onroad heavy-duty diesel engines (EPA 2001a) in the following percentages: 20% in 2009, 40% in 2012, and 80% in 2015 and thereafter.	be LNG powered.

Cruise Ships	*Tugboats and Ferries*	*Terminal Equipment*	*Trucks*	*Shuttle Busses*
beginning on Day 1 of operation. Ships with mono-tank systems or having technical issues prohibiting use of low sulfur fuel would be exempt from this requirement. The tenant shall notify the Port of such vessels prior to arrival and shall make every effort to retrofit such ships within one year. The following minimum annual participation rates were assumed in the air quality analysis: Inner Harbor • 30% of all calls in 2009, and • 90% of all calls in 2013 and thereafter. • Outer Harbor: • 90% of all calls in 2013. Low-sulfur fuel requirements shall apply independently of AMP participation. **MM AQ-11. Vessel Speed-Reduction Program.** Ships calling at the Inner Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: 30% of all calls in 2009 and 100% of all calls in 2013 and thereafter. Ships calling at the Outer Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: 100% of all calls in 2013 and thereafter.		nonroad engine standards.		

Cruise Ships	Tugboats and Ferries	Terminal Equipment	Trucks	Shuttle Busses
Currently, the VSR program is a voluntary program. This mitigation measure requires cruise vessels to participate in the VSR program at higher rates than those currently being achieved. The cruise speed for a cruise vessel ranges from about 18 to 24 knots, depending on the size of the ship (larger ships generally cruise at higher speeds). For a ship with a 23-knot cruising speed, for example, a reduction in speed to 12 knots reduces the main engine load factor from 83% to 14% due to the cubic relationship of load factor to speed.				
Part 3. Mitigation Measures Not Included in the Emission Calculations				
MM AQ-12. New Vessel Builds. New vessel builds shall incorporate NO_X and PM control devices on auxiliary and main engines. **MM AQ-22. Periodic Review of New Technology and Regulations.**	**MM AQ-19. Tugboats Idling Reduction**. The tug companies shall ensure that tug idling is reduced at the cruise terminal building. This measure is not quantified. **MM AQ-20 Catalina Express Ferry Idling Reduction Measure.** Catalina Express shall ensure that ferry idling is reduced at the cruise terminal building. This measure is not quantified. **MM AQ-22: Periodic Review of New Technology and Regulations.** LAHD shall require the cruise ship companies to review, in terms of feasibility, any LAHD-identified or other new emissions-reduction technology, and report		**MM AQ-16. Truck Idling-Reduction Measure**. The cruise terminal building operator will ensure that heavy-duty truck idling is reduced at both the Inner and Outer Harbor Cruise Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the times when the gates are left open, including during off-peak hours, (2) operator shall implement an appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck-flow capacity to ensure queuing is minimized. This measure is not quantified.	

Cruise Ships	Tugboats and Ferries	Terminal Equipment	Trucks	Shuttle Busses
	to LAHD. This measure is not quantified.			
MM AQ-23. Throughput Tracking. If the proposed Project exceeds project throughput assumptions/projections (in terms of cruise terminal passenger numbers) anticipated through the years 2011, 2015, 2022, or 2037, staff shall evaluate the effects of this on the emissions sources (ship calls, and truck calls) relative to the EIS/EIR. If it is determined that these emissions sources exceed EIS/EIR assumptions, staff would evaluate actual air emissions for comparison with the EIS/EIR and if the criteria pollutant emissions exceed those in the EIS/EIR, then new or additional mitigations would be applied.				
MM AQ-24. 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.				
Notes: These mitigation measures were not included in the calculations because their effectiveness has not been established.				

The following mitigation measures would reduce criteria pollutant emissions associated with proposed project operations. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.5.

Cruise Ships and Cruise Terminal

MM AQ-9. ***Alternative Maritime Power (AMP) for Cruise Vessels.***

Cruise vessels calling at the Inner Harbor Cruise Terminal shall use AMP at the following percentages while hoteling in the Port:

- 30% of all calls in 2009, and
- 80% of all calls in 2013 and thereafter to accommodate existing lease agreements and home ported vessels. This portion of the mitigation measure is not quantified.

Ships calling at the Outer Harbor Cruise Terminal shall use AMP while hoteling at the Port as follows (minimum percentage):

- 97% of all calls in 2013 and thereafter.

Additionally, by 2013, all ships retrofitted for AMP shall be required to use AMP while hoteling, with a compliance rate of 100%, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship.

Use of AMP shall enable ships to turn off the engines they require for ship service loads during hoteling, leaving the boiler as the only source of direct emissions. An increase in regional power plant emissions associated with AMP electricity generation is also assumed. Including emissions from ships' boilers and regional power plants, ships hoteling with AMP reduce their criteria pollutant emissions by 70% to 90%, depending on the pollutant, compared with ships hoteling without AMP and burning residual fuel in the boilers.

MM AQ-10. ***Low-Sulfur Fuel.***

All ships (100%) calling at the Inner and Outer Harbor Cruise Terminals shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) beginning on Day 1 of operation. Ships with mono-tank systems or having technical issues prohibiting use of low sulfur fuel would be exempt from this requirement. The tenant shall notify the Port of such vessels prior to arrival and shall make every effort to retrofit such ships within one year.

The following minimum annual participation rates were assumed in the air quality analysis:

Inner Harbor:

- 30% of all calls in 2009, and
- 90% of all calls in 2013 and thereafter.

Outer Harbor:

- 90% of all calls in 2013.

Low-sulfur fuel requirements shall apply independently of AMP participation.

MM AQ-11. ***Vessel Speed-Reduction Program.***

Ships calling at the Inner Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule:

- 30% of all calls in 2009, and
- 100% of all calls in 2013 and thereafter.

Ships calling at the Outer Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule:

- 100% of all calls in 2013 and thereafter.

Currently, the VSR program is a voluntary program. This mitigation measure requires cruise vessels to participate in the VSR program at higher rates than those currently being achieved. The cruise speed for a cruise vessel ranges from about 18 to 24 knots, depending on the size of the ship (larger ships generally cruise at higher speeds). For a ship with a 23-knot cruising speed, for example, a reduction in speed to 12 knots reduces the main engine load factor from 83% to 14% due to the cubic relationship of load factor to speed. In addition, this mitigation measure expands the VSRP zone from 20 nm to 40 nm from Point Fermin.

MM AQ-12. ***New Vessel Builds.***

The purchaser shall confer with the ship designer and engine manufacture to determine the feasibility of incorporating all emission reduction technology and/or design options and when ordering new ships bound for the Port of Los Angeles. Such technology shall be designed to reduce criteria pollutant emissions (NO_X, SO_X, and PM) and GHG emission (CO, CH_4, N_2O, and HFCs). Design considerations and technology shall include, but is not limited to:

1. Selective Catalytic Reduction Technology
2. Exhaust Gas Recirculation
3. In-line fuel emulsification technology
4. Diesel Particulate Filters (DPFs) or exhaust scrubbers
5. Medium Speed Marine Engine (Common Rail) Direct Fuel Injection
6. Low NO_X Burners for Boilers
7. Implement fuel economy standards by vessel class and engine
8. Diesel-electric pod propulsion systems.

OGV engine standards have not kept pace with other engine standards, such as those for trucks and terminal equipment. New vessels destined for California service should be built with these technologies. As new orders for ships are placed, LAHD believes it is essential that the following elements be incorporated into future vessel design and construction:

- Work with engine manufacturers to incorporate all emissions-reduction technologies/options when ordering main and auxiliary engines, such as slide valves, common rail direct fuel injection, and exhaust gas recirculation;
- Design in extra fuel storage tanks and appropriate piping to run engines on a separate/cleaner fuel; and
- Incorporate SCR or an equally effective combination of engine controls. If SCR systems are not commercially available at the time of engine construction, design in space and access for main and auxiliary engines to facilitate installation of SCR or other retrofit devices at a future date.

In addition, this measure shall also incorporate design changes and technology to reduce GHG emissions, where available. Because some of these systems are not yet available but are expected to be available within the next few years, this measure was not quantified.

MM AQ-13. *Clean Terminal Equipment.*

All terminal equipment shall be electric, where available.

All terminal equipment other than electric forklifts at the cruise terminal building shall implement the following measures:

- Beginning in 2009, all non-yard tractor purchases shall be either (1) the cleanest available NO_X alternative-fueled engine meeting 0.015 g/bhp-hr for PM or (2) the cleanest available NO_X diesel-fueled engine meeting 0.015 g/bhp-hr for PM. If there are no engines available that meet 0.015 g/bhp-hr for PM, the new engines shall be the cleanest available (either fuel type) and shall have the cleanest VDEC;
- By the end of 2012, all non-yard tractor terminal equipment less than 750 hp shall meet the EPA Tier 4 nonroad engine standards; and
- By the end of 2014, all terminal equipment shall meet EPA Tier 4 nonroad engine standards.

MM AQ-14. *LNG-Powered Shuttle Busses.*

All shuttle buses from parking lots to cruise ship terminals shall be LNG powered.

Delivery Trucks

MM AQ-15. *Truck Emission Standards.*

Onroad heavy-duty diesel trucks (above 14,000 pounds) entering the cruise terminal building shall achieve EPA's 2007 Heavy-Duty Highway Diesel Rule emission standards for onroad heavy-duty diesel engines (EPA 2001a) in the following percentages: 20% in 2009, 40% in 2012, and 80% in 2015 and thereafter.

MM AQ-16. *Truck Idling-Reduction Measure.*

The cruise terminal building operator shall ensure that heavy-duty truck idling is reduced at both the Inner and Outer Harbor Cruise Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the times when the gates are left open, including during off-peak hours, (2) operator shall implement an appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck-flow capacity to ensure queuing is minimized.

This mitigation measure is not quantified.

Tugboat Operations

MM AQ-17. ***AMP for Tugboats.***

Crowley and Millennium tugboats calling at the North Harbor cut shall use AMP while hoteling at the Port as follows (minimum percentage):

- 100% compliance in 2014.

MM AQ-18. ***Engine Standards for Tugboats.***

Tugboats calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages):

- 30% in 2010, and
- 100% in 2014.

Tugs calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 3 as follows (minimum percentages):

- 20% in 2015,
- 50% in 2018, and
- 100% in 2020.

MM AQ-19. ***Tugboats Idling Reduction*.**

The tug companies shall ensure that tug idling is reduced at the cruise terminal building.

This measure is not quantified.

Catalina Express

MM AQ-20. ***Catalina Express Ferry Idling Reduction Measure*.**

Catalina Express shall ensure that ferry idling is reduced at the cruise terminal building.

This measure is not quantified.

MM AQ-21. ***Catalina Express Ferry Engine Standards*.**

Ferries calling at the Catalina Express Terminal shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages):

- 30% in 2010, and
- 100% in 2014.

New/Alternative Technology

The following measures are lease measures that will be included in the lease for the cruise terminal operations and tug operations due to projected future emissions levels. The measures do not meet all of the criteria for CEQA or NEPA mitigation measures but are considered important lease measures to reduce future emissions. This lease obligation is distinct from the requirement of further CEQA or NEPA mitigation measures to address impacts of potential subsequent discretionary proposed project approvals.

MM AQ-22. ***Periodic Review of New Technology and Regulations.***

LAHD shall require the cruise terminal and tug company tenants to review, in terms of feasibility, any LAHD-identified or other new emissions-reduction technology, and report to LAHD. Such technology feasibility reviews shall take place at the time of LAHD's consideration of any lease amendment or facility modification for the cruise terminal and tug company property. If the technology is determined by LAHD to be feasible in terms of cost, technical, and operational feasibility, the tenant shall work with LAHD to implement such technology.

Potential technologies that may further reduce emission and/or result in cost-savings benefits for the tenant may be identified through future work on the CAAP. Over the course of the lease, the tenant and LAHD shall work together to identify potential new technology. Such technology shall be studied for feasibility, in terms of cost, technical, and operational feasibility.

As partial consideration for LAHD agreement to issue the permit to the tenant, the tenant shall implement not less frequently than once every 7 years following the effective date of the permit, new air quality technological advancements, subject to mutual agreement on operational feasibility and cost sharing, which shall not be unreasonably withheld.

The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies. As discussed in Section 3.2.4.1, if the tenant requests future project changes that would require environmental clearance and a lease amendment, future CAAP mitigation measures would be incorporated into the new lease at that time.

MM AQ-23. ***Throughput Tracking.***

If the proposed Project exceeds project throughput assumptions/projections (in terms of cruise terminal passenger numbers) anticipated through the years 2011, 2015, 2022, or 2037, LAHD staff shall evaluate the effects of this on the emissions sources (ship and truck calls) relative to the EIS/EIR. If it is determined that these emissions sources exceed EIS/EIR assumptions, staff shall evaluate actual air emissions for comparison with the EIS/EIR and if the criteria pollutant emissions exceed those in the EIS/EIR, then new or additional mitigations would be applied.

MM AQ-24. ***General Mitigation Measure.***

For any of the above mitigation measures (MM AQ-9 through MM AQ-21), 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 measure pending approval by LAHD. The technology's emissions reductions must be verifiable through EPA, CARB, or other reputable certification and/or demonstration studies to LAHD's satisfaction.

Residual Impacts

Tables 3.2-27 and 3.2-28 present the mitigated average and peak daily criteria pollutant emissions associated with operation of the proposed Project after the application of Mitigation Measures MM AQ-9 through MM AQ-11, MM AQ-13 through MM AQ-15, MM AQ-17, MM AQ-18, and MM AQ-21. The following mitigation measures are not quantified because their effectiveness has not been established: MM AQ-12, MM AQ-16, MM AQ-19, MM AQ-20, MM AQ-22, MM AQ-23, and MM AQ-24.

Mitigation Measures MM AQ-9 (AMP) and MM AQ-10 (Low Sulfur Fuel) require at least 80% and 100% compliance starting in 2013 for AMP and Day 1 for low sulfur fuel, respectively. The high compliance requirements ensure that even during worst-case peak activity, some mitigation would be in place. Therefore, in the 2015, 2022, and 2037 analysis years, it was conservatively assumed that half of the cruise vessels would comply with the mitigation measures during a worst case peak day scenario.

As shown in Table 3.2-27, the combination of Mitigation Measures MM AQ-9 through MM AQ-11, MM AQ-17, MM AQ-18, and MM AQ-21 would reduce average daily emissions of all criteria pollutants associated with marine vessels relative to unmitigated proposed project emissions. Although these mitigation measures are effective in reducing CO, the reduction appears inhibited because emission factors for CO for harbor vessels increase as Tier 2 engines replace Tier 0 and Tier 1 engines. CO is the only pollutant for which emission factors increase with engine replacement.

Table 3.2-28 presents the mitigated peak daily criteria pollutant emissions associated with operation of the proposed Project after the application of Mitigation Measures MM AQ-9 through MM AQ-11, MM AQ-13 through MM AQ-15, MM AQ-17, MM AQ-18, and MM AQ-21. The mitigated peak daily emissions minus the CEQA baseline would exceed CEQA thresholds and would thus be significant under CEQA for NO_X, SO_X, PM10, and PM2.5 in 2011; VOC, NO_X, and PM10 in 2015 and 2022; and NO_X and PM10 in 2037.

Table 3.2-29 shows the combined total of peak daily construction and operational emissions for 2011 after the application of mitigation measures. The table shows that with the inclusion of construction emissions, peak daily combined emissions would exceed CEQA thresholds for all pollutants and would therefore be significant under CEQA.

Table 3.2-27. Average Daily Operational Emissions with Mitigation—Proposed Project

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM25*
Project Year 2011						
Vessel transit and maneuvering	138	288	3,424	2,221	320	256
Vessel hoteling	57	119	1,402	1,098	139	111
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0	0.04	0.04
Total—Project Year 2011	**374**	**1,953**	**6,632**	**3,321**	**687**	**457**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Proposed Project minus CEQA baseline	-78	-1,170	195	-666	-162	-54
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Proposed Project minus NEPA baseline	11	24	284	180	27	21
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	98	205	2,272	366	119	95
Vessel hoteling	17	35	377	108	24	20
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	193	1,974	405	4	627	127
Terminal equipment	0.1	0.3	1	0	0.03	0.03
Total—Project Year 2015	**352**	**2,831**	**4,246**	**479**	**820**	**288**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM25*
Proposed Project minus CEQA baseline	-100	-292	-2,191	-3,508	-29	-223
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Proposed Project minus NEPA baseline	33	224	-17	-11	70	12
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	101	210	2,315	375	122	98
Vessel hoteling	17	35	384	111	25	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	161	1,508	269	4	660	131
Terminal equipment	0.1	0.3	0.4	0	0.01	0.01
Total—Project Year 2022	**319**	**2,523**	**3,976**	**491**	**849**	**288**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Proposed Project minus CEQA baseline	-133	-600	-2,461	-3,496	0	-223
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Proposed Project minus NEPA baseline	34	188	40	–	83	16
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	102	214	2,342	382	124	100
Vessel hoteling	17	36	389	113	26	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	99	920	146	5	747	147

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM25
Terminal equipment	0	0.3	0.1	0	0	0
Total—Project Year 2037	**258**	**1,940**	**3,885**	**501**	**939**	**306**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Proposed Project minus CEQA baseline	-194	-1,183	-2,552	-3,486	90	-205
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Proposed Project minus NEPA baseline	29	176	82	10	143	29
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Ship and motor vehicle emissions include transport within the SCAB.

Motor vehicles include passenger cars, trucks, busses, and shuttles.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

For the NEPA significance determination in this table, NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

Table 3.2-28. Peak Daily Operational Emissions with Mitigation—Proposed Project

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Vessel transit and maneuvering	625	1,305	16,599	23,150	2,378	1,903
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Terminal equipment	0.2	0.7	3	0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,089**	**3,826**	**2,969**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	3	-1,018	2,494	4,001	264	287
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Proposed Project minus NEPA baseline	–	–	1	1	–	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	730	1,525	18,859	19,350	2,184	1,748
Vessel hoteling	238	496	6,211	9,298	901	720
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	193	1,974	405	4	627	127
Terminal equipment	0.2	0.6	2	0	0.1	0.1
Total—Project Year 2015	**1,205**	**4,613**	**26,668**	**28,653**	**3,762**	**2,641**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	100	110	2,733	-3,435	200	-41
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Proposed Project minus NEPA baseline	327	837	7,604	8,643	1,008	762
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Vessel transit and maneuvering	730	1,525	18,859	19,350	2,184	1,748
Vessel hoteling	238	496	6,211	9,298	901	720
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	161	1,508	269	4	660	131
Terminal equipment	0.1	0.5	0.8	0	0.03	0.02
Total—Project Year 2022	**1,169**	**4,300**	**26,348**	**28,653**	**3,787**	**2,638**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	64	-204	2,413	-3,435	225	-44
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Proposed Project minus NEPA baseline	325	796	7,590	8,642	1,017	763
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	730	1,525	18,859	19,350	2,184	1,748
Vessel hoteling	238	496	6,211	9,298	901	720
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	99	920	146	5	747	147
Terminal equipment	0.1	0.5	0.2	0	0.01	0.01
Total—Project Year 2037	**1,107**	**3,712**	**26,224**	**28,654**	**3,874**	**2,654**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Proposed Project minus CEQA baseline	2	-792	2,289	-3,434	312	-28
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**No**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Proposed Project minus NEPA	319	779	7,583	8,643	1,074	774

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
baseline						
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Ship and motor vehicle emissions include transport within the SCAB.

Motor vehicles include passenger cars, trucks, busses, and shuttles.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

For the NEPA significance determination in this table, NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

Table 3.2-29. Peak Daily Construction and Operational Emissions with Mitigation—Proposed Project

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Maximum daily construction emissions	415	2,782	7,614	12	374	174
Maximum daily operational emissions	1,108	3,485	26,429	36,089	3,826	2,969
Total—Construction and Operation Project Year 2011	**1,523**	**6,267**	**34,043**	**36,101**	**4,200**	**3,143**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	418	1,764	10,108	4,013	638	461
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA	115	725	1,906	3	79	53

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Baseline						
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

Implementation of Mitigation Measures AQ-12, AQ-16, AQ-19, AQ-20, AQ-22, AQ-23, and AQ-24 although not quantified, could further reduce criteria pollutant emissions from marine vessels, trucks, and terminal equipment. However, these measures are unlikely to reduce the remaining significant emissions to less-than-significant levels because of the magnitude of the emissions.

Figures 3.2-6, 3.2-7, and 3.2-8 plot the emission trends of NO_X, SO_X, and PM10, respectively, for the proposed Project in relation to the CEQA baseline, both with and without mitigation. For comparison, Alternative 6 (the No-Project Alternative), the CEQA baseline, and the CEQA significance threshold (baseline plus the SCAQMD emission threshold) are shown in the figures.

Figures 3.2-9, 3.2-10, and 3.2-11 show the emissions of NO_X, SO_X, and PM10, respectively, by source category for the proposed Project after mitigation. Because the emissions for ships and motor vehicles are total emissions within the entire SCAB, much of the emissions from these sources would occur away from the Port along the travel routes.

NEPA Impact Determination

Proposed project unmitigated peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all criteria pollutants in all four proposed project study years, with the exception of CO in 2011.

In 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for all criteria pollutants.

Figures 3.2-12, 3.2-13, and 3.2-14 plot the emission trends of NO_X, SO_X, and PM10, respectively, for the proposed Project in relation to NEPA baseline, both with and without mitigation. For comparison, Alternative 6 (the No-Project Alternative), the NEPA baseline, and the NEPA significance threshold (NEPA baseline plus the SCAQMD emission threshold) are shown in the figures.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Following mitigation, peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all pollutants in analysis years 2015, 2022, and 2037.

The 2011 was chosen as the year that best represents a time when construction and operation activities would overlap. During this year, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for VOC, CO, and NO_X.

Impact AQ-4: Proposed project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Dispersion modeling of onsite and offsite proposed project operational emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. The EPA dispersion model AERMOD, version 07026, was used to predict maximum ambient pollutant concentrations in the vicinity of the proposed Project. A summary of the dispersion modeling results is presented here, and the complete dispersion modeling report is included in Appendix D2.

The analysis modeled peak 1-hour and annual NO_X emissions, peak 1-hour and 8-hour CO emissions, peak daily (24-hour) PM10 emissions, annual average PM10 emissions, and peak daily (24-hour) PM2.5 emissions. Emissions from marine vessels, ship hoteling, terminal equipment, delivery vehicles, and passenger vehicles were modeled. Emissions were estimated for the milestone years 2015, 2022, and 2037; and the highest emission rate for each source category from each milestone year was used in the dispersion modeling to determine maximum impact.

Table 3.2-30 shows the maximum offsite NO_2 and CO concentrations predicted from the operation of the proposed Project without mitigation. The table indicates that the maximum 1-hour NO_2 concentration of 2,006 $\mu g/m^3$ would exceed the SCAQMD significance threshold of 338 $\mu g/m^3$. The annual NO_2 concentration of 127 $\mu g/m^3$ would exceed the SCAQMD significance threshold of 56.4 $\mu g/m^{3.}$ The maximum 1-hour and 8-hour CO concentrations from operational emissions of the proposed Project would be well below the SCAQMD significance thresholds. Total concentrations (proposed Project plus background) were calculated for NO_2 and CO rather than incremental concentrations (proposed Project minus baseline) because the significance thresholds for these pollutants are absolute thresholds rather than incremental thresholds.

Table 3.2-31 shows the maximum offsite PM10 and PM2.5 concentrations predicted for the proposed Project without mitigation. The maximum CEQA increment (proposed Project minus CEQA baseline), and NEPA increment (proposed Project minus NEPA baseline) are also shown. Increments of PM10 concentrations were obtained by subtracting the CEQA baseline or NEPA baseline concentrations from

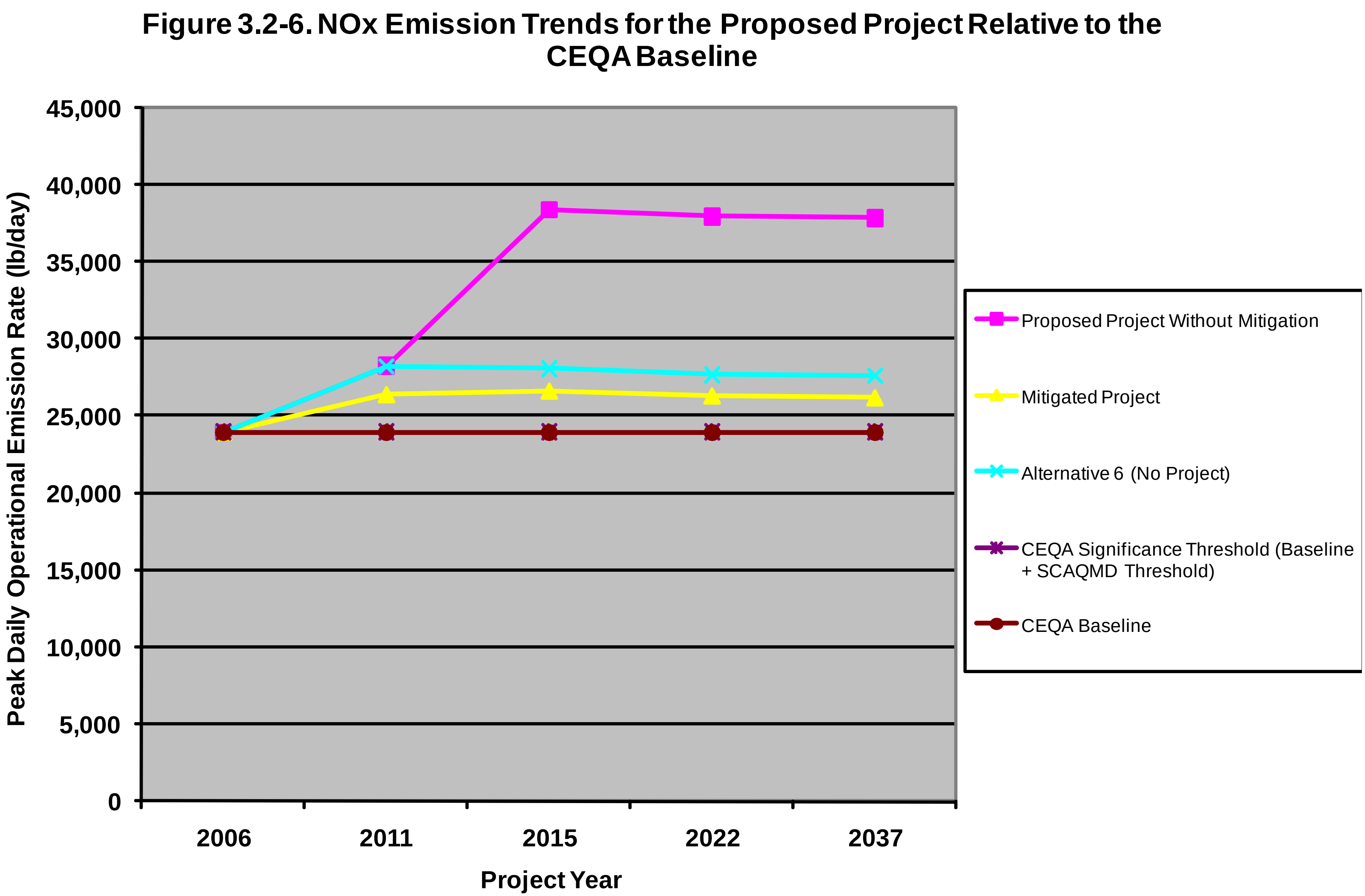

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Figure 3.2-6
NOx Emission Trends for the Proposed Project
Relative to the CEQA Baseline
San Pedro Waterfront Project

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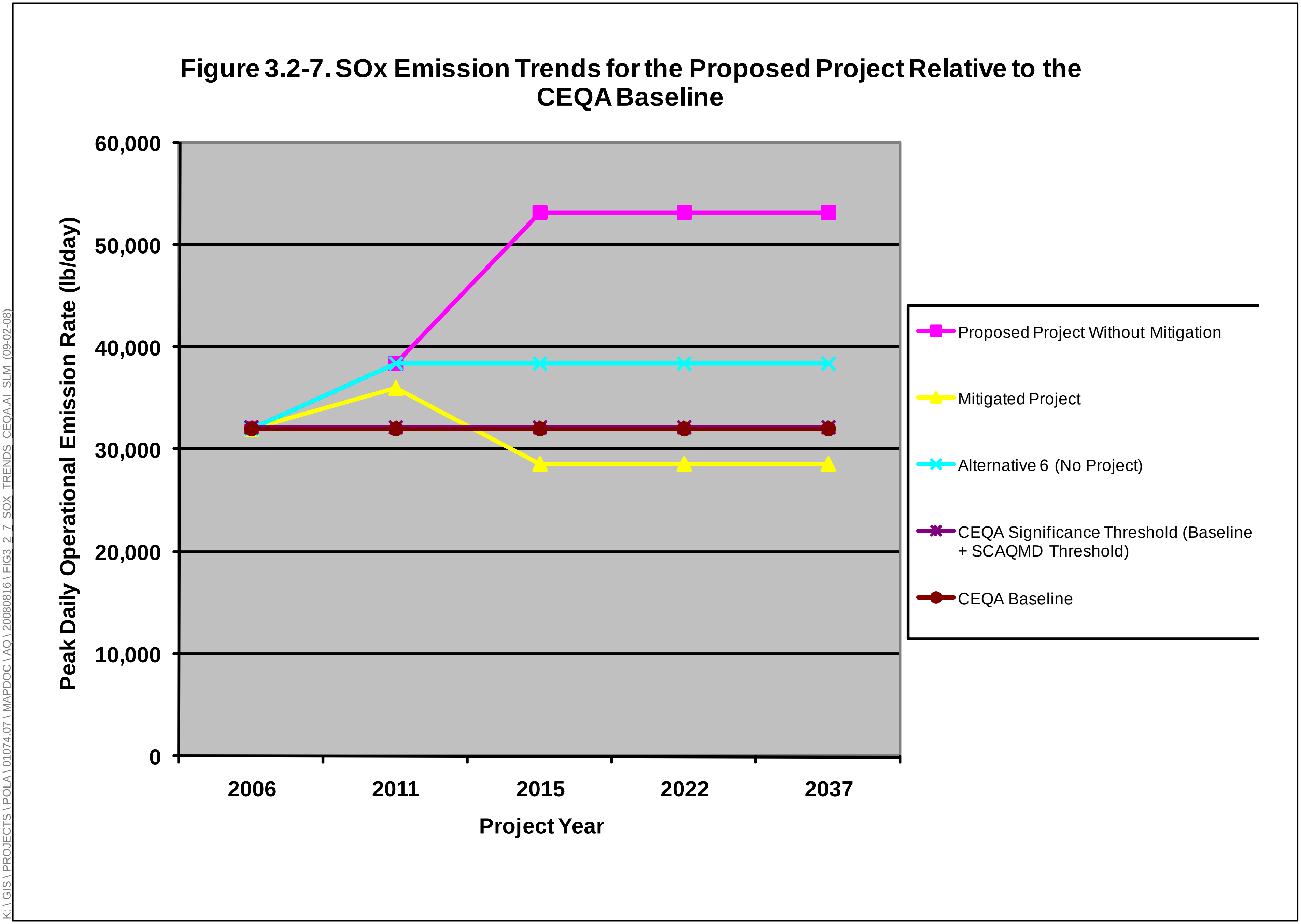


Figure 3.2-7
SOx Emission Trends for the Proposed Project
Relative to the CEQA Baseline
San Pedro Waterfront Project

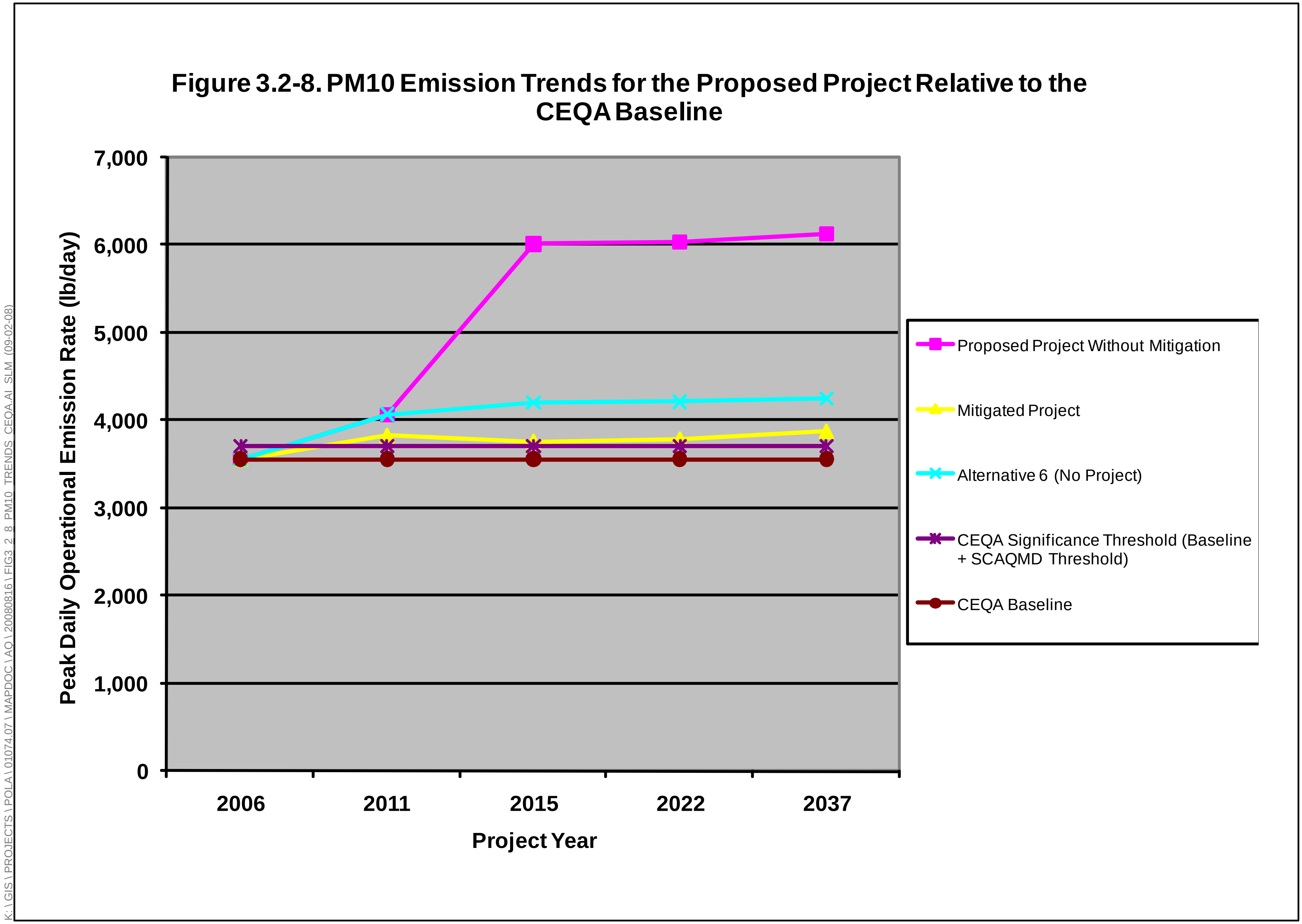


Figure 3.2-8
PM10 Emission Trends for the Proposed Project Relative to the CEQA Baseline
San Pedro Waterfront Project

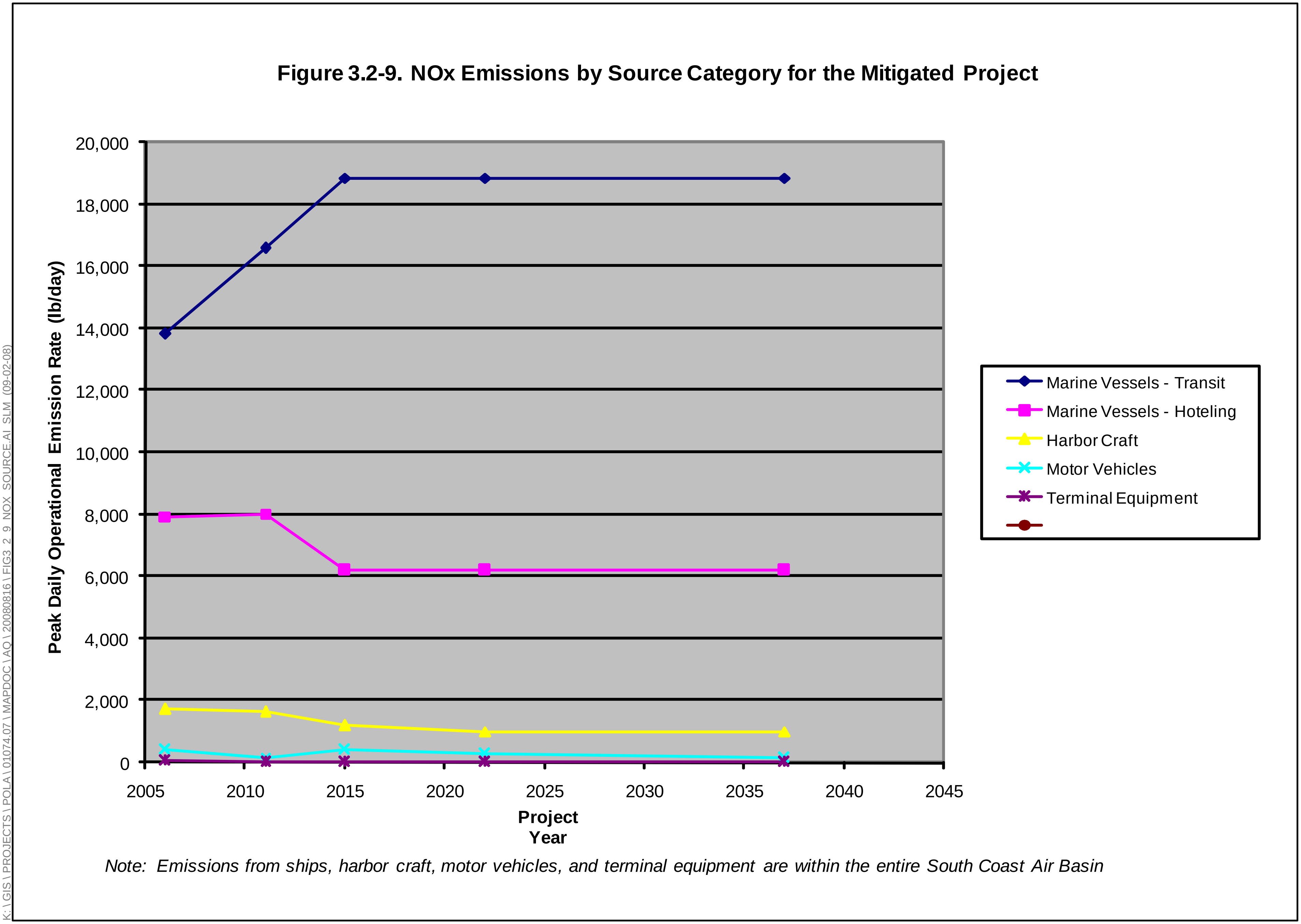


Figure 3.2-9
NOx Emissions by Source Category for the Mitigated Project
San Pedro Waterfront Project

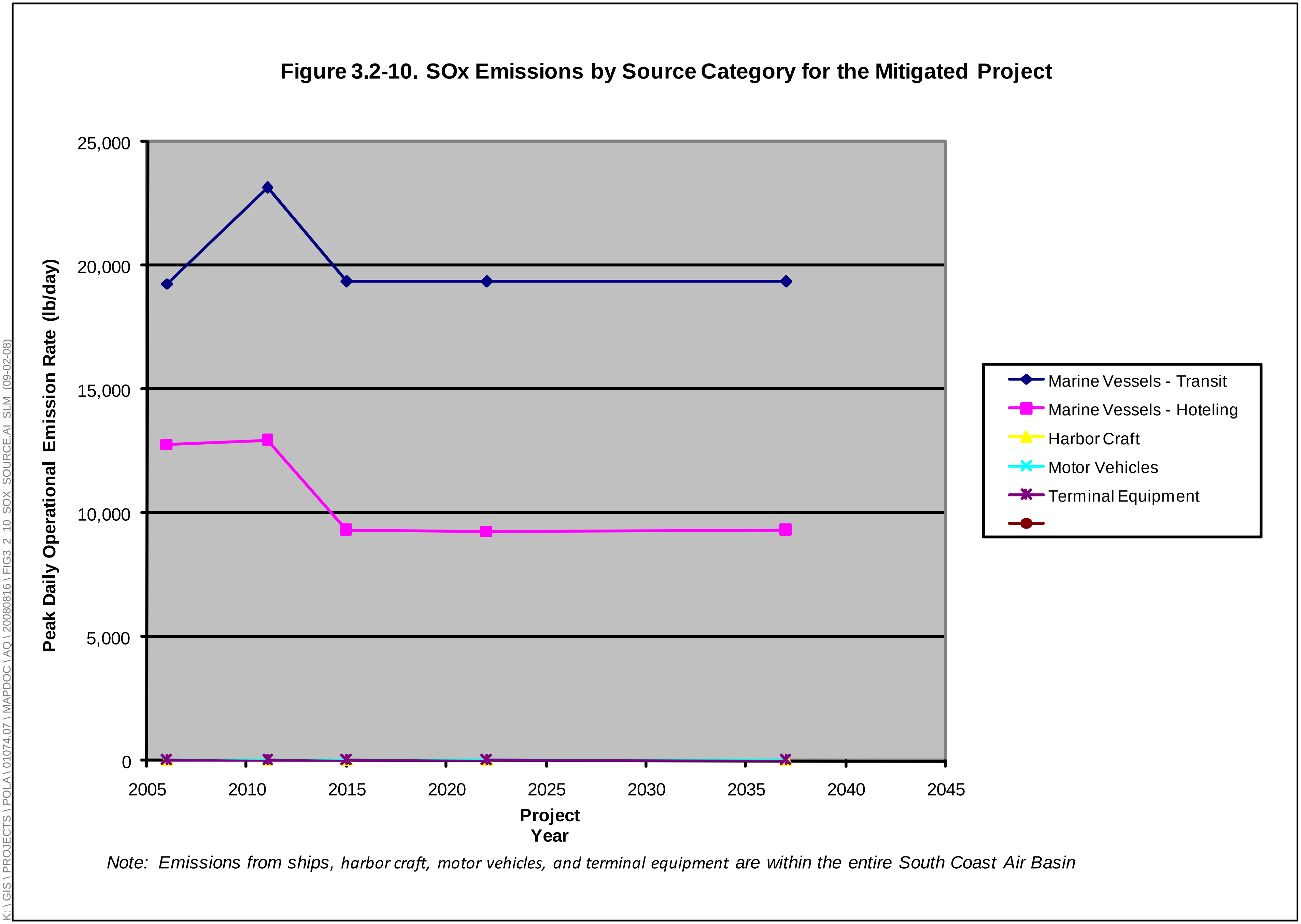
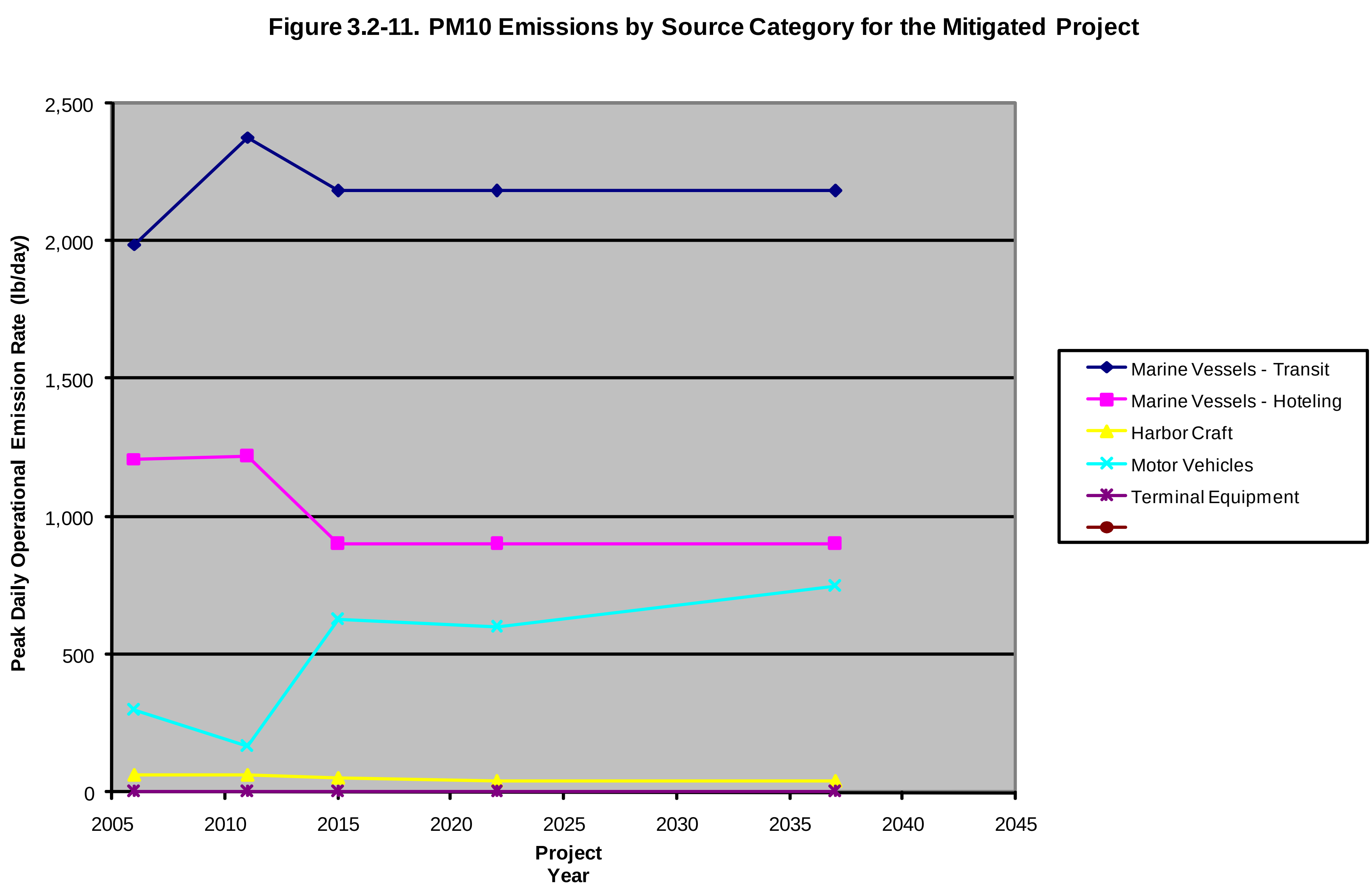


Figure 3.2-10
SOx Emissions by Source Category for the Mitigated Project
San Pedro Waterfront Project



Note: Emissions from ships, harbor craft, motor vehicles, and terminal equipment are within the entire South Coast Air Basin

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Figure 3.2-11
PM10 Emissions by Source Category for the Mitigated Project
San Pedro Waterfront Project

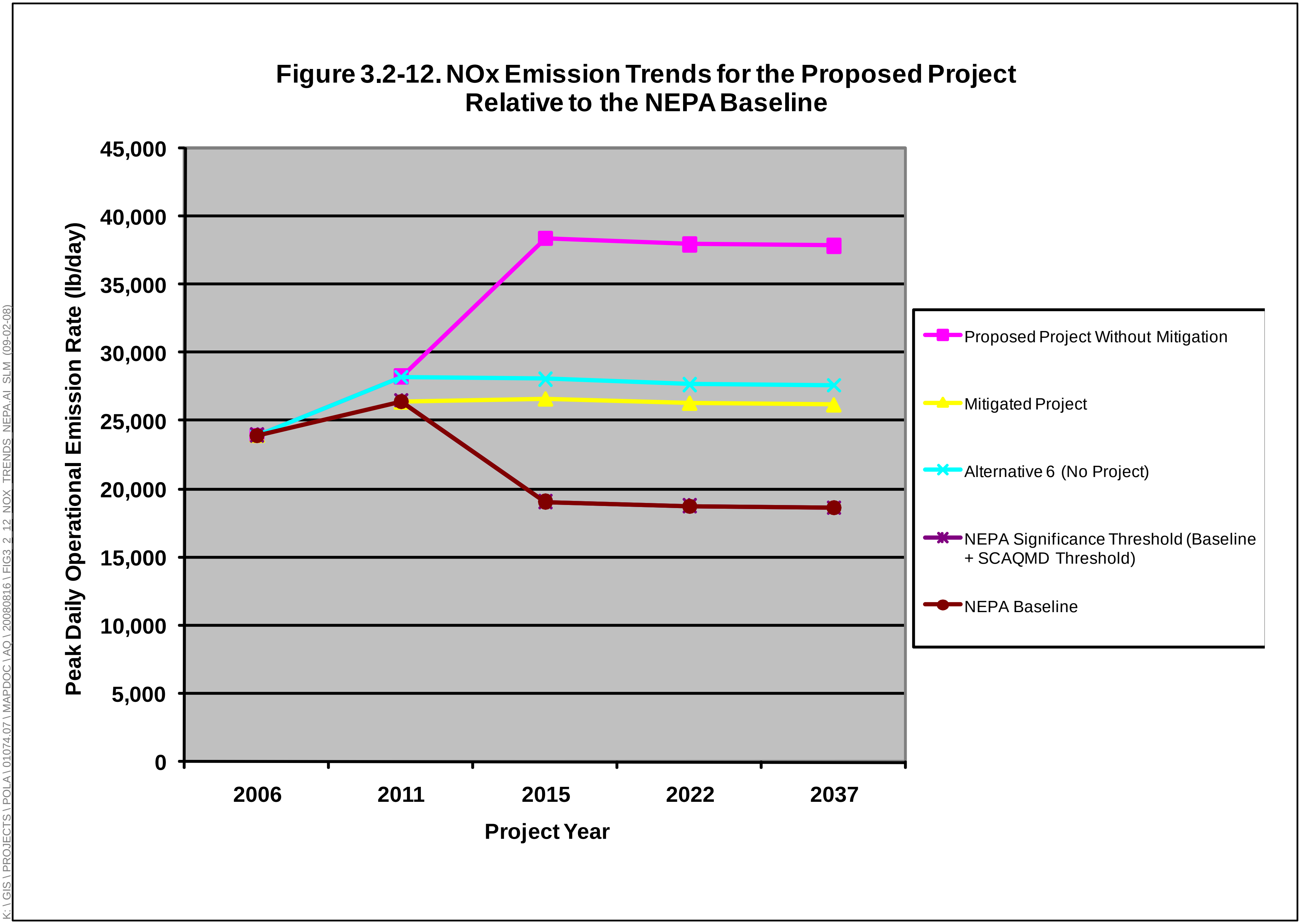

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Figure 3.2-12
NOx Emission Trends for the Proposed Project
Relative to the NEPA Baseline
San Pedro Waterfront Project

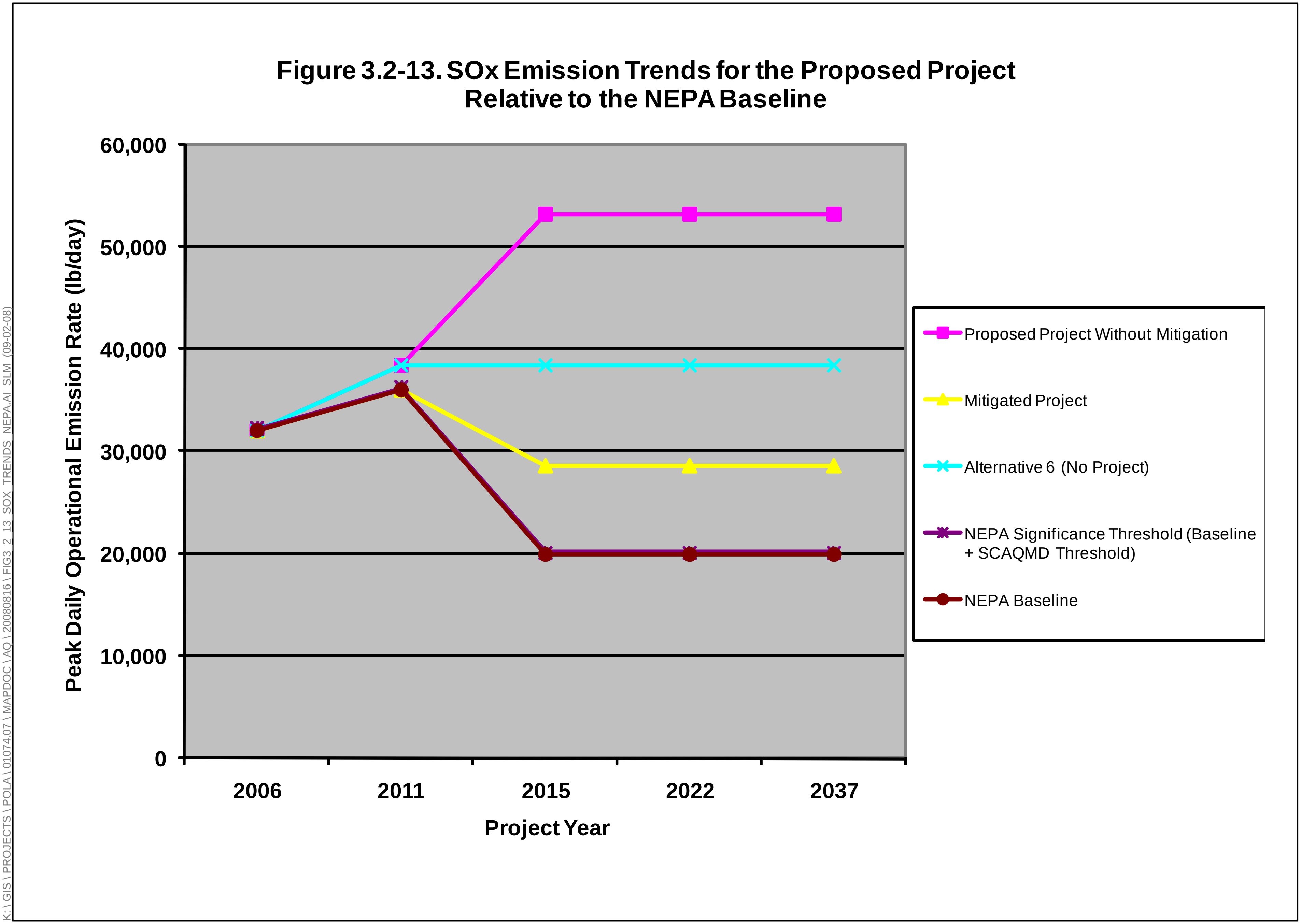

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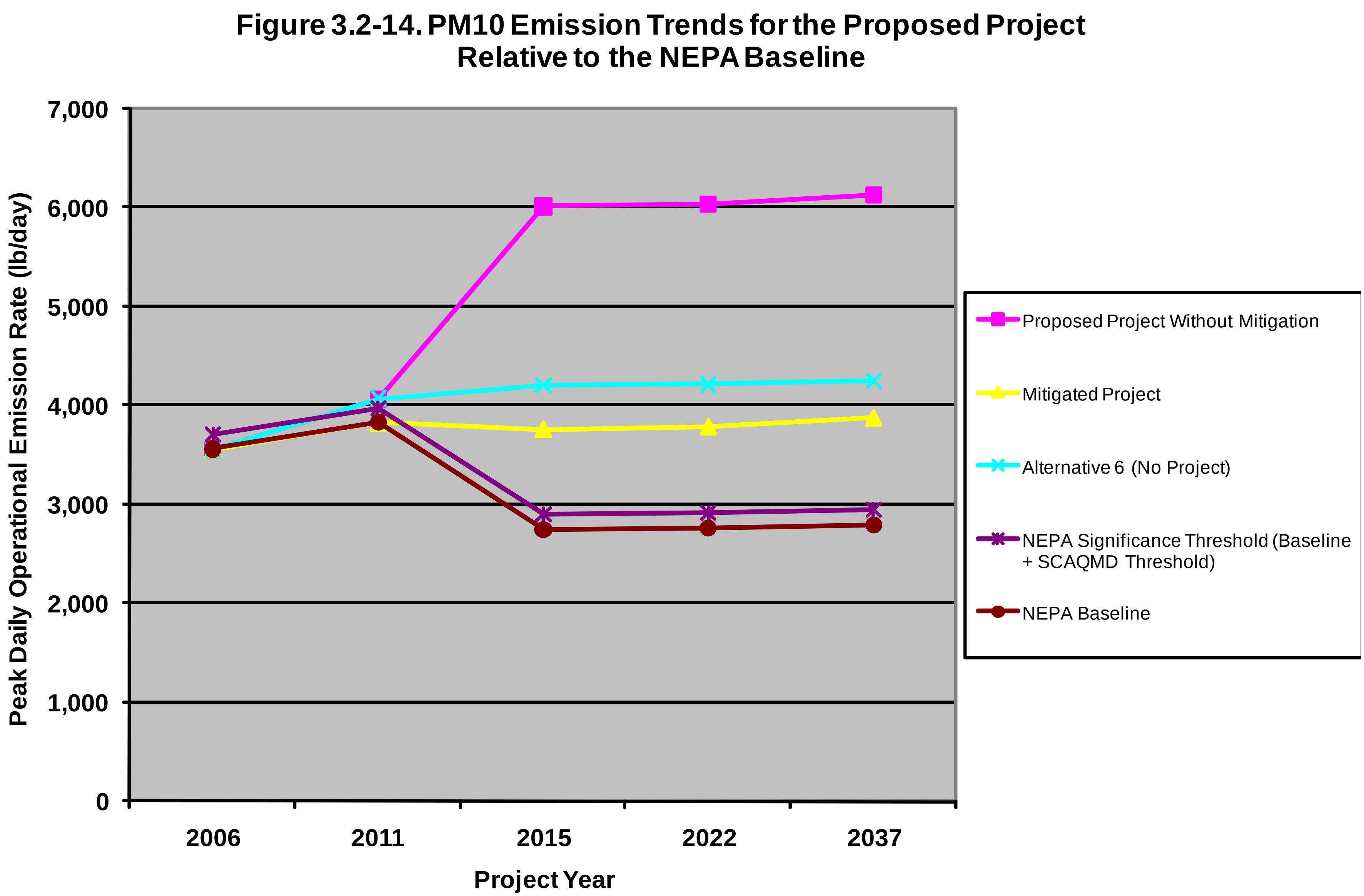
Figure 3.2-13
SOx Emission Trends for the Proposed Project
Relative to the NEPA Baseline
San Pedro Waterfront Project



K:\GIS\PROJECTS\POLA\01074.07\MAPDOC\AQ\20080816\FIG3_2_14_PM10_TRENDS_NEPA.AI SLM (09-02-08)

Figure 3.2-14
PM10 Emission Trends for the Proposed Project
Relative to the NEPA Baseline
San Pedro Waterfront Project

the proposed Project concentrations at each common receptor. The maximum increment among all receptors was then used for comparison with the SCAQMD threshold. The thresholds for PM10 and PM2.5 are incremental thresholds.

The CEQA and NEPA increments for 24-hour PM10 concentrations are predicted to be 15.5 and 15.4 $\mu g/m^3$, respectively. Both of the increments would exceed the SCAQMD PM10 threshold of 2.5 $\mu g/m^3$ for the proposed project operations.

The CEQA and NEPA increments for 24-hour PM2.5 are predicted to be 12.3 and 12.3 $\mu g/m^3$, respectively. Both of the increments would exceed the SCAQMD PM2.5 threshold of 2.5 $\mu g/m^3$ for the proposed project operations.

The CEQA and NEPA increments for annual PM10 are predicted to be 3.0 and 1.8$\mu g/m^3$, respectively. Both of the increments would exceed the SCAQMD PM10 threshold of 1.0 $\mu g/m^3$ for the proposed project operations.

Table 3.2-30. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of the Proposed Project without Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Proposed Project ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Ground-Level Concentration ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1 hour	1,559	263	**2,006**	338
	Annual	74	53	**127**	56.4
CO	1 hour	6,229	4,809	11,038	23,000
	8 hours	2,362	4,008	6,370	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-31. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of the Proposed Project without Mitigation

	Maximum Modeled Concentration of Proposed Project (µg/m3)	*Maximum Modeled Concentration of CEQA Baseline (µg/m3)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m3)*	*Ground-Level Concentration CEQA Increment (µg/m3)*	*Ground-Level Concentration NEPA Increment (µg/m3)*	*SCAQMD Threshold (µg/m3)*
PM10 24-hour period	26.9	32.3	22.8	**15.5**	**15.4**	2.5
PM10 annual average	7.3	4.3	6.5	**3.0**	**1.8**	1.0
PM2.5 24-hour period	20.0	25.8	17.1	**12.3**	**12.3**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 below describes how the increments are calculated.

The CEQA increment represents the proposed Project minus the CEQA baseline. The NEPA increment represents the proposed Project minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the proposed project operations would be significant for NO_2 (1-hour average and annual average), PM10 and PM2.5 (24-hour average), and annual PM10. Therefore, significant impacts under CEQA would occur.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

<u>Residual Impacts</u>

Table 3.2-32 presents the maximum offsite ground-level concentrations of NO_2 and CO for the proposed Project after mitigation. Table 3.2-33 shows the maximum PM10 and PM2.5 concentration increments after mitigation. Impacts would be

significant for NO_2 and 24-hour PM10 and PM2.5 as well as annual PM10, although offsite ambient concentrations of PM10 and PM2.5 would be reduced.

Table 3.2-32. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of the Proposed Project after Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Mitigated Project (µg/m³)*	*Background Concentration (µg/m³)*	*Total Ground-Level Concentration (µg/m³)*	*SCAQMD Threshold (µg/m³)*
NO_2	1 hour	772	263	**1,035**	338
	Annual	55	53	**108**	56.4
CO	1 hour	6,182	4,809	10,991	23,000
	8 hours	2,355	4,008	6,363	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-33. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of the Proposed Project after Mitigation

	Maximum Modeled Concentration of Mitigated Project (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m³)*	*Ground-Level Concentration CEQA Increment (µg/m³)*	*Ground-Level Concentration NEPA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour period	18.9	32.3	22.8	**8.3**	**8.2**	2.5
PM10 annual average	6.6	4.3	6.5	**2.4**	**1.1**	1.0
PM2.5 24-hour period	13.5	25.8	17.1	**6.5**	**6.5**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 below describes how the increments are calculated.

The CEQA increment represents the mitigated proposed Project minus the CEQA baseline. The NEPA increment represents the mitigated proposed Project minus the NEPA baseline. NEPA baseline emissions include as project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the proposed project operations would be significant for NO_2 (1-hour average and annual) and PM10 and PM2.5 (24-hour average) as well as annual average PM10. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-32 above presents the maximum offsite ground-level concentrations of NO_2 and CO for the proposed Project after mitigation. Table 3.2-33 above shows the maximum PM10 and PM2.5 concentration increments after mitigation. Impacts would be significant for NO_2 and 24-hour PM10 and PM2.5 as well as annual average PM10, although offsite ambient concentrations of PM10 and PM2.5 would be reduced.

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

Motor vehicle trips generated by the proposed Project would affect intersections predicted to operate at high traffic volumes in future years. During periods of near-calm winds, heavily congested intersections can produce elevated levels of CO in their immediate vicinity. Therefore, a CO microscale modeling analysis was conducted to determine whether the proposed Project would contribute to a violation of the ambient air quality standards for CO at a local intersection.

Table 3.2-34 presents maximum 1-hour and 8-hour CO concentrations predicted at locations approximately 10 feet outside the roadway shoulder from the edge of the intersections at the standard breathing height of 1.8 meters. The results show that CO concentrations would not exceed the CO standards during any proposed project study year, either with or without the proposed Project. Despite increasing traffic volumes in the future, the results show a declining trend in CO concentrations. This declining trend is due to the phasing in of cleaner fuels, tighter vehicle emissions standards, and the gradual replacement of older vehicles with newer, cleaner vehicles.

The input data and CALINE4 output files for the CO intersection analysis are presented in Appendix D5.

Table 3.2-34. Maximum CO Concentrations at High Traffic Volume Intersections—Proposed Project without Mitigation (intersection numbers in parenthesis)

	1-Hour Concentration (ppm)	*8-Hour Concentration (ppm)*
Project Year 2015		
Gaffey Street and 1st Street (9)	5.9	4.63
Gaffey Street and I-110 ramps (10)	6.4	4.98
Harbor Boulevard and O'Farrell Street (29)	6.1	4.77
Harbor Boulevard and Swinford Street/SR-47 ramp (26)	6.4	4.98
Gaffey Street and 5th Street (8)	5.6	4.42
Maximum in 2015	**6.4**	**4.98**
Project Year 2037		
Gaffey Street and 1st Street (9)	4.8	3.86
Gaffey Street and I-110 ramps (10)	5.0	4.00
Harbor Boulevard and O'Farrell Street (29)	4.9	3.93
Harbor Boulevard and 7th Street (22)	4.7	3.79
Maximum in 2037	**5.0**	**4.00**
Most Stringent Standard	*20*	*9*

Notes:

1-Hour concentrations include a background concentration of 4.0 ppm for both 2015 and 2037.

8-Hour concentrations include a background concentration of 3.3 ppm for both 2015 and 2037. A persistence factor of 0.7 was used to convert the 1-hour modeled concentration to an 8-hour concentration.

CALINE4 was run with weekend meteorological conditions of 1.0 meters per second (m/s) wind speed, stability D, 14.8 °C temperature, and 25° standard deviation of wind direction. It was also run with morning and evening weekday meteorological conditions of 0.5 m/s wind speed, stability G, 12.0 °C temperature, and 10° standard deviation of wind direction.

Parking Structure Modeling

Emission source locations for the proposed 3-level (2-story) parking structure and alternatives were determined from the proposed parking maps. The parking structure was modeled as a volume source using the dimensions of the proposed structure.

Emissions for departing vehicles (assuming all cold starts) were assumed to occur from 9:00 a.m. until noon. Emissions from arriving vehicles were assumed to occur from noon to 3:00 p.m. The parking structure was assumed to operate at maximum predicted parking demand levels and at full parking capacity. Vehicles within the parking structure were assumed to travel on average one and half times the longest length of the structure before exiting as well as entering. Also, the additional emissions associated with the parking vehicles as they move along the contiguous portion of Harbor Boulevard were included as extended area sources.

When modeling emissions from parking activities, receptors were placed in a grid with 50-meter spacing. Initial tests using SCREEN3 were used to determine the appropriate extent of the domain. Nearby sensitive receptors were included in the analysis. The short-term 1-hour and 8-hour CO concentrations were evaluated from the modeling of the parking garage activities. The results of this analysis are presented in Table 3.2-35. The results show that CO concentrations would not exceed the CO standards during any proposed project study years.

Table 3.2-35. Maximum CO Concentrations at the Proposed Parking Structure—Proposed Project without Mitigation

Project Year	*1-Hour Concentration (ppm)*	*8-Hour Concentration (ppm)*
Modeled CO at Predicted Parking Demand		
2011	4.1	3.36
2015	4.1	3.35
2022	4.0	3.35
2037	4.0	3.34
Modeled CO at Full Parking Utilization		
2011	4.2	3.43
2015	4.1	3.40
2022	4.1	3.37
2037	4.0	3.35
Most Stringent Standard	*20*	*9*
Notes: 1-hour concentrations include a background concentration of 4.0 ppm for all modeled years. 8-hour concentrations include a background concentration of 3.3 ppm for all modeled years.		

CEQA Impact Determination

Significant impacts would not occur because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Significant impacts would not occur because CO standards would not be exceeded.

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.

Operation of the proposed Project would increase air pollutants due to the combustion of diesel fuel. Some individuals might find diesel combustion emissions to be objectionable in nature, although quantifying the odorous impacts of these emissions on the public is difficult. The mobile nature of most proposed project emission sources would help to disperse proposed project emissions, and the distance between proposed project emission sources and the nearest residents is expected to be far enough to not only disperse these emissions adequately but reduce their impact to below objectionable odor levels.

CEQA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-7: The proposed Project would expose receptors to significant levels of TACs.

Proposed project operations would emit TACs that could affect public health. An HRA spanning the years 2009–2078 was conducted consistent with both CARB and SCAQMD policies (Port of Los Angeles 2008). The HRA was used to evaluate possible health impacts from the emissions of TACs associated with proposed project operations. The HRA was conducted following the methodology as developed in *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2003) and *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics Hot Spots Information and Assessment Act* (SCAQMD 2005). The approach is consistent with the Hotspots Analysis and Reporting Program (HARP), version 1.3 (CARB 2006). The approach used the modeled output from the AERMOD dispersion model. The complete HRA report is included in Appendix D3 of this EIS/EIR.

The main sources of TACs from proposed project operations would be DPM emissions from cruise vessels, terminal equipment, and motor vehicles. Also included in the HRA analysis are the construction related emissions spanning the construction period. For health effects resulting from long-term exposure, CARB considers DPM as representative of the total health risks associated with the combustion of diesel fuel. TAC emissions from non-diesel sources (such as gasoline engines) and non-internal combustion sources (such as auxiliary boilers) were also evaluated in the HRA, although their impacts were minor for long-term exposure in comparison with DPM. Since the proposed Project would generate emissions of DPM, Impact AQ-7 also discusses the effects of ambient PM on increased mortality and morbidity.

The HRA evaluated three different types of health effects: individual lifetime cancer risk, chronic non-cancer hazard index, and acute non-cancer hazard index. Individual lifetime cancer risk is the additional chance for a person to contract cancer after a lifetime of exposure to proposed project emissions. The "lifetime" exposure duration assumed in this HRA is 70 years for a residential receptor.

The chronic hazard index is a ratio of the long-term average concentrations of TACs in the air to established reference exposure levels. A chronic hazard index below 1.0 indicates that adverse non-cancer health effects from long-term exposure are not expected. Similarly, the acute hazard index is a ratio of the short-term average concentrations of TACs in the air to established reference exposure levels. An acute hazard index below 1.0 indicates that adverse non-cancer health effects from short-term exposure are not expected.

For the determination of significance from a CEQA standpoint, the HRA determined the incremental increase in health effect values due to the proposed Project by estimating the net change in impacts between the proposed Project and CEQA baseline conditions. For the determination of significance from a NEPA standpoint, the HRA determined the incremental increase in health effect values due to the proposed Project by estimating the net change in impacts between the proposed Project and NEPA baseline. Both of these incremental health effect values (proposed Project minus CEQA baseline and proposed Project minus NEPA baseline) were compared to the significance thresholds for health risk described in Section 3.2.4.2.

To estimate cancer risk impacts, VOC and DPM emissions were projected over a 70-year period, from 2009 through 2078. This 70-year projection of emissions was done for the proposed Project, CEQA baseline, and NEPA baseline to enable a proper calculation of the CEQA and NEPA cancer risk increments. To calculate the 70-year emissions for vessels, emissions were calculated for each segment of transit and hoteling for each analysis year; the emissions were then interpolated for intermediate years and held constant at 2037 levels for years beyond 2037.

For landside operations, estimates of activity levels and emission factors were made for each year from 2009 through 2078. Yearly equipment activity levels for the years between the proposed project analysis years were interpolated for the proposed Project and NEPA baseline. Activity levels after 2037 were held constant at their 2037 values. For the CEQA baseline, activity levels were held constant at their 2006 values for all years. Where applicable, yearly emission factors were allowed to change with time in accordance with normal fleet turnover rates (for terminal equipment, harbor craft, and motor vehicles) and the existing regulations and agreements listed in Table 3.2-8.

Table 3.2-37 presents the maximum predicted health impacts associated with the proposed Project without mitigation. The table includes estimates of individual lifetime cancer risk, chronic non-cancer hazard index, and acute non-cancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Results are presented for the proposed Project, CEQA baseline, NEPA baseline, CEQA increment (proposed Project minus CEQA baseline), and NEPA increment (proposed Project minus NEPA baseline).

For each receptor type, the various health values in Table 3.2-37 often occur at different locations. This means that the CEQA increment cannot necessarily be determined by subtracting the CEQA baseline result from the proposed Project result in the table. Likewise, the NEPA increment cannot necessarily be determined by subtracting the NEPA baseline result from the proposed Project result in the table. Instead, the increments must be subtracted at each of the hundreds of modeled receptors, and the receptor with the highest difference is selected as the maximum increment. The example in Table 3.2-36 shows how the maximum residential CEQA cancer risk increment of 112 in a million in Table 3.2-37 was determined by examining the predicted risks at two modeled receptors.

Table 3.2-36. Example Calculation of CEQA Cancer Risk Increment

Fine Grid Receptor No. 82	
Proposed Project cancer risk impact	196.1 in a million
CEQA baseline cancer risk impact	84.6 in a million
CEQA increment	196.1 –84.6=111.5 in a million
This receptor is not the location of the maximum proposed project impact or the maximum CEQA baseline impact. Nevertheless, the CEQA increment of 111.5 in a million (rounded to 112 in a million) is the highest increment of any modeled residential receptor. Therefore, this receptor is the location of the maximum CEQA increment.	
Coarse Receptor No. 711	
Proposed Project cancer risk impact	341 in a million
CEQA baseline cancer risk impact	361 in a million
CEQA increment	341 –361= -20 in a million
This receptor is the location of the maximum proposed project impact of 341 in a million shown in Table 3.2-37. However, the CEQA increment of -20 in a million is less than the CEQA increment at Receptor No. 82. Therefore, this receptor is not the location of the maximum CEQA increment.	

Although the example in Table 3.2-36 above shows the CEQA cancer risk increment being calculated at two modeled receptors, the complete determination of the maximum increment involves this same type of calculation at hundreds of modeled receptors. The calculation of the NEPA increment, the increments for the chronic and acute noncancer hazard indices, and the PM10 increments addressed in Impact AQ-4 are also done this way.

Table 3.2-37. Maximum Health Impacts Associated with the Proposed Project without Mitigation

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Proposed Project	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	341 x 10^{-6} (341 in a million)	379 x 10^{-6} (379 in a million)	**112 x 10^{-6}** **(112 in a million)**	139 x 10^{-6} (139 in a million)	**202 x 10^{-6}** **(202 in a million)**	10 × 10^{-6} (10 in a million)
	Occupational	387 x 10^{-6} (387 in a million)	992 x 10^{-6} (992 in a million)	**176 x 10^{-6}** **(176 in a million)**	171 x 10^{-6} (171 in a million)	**251 x 10^{-6}** **(251 in a million)**	
	Recreational	594 x 10^{-6} (594 in a million)	1,522 x 10^{-6} (1,522 in a million)	**270 x 10^{-6}** **(270 in a million)**	263 x 10^{-6} (263 in a million)	**385 x 10^{-6}** **(385 in a million)**	
	Sensitive	97 x 10^{-6} (97 in a million)	120 x 10^{-6} (120 in a million)	**12 x 10^{-6}** **(12 in a million)**	52 x 10^{-6} (52 in a million)	**58 x 10^{-6}** **(58 in a million)**	
	Student	6 x 10^{-6} (6 in a million)	8 x 10^{-6} (8 in a million)	1 x 10^{-6} (1 in a million)	2 x 10^{-6} (2 in a million)	4 x 10^{-6} (4 in a million)	
Chronic Hazard Index	Residential	0.53	0.69	0.09	0.44	0.13	1.0
	Occupational	1.16	1.72	0.38	1.04	0.42	
	Recreational	1.16	1.72	0.38	1.04	0.42	
	Sensitive	0.13	0.13	0.02	0.11	0.03	
	Student	0.13	0.11	0.02	0.10	0.03	
Acute Hazard Index	Residential	1.64	2.40	**1.42**	1.36	**1.26**	1.0
	Occupational	2.56	3.07	**2.51**	1.76	**1.46**	
	Recreational	2.56	3.07	**2.51**	1.76	**1.46**	
	Sensitive	0.86	0.51	0.73	0.44	0.68	
	Student	0.54	0.42	0.41	0.29	0.34	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents the proposed Project minus the CEQA baseline. The NEPA increment represents the proposed Project minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Proposed Project	CEQA Baseline	CEQA Increment	NEPA Baseline	NEPA Increment	

mitigation measures identified for Alternative 5.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

CEQA Impact Determination

Table 3.2-37 shows that the maximum CEQA cancer risk increment associated with the unmitigated proposed Project is predicted to be 270 in a million (270×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million and would be considered a significant impact. The receptor location for the maximum recreational increment is in the Outer Harbor Park, approximately 300 meters northeast of Outer Harbor Cruise Terminal Berths 45–47. The CEQA cancer risk increment would also exceed the threshold at occupational, sensitive, and residential receptors. The maximum residential receptor is located in the marina (live-aboards). These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment associated with the unmitigated proposed Project is predicted to be less than significant for all receptor types. The acute hazard index CEQA increment is predicted to be lower than the significance threshold for sensitive and student receptor types, but significant for residential, occupational, and recreational receptors.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-38 presents a summary of the maximum health impacts that would occur with operation of the proposed Project with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with the proposed Project by about 67%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 6%.

The data in Table 3.2-38 show that the maximum CEQA cancer risk increment after mitigation is predicted to be 25 in a million (25×10^{-6}), at a recreational receptor. The maximum residential CEQA cancer risk increment after mitigation is predicted to be less than 1 in a million ($<1 \times 10^{-6}$), which is well below the significance threshold. The CEQA cancer risk increment also exceeds the threshold at the occupational receptor. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment would remain less than significant for all receptor types. The acute hazard index CEQA increment is predicted to remain significant at occupational, residential, and recreational receptors.

Table 3.2-38. Maximum Health Impacts Associated With the Proposed Project with Mitigation

Health Impact		*Maximum Predicted Impact*					*Significance Threshold*
	Receptor Type	*Proposed Project*	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	111 x 10^{-6} (111 in a million)	379 x 10^{-6} (379 in a million)	<1 x 10^{-6} (<1 in a million)	139 x 10^{-6} (139 in a million)	**15 x 10^{-6} (15 in a million)**	10 × 10^{-6} (10 in a million)
	Occupational	86 x 10^{-6} (86 in a million)	992 x 10^{-6} (992 in a million)	**16 x 10^{-6} (16 in a million)**	171 x 10^{-6} (171 in a million)	**25 x 10^{-6} (25 in a million)**	
	Recreational	132 x 10^{-6} (132 in a million)	1,522 x 10^{-6} (1,522 in a million)	**25 x 10^{-6} (25 in a million)**	263 x 10^{-6} (263 in a million)	**38 x 10^{-6} (38 in a million)**	
	Sensitive	47 x 10^{-6} (47 in a million)	120 x 10^{-6} (120 in a million)	<1 x 10^{-6} (<1 in a million)	52 x 10^{-6} (52 in a million)	<1 x 10^{-6} (<1 in a million)	
	Student	2 x 10^{-6} (2 in a million)	8 x 10^{-6} (8 in a million)	<1 x 10^{-6} (<1 in a million)	2 x 10^{-6} (2 in a million)	<1 x 10^{-6} (<1 in a million)	
Chronic Hazard Index	Residential	0.44	0.69	0.04	0.44	0.07	1.0
	Occupational	1.04	1.72	0.20	1.04	0.16	
	Recreational	1.04	1.72	0.20	1.04	0.16	
	Sensitive	0.11	0.13	0.00	0.11	0.00	
	Student	0.10	0.11	0.00	0.10	0.00	
Acute Hazard Index	Residential	1.55	2.40	**1.10**	1.36	0.94	1.0
	Occupational	1.97	3.07	**1.74**	1.76	**1.07**	
	Recreational	1.97	3.07	**1.74**	1.76	**1.07**	
	Sensitive	0.73	0.51	0.60	0.44	0.55	
	Student	0.42	0.42	0.29	0.29	0.23	
Notes:							

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Proposed Project	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only. The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 illustrates how the increments are calculated. The CEQA increment represents the proposed Project minus the CEQA baseline. The NEPA increment represents the Project minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5. Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values. The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate. For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content							

NEPA Impact Determination

Table 3.2-37 shows that the maximum NEPA cancer risk increment associated with the unmitigated proposed Project is predicted to be 385 in a million (385×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million and would be considered a significant impact. The receptor location for the maximum recreational increment is in the Inner Harbor Parking area, approximately 250 meters west of Berths 91–92. The NEPA cancer risk increment would also exceed the threshold at occupational, sensitive, and residential receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment associated with the unmitigated proposed Project is predicted to be less than significant for all receptor types. The acute hazard index NEPA increment is predicted to be lower than the significance threshold for sensitive and student receptor types, but significant for residential, occupational, and recreational.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

<u>Residual Impacts</u>

As shown in Table 3.2-38, the maximum NEPA cancer risk increment after mitigation is predicted to be 38 in a million (38×10^{-6}), at a recreational receptor. The maximum residential NEPA cancer risk increment after mitigation is predicted to be 15 in a million ($15 \text{ x } 10^{-6}$), which remains above the significance threshold. The

NEPA cancer risk increment would also exceed the threshold at the occupational receptor. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment would remain less than significant for all receptor types. The acute hazard index NEPA increment is predicted to be significant for occupational and recreational receptors.

Particulates: Morbidity and Mortality

Health risk assessments are not diagnostic studies; they are an estimate of the potential for current or future exposures to result in health risks to a broad population. Alternatively, epidemiological studies look at past exposure and try to link that exposure, often in a population, to a disease. Mortality is a measure of the number of deaths in a population, scaled to the size of that population, per unit time. Morbidity refers to the number of individuals who have contracted a disease during a given time period (the incidence rate) or the number who currently have that disease (the prevalence rate), scaled to the size of the population.

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than 10 micrometers in diameter) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of both PM10 and PM2.5.

The proposed Project would emit DPM during construction and operation. This discussion looks at potential health effects caused by the PM2.5 portion of DPM emissions as well as existing standards and thresholds developed by regulatory agencies to address health impacts.

Health Effects of DPM Emissions

Epidemiological studies substantiate the correlation between the inhalation of ambient PM and increased mortality and morbidity (CARB 2002, 2007c). In 2006, CARB conducted a study to assess potential health effects associated with exposure to air pollutants arising from ports and goods movement in the state (CARB 2006a, 2006b). CARB's assessment evaluated numerous studies and research efforts and focused on PM and ozone, which represent a large portion of known risk associated with exposure to outdoor air pollution. CARB's analysis of various studies allowed large-scale quantification of health effects associated with emission sources as well as premature deaths and increased cases of disease linked to exposure to PM and ozone from ports and goods movement. Table 3.2-39 presents the statewide PM and ozone health effects identified by CARB (CARB 2006b).

Table 3.2-39. Annual 2005 Statewide PM and Ozone Health Effects Associated with Ports and Goods Movement in California[a]

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

Notes:

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

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

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

Nevertheless, various studies have been published over the past 10 years that substantiate the correlation between the inhalation of ambient PM and increased cases of premature death from heart and/or lung diseases (Pope et al. 1995, 2002; Jerrett et al. 2005; Krewski et al. 2001). Studies such as these serve as the fundamental basis for PM air quality standards promulgated by AQMD, CARB, EPA, and the World Health Organization.

Although epidemiologic studies are numerous, few toxicology studies have investigated the responses of human subjects specifically exposed to DPM, and the available epidemiologic studies have not measured the DPM content of the outdoor pollution mix. CARB has made quantitative estimates of the public health impacts of

DPM based on the assumption that DPM is as toxic as the general ambient particulate matter mixture (CARB 2006c).

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

In 2008, CARB prepared a staff report for a draft methodology to estimate premature deaths associated with long-term exposure to PM2.5 (CARB 2008). The document reevaluated the relative risk of premature death due to PM2.5 exposure based on relevant scientific literature. The methodology developed a new relative risk factor of a 10% increase in premature death per 10 $\mu g/m^3$ increase in PM2.5 exposures (with an uncertainty of 3% to 20%). Using this new factor, CARB staff estimated that PM contributes 3,900 premature deaths statewide on an annual basis (CARB 2008).

Existing CEQA Thresholds

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

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

Within the SCAB, SCAQMD further identifies localized ambient significance thresholds. These ambient concentration thresholds target those pollutants that SCAQMD has determined are most likely to cause or contribute to an exceedance of the NAAQS or CAAQS. The localized standards for PM are more stringent than either the NAAQS or the CAAQS. SCAQMD's localized significance threshold for PM10 and PM2.5 is 10.4 micrograms per cubic meter ($\mu g/m^3$) and 2.5 $\mu g/m^3$ for construction and operation, respectively. These values are based on CARB guidance and epidemiological studies showing significant toxicity (resulting in mortality and morbidity) related to exposure to fine particles. The proposed Project conducted dispersion analysis to determine ambient air concentrations and determined localized significance (Section 3.2.4.4).

Emission Thresholds. PM emissions also affect air quality on a regional basis. When fugitive dust enters the atmosphere, the larger particles of dust typically fall quickly to the ground, but smaller particles, less than 10 microns in diameter, may remain suspended for longer periods, giving the particles time to travel across a regional area, affecting receptors at some distance from the original emissions source. For this reason, SCAQMD established mass daily thresholds for construction and operational activities for PM. The mass daily thresholds are emissions-based thresholds used to assess the potential significance of criteria air pollutants at the regional level. Emissions that exceed the regional significance thresholds are mass daily emissions that may have significant adverse regional effects. The proposed Project quantified mass daily emissions and determined significance (Section 3.2.4.3).

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

Risk assessment and health impact determination methodologies rely on risk assessment health values published by OEHHA, which in turn are based on results of numerous toxicology and epidemiology studies. For DPM, OEHHA has established health values for cancer and non-cancer chronic effects to be used in quantification of health impacts. The proposed Project quantified both cancer risk and non-cancer chronic impacts from DPM exposure, per OEHHA risk assessment methodology. In addition, LAHD adopted SCAQMD's CEQA threshold of 10 in a million for excess cancer risk and a 1.0 hazard index in evaluating new projects (Section 3.2.4.3). The thresholds set by EPA, CARB, and SCAQMD for localized, regional, and toxic impacts are designed to account for health impacts, such as premature deaths, cardiac and respiratory hospitalizations, asthma, and lost work/school days. The proposed Project has quantified the localized, regional, and toxic impacts of DPM (Section 3.2.4.3).

Quantifying Morbidity and Mortality

CARB's study (CARB 2006a, 2006b) used a health effects model, based on multiple epidemiological studies, that quantified the expected non-cancer impacts of mortality and morbidity from ambient PM exposure (e.g., premature deaths, cardiac and respiratory hospitalizations, asthma and other lower respiratory symptoms, and lost work/school days). The study focused on large-scale applications such as the benefits of attaining the state air quality standard for PM2.5, the impacts of goods movement emissions on a statewide and broad regional level, and the impacts of combined operations at the ports of Los Angeles and Long Beach (CARB 2006a, 2006b).

CARB staff members have stated that it would be neither appropriate nor meaningful to apply the health effects model used in the 2006 study to quantify the mortality and morbidity impacts of PM on a project the size of the proposed Project because values quantified for a specific location would fall within the margin of error for the methodology (CARB 2007). Because CARB's methodology was designed for large-scale projects that affect a much larger population, the methodology may not be sensitive enough to provide accurate results for projects that affect much smaller populations.

In 2008, CARB staff developed a draft methodology to estimate premature deaths associated with long-term exposure to PM2.5 in California. The 2008 draft methodology focused on statewide annual impacts, but also included a brief section that discussed a project-specific methodology (CARB 2008) for long-term mortality. The methodology outlined in CARB's 2008 staff report was used to evaluate long-term mortality for the proposed Project.

Per CARB's 2008 draft methodology, C-R functions to determine long-term mortality impacts. C-R functions are equations that relate the change in the number of adverse health effect incidences in a population to a change in pollutant concentration experienced by that population. Normally, epidemiological studies are used to estimate the relationship between a pollutant and a particular health endpoint at different locations. Most common C-R functions are represented in log-linear form.

This is the basic form of a C-R function:

$$\Delta y = y_0 (e^{\beta \Delta PM} - 1) * \text{population}$$

where:

Δy = changes in the incidence of a health endpoint corresponding to a particular change in PM;

y_0 = baseline incidence rate per person;

ß = coefficient; this coefficient is based on the relative risk that is associated with a particular concentration and varies from one study to another; and

ΔPM = change in PM concentration.

Using the guidance presented in CARB's draft 2008 documents and a coefficient based on a 1.1 relative risk that is associated with a mean change of 10 $\mu g/m^3$ (CARB 2008), the following represents the result of a sample calculation for long-term mortality due to PM2.5 for the proposed Project (with mitigation). The calculation is dependent on the following:

- Population.
- Change in annual mitigated PM2.5 concentration for each census block in $\mu g/m^3$ (mitigated proposed Project minus CEQA baseline, as shown in Figure 3.2-15).

The increase in incidence of long-term mortality corresponding to a change in PM2.5 concentration for each analysis year would be as follows:

- Analysis year 2011—0.073 increase in incidence relative to CEQA baseline.
- Analysis year 2015—0.025 increase in incidence relative to CEQA baseline.
- Analysis year 2022—0.024 increase in incidence relative to CEQA baseline.
- Analysis year 2037—0.048 increase in incidence relative to CEQA baseline.

It is important to note that parameters in C-R functions can vary widely, depending on the study. For example, some studies exclude accidental deaths from their mortality counts, while others include all deaths. Furthermore, some studies consider only members of a particular subgroup of the population, e.g., individuals 30 and older, while other studies consider the entire population in the study location. When applying a C-R function from an epidemiological study to estimate changes in the incidence of a health endpoint corresponding to a particular change in PM in a location, it is important to use the appropriate value of the parameters for the C-R function. That is, the measure of PM, the type of population, and the characterization of the health endpoint should be the same, or as close as possible, as those used in the study that estimated the C-R function. The sample analysis presented here used parameters specified in CARB's 2008 draft methodology that derived an average and therefore conserving ß coefficient.

Among the uncertainties in the risk estimates is the degree of transferability of the C-R functions from one geographical area to another. Many of the epidemiologic studies used by CARB/OEHHA include several California cities but not all. Another uncertainty stems from the issue of co-pollutants. Specifically, it is possible that some of the estimated health effects include the effects of both PM and other correlated pollutants. Finally, the studies used in developing the C-R functions do not usually take into consideration estimates of averting behaviors. Examples of averting behaviors include measures that prevent symptoms from occurring in the first place, such as avoiding strenuous exertion on days with high PM, staying indoors, the use of filters, etc. However, perhaps the most compelling limitation to use of C-R functions for site-specific projects is the consideration of whether it is valid to apply the C-R functions to changes in ambient PM concentrations that are far below the thresholds used to develop the C-R functions. For example, the CARB/OEHHA 2006 analysis applied a threshold of 18 μg/m^3 for the long-term mortality C-R function because this was the lowest concentration level observed in the long-term mortality studies evaluated. In other words, CARB/OEHHA assumed that the C-R functions were continuous and differentiable down to threshold levels. In the case of trying to quantify proposed Project-specific impacts, it may not be appropriate to use C-R functions that were developed with a threshold significantly higher than the change in PM due to the proposed Project.

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

Proposed project operations would produce emissions of nonattainment pollutants, primarily in the form of diesel exhaust. The 2007 AQMP proposes emission reduction measures that are designed to bring the SCAB into attainment of the state and national AAQS. The attainment strategies in these plans include 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.

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

CEQA 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.

NEPA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-9: The proposed Project would produce GHG emissions that would exceed CEQA and NEPA baseline levels.

Climate change, as it relates to man-made GHG emissions, is by nature a global impact. An individual project may not generate enough GHG emissions to significantly influence global climate change by itself (AEP 2007). The issue of global climate change is, therefore, primarily a cumulative impact. Nevertheless, for the purposes of this EIS/EIR, LAHD has opted to address GHG emissions as a project-level impact as well as through a cumulative analysis as part of the larger cumulative analysis in Chapter 6. In actuality, an appreciable impact on global climate change would occur only when the proposed project GHG emissions combine with GHG emissions from other man-made activities on a global scale.

Table 3.2-40 summarizes the total GHG construction emissions associated with the proposed Project. The emissions are totaled over the entire multiple-year construction period. The construction sources for which GHG emissions were calculated include offroad construction equipment, onroad trucks, and workers' commute vehicles.

Table 3.2-40. Total GHG Emissions from Construction Activities—Proposed Project

	Total Emissions (Metric Tons)			
Emission Source	CO_2	CH_4	N_2O	CO_2e
Catalina Express Terminal	387.96	0.05	0.00	390.31
Cruise ship terminal Berths 91–93	0.00	0.00	0.00	0.00
Cruise ship parking facilities	1,565.24	0.22	0.02	1,574.73
North Harbor	4,213.91	0.59	0.04	4,239.47
Maritime Office Building—Crowley	234.81	0.03	0.00	236.23
Maritime Office Building—Millennium	235.05	0.03	0.00	236.47
Maritime Office Building—Lane Victory	235.05	0.03	0.00	236.47

Emission Source	Total Emissions (Metric Tons)			
	CO_2	CH_4	N_2O	CO_2e
Downtown Harbor	1,886.65	0.27	0.02	1,898.09
7th Street Harbor	1,319.76	0.19	0.01	1,327.76
7th Street Pier	1,159.91	0.16	0.01	1,166.94
Downtown Square	167.73	0.02	0.00	168.74
Downtown water feature	117.95	0.02	0.00	118.66
John S. Gibson Jr. Park	173.87	0.02	0.00	174.92
Ralph J. Scott Fireboat Museum	372.10	0.05	0.00	374.35
Los Angeles Maritime Museum renovation	0.00	0.00	0.00	0.00
Los Angeles Maritime Institute	252.83	0.04	0.00	254.36
Maritime Office Building	0.00	0.00	0.00	0.00
Ports O' Call Promenade—Phase 1	2,189.22	0.31	0.02	2,202.49
Ports O' Call Promenade—Phase 2	2,386.10	0.34	0.02	2,400.57
Ports O' Call Promenade—Phase 3	2,194.86	0.31	0.02	2,208.17
Southern Pacific Railyard demolition	282.14	0.04	0.00	283.85
Fishermen's Park	722.81	0.10	0.01	727.19
Ports O' Call redevelopment without restaurant	0.00	0.00	0.00	0.00
Ports O' Call Redevelopment Phase 1	2,163.88	0.30	0.02	2,177.00
Ports O' Call Redevelopment Phase 2	3,325.88	0.47	0.03	3,346.05
Ports O' Call Redevelopment with Restaurant	589.54	0.08	0.01	593.12
Ports O' Call Redevelopment Phase 3	1,701.85	0.24	0.02	1,712.18
Waterfront Red Car Maintenance Facility	615.44	0.09	0.01	619.17
Westway Terminal demolition	857.21	0.12	0.01	862.41
City Dock No. 1 promenade	2,448.96	0.34	0.02	2,463.82
Outer Harbor Cruise Terminal	7,390.55	1.04	0.07	7,435.37
Outer Harbor Park and promenade	1,090.88	0.15	0.01	1,097.50
San Pedro Park	1,111.59	0.16	0.01	1,118.33
Salinas De San Pedro/Youth Camp promenade	2,576.76	0.36	0.03	2,592.39
Sampson Way road improvements	886.34	0.12	0.01	891.72
Waterfront Red Car Line extension—Sampson Way	988.00	0.14	0.01	993.99
Waterfront Red Car Line extension—Cabrillo Beach	1,064.12	0.15	0.01	1,070.58
Waterfront Red Car Line extension—Outer Harbor	589.03	0.08	0.01	592.60
Waterfront Red Car Line extension—City Dock No. 1	601.82	0.08	0.01	605.47

Emission Source	Total Emissions (Metric Tons)			
	CO_2	CH_4	N_2O	CO_2e
Berth 240 fueling station	224.64	0.03	0.00	226.01
Total Emissions	**48,324.43**	**6.79**	**0.49**	**48,617.48**
NEPA Baseline	23,845.99	3.35	0.24	23,990.60
Proposed Project minus NEPA Baseline	**24,478.44**	**3.44**	**0.25**	**24,626.88**

Notes:

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

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

Emissions may not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-41 summarizes the annual unmitigated GHG emissions that would occur in California from proposed project operations. The emission sources for which GHG emissions were calculated include cruise vessels, harbor craft, onroad trucks and other motor vehicles, terminal equipment, and electricity usage. The table also shows the net change in the proposed Project's GHG emissions relative to both the CEQA and NEPA baselines.

CEQA Impact Determination

Table 3.2-40 shows that the total CO_2e emissions during proposed project construction would be greater than the CEQA baseline (which is zero for construction), and therefore is considered a significant impact under the CEQA threshold of significance applied for this proposed project. Table 3.2-41 shows that in each future project year, annual operational CO_2e emissions would increase relative to the CEQA baseline. These increases are considered a significant impact under the threshold of significance for the proposed Project.

Table 3.2-41. Annual Operational GHG Emissions—Unmitigated Proposed Project

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Project Year 2011				
Vessel transit and maneuvering	52,118	0.3	2.4	52,858
Vessel hoteling	18,464	0.1	0.8	18,726
Harbor craft	25,571	0.1	1.2	25,934

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	240	0.1	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2011	**138,669**	**3.9**	**7.9**	**141,188**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***9,399***	***-2.4***	***-1.5***	***8,880***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Proposed Project minus NEPA baseline	***24,001***	***0.2***	***1.1***	***24,334***
Project Year 2015				
Vessel transit and maneuvering	52,451	0.3	2.4	53,196
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	23,083	0.1	1.0	23,411
Motor vehicles	67,755	8.6	9.8	70,977
Terminal equipment—fossil fueled	240	0.1	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2015	**188,020**	**9.4**	**14.2**	**192,624**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***58,750***	***3.1***	***4.8***	***60,317***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Proposed Project minus NEPA baseline	***17,713***	***1.1***	***2.2***	***18,409***
Project Year 2022				
Vessel transit and maneuvering	53,786	0.3	2.4	54,550
Vessel hoteling	19,356	0.1	0.9	19,631
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	71,663	7.3	8.8	74,549

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Terminal equipment—fossil fueled	240	0.0	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2022	**193,320**	**8.1**	**13.3**	**197,607**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***64,051***	***1.8***	***3.9***	***65,299***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Proposed Project minus NEPA baseline	***20,175***	***1.0***	***2.2***	***20,876***
Project Year 2037				
Vessel transit and maneuvering	54,471	0.3	2.5	55,244
Vessel hoteling	19,699	0.1	0.9	19,979
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	81,202	8.3	10.0	84,480
Terminal equipment—fossil fueled	240	0.0	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2037	**203,887**	**9.1**	**14.5**	**208,581**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***74,617***	***2.8***	***5.2***	***76,273***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Proposed Project minus NEPA baseline	***27,405***	***1.6***	***3.0***	***28,372***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Motor vehicles include passenger cars, trucks, busses, and shuttles. Terminal equipment includes equipment at the Cruise Terminal and Berth 87. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.				

Mitigation Measures

Measures that reduce electricity consumption or fossil fuel usage from proposed project emission sources, such as MM AQ-25 through MM AQ-30, would reduce proposed GHG emissions. Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, and MM AQ-16 through MM AQ-20, already developed for criteria pollutant operational emissions as part of Impact AQ-3, would also reduce GHG emissions.

The following additional mitigation measures specifically target the proposed project GHG emissions. They were developed through an applicability and feasibility review of possible measures identified in the *Climate Action Team Report to Governor Schwarzenegger* and *the California Legislature* (State of California 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB 2007). The strategies proposed in these two reports for the commercial/industrial sector are listed in Table 3.2-42, along with an applicability determination for the proposed Project.

Table 3.2-42. Proposed Project Applicability Review of Potential GHG Emission Reduction Strategies

Operational Strategy	*Applicability to Proposed Project*
Commercial and Industrial Design Features	
Vehicle Climate-Change Standards	Regulatory measure implemented by CARB
Diesel Anti-Idling	MM AQ-16 (trucks); also a regulatory measure implemented by CARB
Other Light-Duty Vehicle Technology	Regulatory measure implemented by CARB (standards will phase in starting 2009)
HFCs Reduction	Future regulatory measure planned by CARB
Transportation Refrigeration Units, Off Road Electrification, Port Electrification	MM AQ-9 (AMP for ships); also a future regulatory measure is planned by CARB
Alternative Fuels: Biodiesel blends	Future regulatory measure planned by CARB
Alternative Fuels: Ethanol or enhanced ethanol/gasoline blends	Future regulatory measure planned by CARB

Operational Strategy	Applicability to Proposed Project
Heavy-Duty Vehicle Emissions Reduction Measures	MM AQ-11 (VSRP for ships) and MM AQ-15 (truck emission restriction); Port-wide CAAP measure HDV2 (trucks); also a regulatory measure implemented by CARB
Reduced Venting in Gas Systems	Not applicable to the proposed Project
Building Operations Strategy	
Recycling	MM AQ-25; also a regulatory measure implemented by the Integrated Waste Management Board
Building Energy Efficiency	MM AQ-26 through MM AQ-29; also a regulatory measure implemented by the California Energy Commission
Green Buildings Initiative	Future regulatory measure planned by the State and Consumer Services and Cal/EPA
California Solar Initiative	MM AQ-29; also a future regulatory measure is planned by the California Public Utilities Commission
Note: These strategies are found in the California Climate Action Team's report to the Governor (State of California 2006) and CARB's Proposed Early Actions to Mitigate Climate Change in California (CARB 2007).	

In addition, proposed project elements and mitigation measures were also developed in response to the Attorney Generals' May 2008 memo. Applicable mitigation measures include MMAQ-9, MMAQ-11 through MMAQ-13, and MM AQ-16 through MM AQ-20.

MM AQ-25. *Recycling.*

The terminal buildings shall achieve a minimum recycling rate of 40% by 2012 and 60% by 2015. Recycled materials shall include:

- white and colored paper;
- Post-it notes;
- magazines;
- newspaper;
- file folders;
- all envelopes, including those with plastic windows;
- all cardboard boxes and cartons;
- all metal and aluminum cans;
- glass bottles and jars; and
- all plastic bottles.

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

MM AQ-26. ***Leadership in Energy and Environmental Design.***

The cruise terminal building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level. LEED certification is made at one of the following four levels, in ascending order of environmental sustainability: certified, silver, gold, and platinum. The certification level is determined on a point-scoring basis where various points are given for design features that address the following areas (U.S. Green Building Council 2005):

- sustainable sites,
- water efficiency,
- energy and atmosphere,
- materials and resources,
- indoor environmental quality, and
- innovation and design process.

As a result of the above design guidelines, a LEED-certified building will be more energy efficient, thereby reducing GHG emissions compared with conventional building design. Electricity consumption at the on-terminal buildings represents about 7% of on-terminal electrical consumption and about 0.1% of overall proposed project GHG emissions.

Although not quantified in this analysis, implementation of this measure is expected to reduce the proposed Project's GHG emissions by less than 0.1%.

MM AQ-27. ***Compact Fluorescent Light Bulbs.***

All interior terminal buildings shall use compact fluorescent light bulbs.

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

MM AQ-28: ***Energy Audit.***

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

This mitigation measure targets primarily large on-terminal electricity demands, such as on-terminal lighting and shoreside electric gantry cranes, which consume the majority of on-terminal electricity and account for about 1% of overall proposed project GHG emissions. Therefore, implementation of power-saving technology at the terminal could reduce overall proposed project GHG emissions by a fraction of 1%.

MM AQ-29. *Solar Panels.*

Solar panels shall be installed on the cruise terminal building.

Solar panels will provide the cruise terminal building with a clean source of electricity and replace some of its fossil-fuel-generated electricity use. Although not quantified in this analysis, implementation of this measure is expected to reduce the proposed Project's GHG emissions by less than 0.1%.

MM AQ-30. *Tree Planting*.

Shade trees shall be planted around the cruise terminal building.

Trees act as insulators from weather, thereby decreasing energy requirements. Onsite trees also provide carbon storage (AEP 2007). Although not quantified, implementation of this measure is expected to reduce the proposed Project's GHG emissions by less than 0.1%. Future Port-wide GHG emission reductions are also anticipated through AB 32 rule promulgation. However, such reductions have not yet been quantified because AB 32 implementation is still under development by CARB.

Residual Impacts

Table 3.2-43 summarizes the annual GHG emissions that would occur within California from operation of the proposed Project after mitigation. The effects of Mitigation Measures MM AQ-9, MM AQ-11, MM AQ-13, and MM AQ-17 were included in the emission estimates. The potential effects of the remaining mitigation measures are described qualitatively under each measure's heading in the proposed project analysis (above).

Table 3.2-43. Annual Operational GHG Emissions—Mitigated Proposed Project

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	42,599	0.2	1.9	43,203

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	23,399	0.1	1.1	23,731
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	0	0.0	0.0	0
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2011	**118,746**	**3.7**	**7.0**	**120,980**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***-10,524***	***-2.6***	***-2.4***	***-11,328***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Proposed Project minus NEPA baseline	***4,078***	***0.0***	***0.2***	***4,126***
Project Year 2015				
Vessel transit and maneuvering	43,065	0.3	2.0	43,676
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	67,755	8.6	9.8	70,977
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2015	**178,747**	**9.3**	**13.3**	**183,076**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***49,478***	***3.0***	***4.0***	***50,769***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Proposed Project minus NEPA baseline	***8,440***	***1.0***	***1.3***	***8,861***
Project Year 2022				
Vessel transit and maneuvering	43,609	0.3	2.0	44,228
Vessel hoteling	10,106	0.1	0.5	10,249

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	71,663	7.3	8.8	74,549
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,487	0.1	0.1	11,506
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,615	0.2	0.1	25,656
Total for Project Year 2022	**183,458**	**8.1**	**12.4**	**187,459**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***54,189***	***1.8***	***3.0***	***55,151***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Proposed Project minus NEPA baseline	***10,313***	***0.9***	***1.3***	***10,727***
Project Year 2037				
Vessel transit and maneuvering	43,972	0.3	2.0	44,596
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	81,202	8.3	10.0	84,480
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,672	0.1	0.1	11,691
Electricity usage from commercial uses and Waterfront Red Car Line	340	0.0	0.0	341
Terminal equipment - electric	25,615	0.2	0.1	25,656
Total for Project Year 2037	**193,544**	**9.1**	**13.6**	**197,943**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Proposed Project minus CEQA baseline	***64,275***	***2.8***	***4.2***	***65,635***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Proposed Project minus NEPA baseline	***17,063***	***1.6***	***2.1***	***17,734***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*

Motor vehicles include passenger cars, trucks, busses, and shuttles.

Terminal equipment includes equipment at the Cruise Terminal and Berth 87.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Ship emissions of CO_2e would be reduced by at least 30% by implementing VSRP. Even when accounting for the electricity used in AMP, overall proposed project emissions of CO_2e would be reduced by 17% in 2011, and 6% in 2015, 2022, and 2037. The use of electricity from the power grid would reduce GHG emissions during hoteling because electricity can be produced more efficiently at centralized power plants rather than auxiliary engines on ships or renewable generation sources. Table 3.2-43 shows that the mitigated proposed project CO_2e emissions would increase relative to CEQA baseline in 2015, 2022, and 2037. Therefore, after mitigation, the proposed project GHG impacts would remain significant under CEQA.

NEPA Impact Determination

Table 3.2-40 shows that the total CO_2e emissions during proposed project construction would exceed NEPA baseline construction emissions. Table 3.2-41 shows that in each future project year, annual operational CO_2e emissions would increase relative to the NEPA baseline.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-43 summarizes the annual GHG emissions that would occur within California from operation of the proposed Project. The annual operational emissions would be lower with mitigation implementation but would still exceed the NEPA baseline in each project analysis year. The effects of Mitigation Measures MM AQ-9, MM AQ-11, MM AQ-13, and MM AQ-17 were included in the emission estimates. The potential effects of the remaining mitigation measures are described qualitatively under each measure's heading above.

Alternatives: Impacts and Mitigation

The construction impacts described below for the each of the alternatives focus on anticipated construction activities. Construction and operational emissions associated with the alternatives were directly quantified for Alternatives 1 through 6.

To assist in comparing the alternatives to one another, Table 3.2-44 provides a summary of the air quality significance determinations for the proposed Project and each alternative. The table shows the results by type of impact and pollutant, both before and after mitigation. The discussions of the impacts for each alternative are provided in the following sections.

Table 3.2-44. Comparison of Air Quality Impacts Associated with Project Alternatives

Air Quality Impact	*Without Mitigation*							*With Mitigation*						
	PP	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*	*PP*	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*
CEQA Impacts														
AQ-1 Construction Emissions														
VOC	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
CO	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
NO_X	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
SO_X	-	-	-	-	-	-	NA	-	-	-	-	-	-	NA
PM10	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
PM2.5	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
AQ-2 Construction Concentrations														
CO	-	-	-	-	-	-	NA	-	-	-	-	-	-	NA
NO_X	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
PM10	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
PM2.5	S	S	S	S	S	S	NA	S	S	S	S	S	S	NA
AQ-3 Operational Emissions														
VOC	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
CO	S	S	S	S	S	S	-	S	S	S	S	S	S	NA
NO_X	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
SO_X	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
PM10	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
PM2.5	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
AQ-4 Operational Concentrations														
CO	-	-	-	-	-	-	-	-	-	-	-	-	-	NA
NO_X	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
PM10	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
PM2.5	S	S	S	S	S	S	S	S	S	S	S	-	S	NA

Air Quality Impact	*Without Mitigation*							*With Mitigation*						
	PP	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*	*PP*	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*
AQ-5 CO Hot Spots														
CO	-	-	-	-	-	-	-	-	-	-	-	-	-	NA
AQ-6 Odors														
	-	-	-	-	-	-	-	-	-	-	-	-	-	NA
AQ-7 Toxic Air Contaminants														
Cancer Risk – Residential	S	S	S	S	S	S	S	-	-	-	-	-	-	NA
Chronic Hazard Index – Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	NA
Acute Hazard Index – Residential	S	S	S	S	S	-	-	S	S	S	S	S	-	NA
AQ-8 AQMP Consistency														
	-	-	-	-	-	-	-	-	-	-	-	-	-	NA
AQ-9 GHG Emissions														
	S	S	S	S	S	S	S	S	S	S	S	S	S	NA
NEPA Impacts														
AQ-1 Construction Emissions														
VOC	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
CO	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
NO_X	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
SO_X	-	-	-	-	-	NI	NA	-	-	-	-	-	NI	NA
PM10	S	S	S	S	S	NI	NA	S	S	S	-	S	NI	NA
PM2.5	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
AQ-2 Construction Concentrations														
CO	-	-	-	-	-	NI	NA	-	-	-	-	-	NI	NA

Air Quality Impact	*Without Mitigation*							*With Mitigation*						
	PP	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*	*PP*	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*
NO_X	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
PM10	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
PM2.5	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
AQ-3 Operational Emissions														
VOC	S	S	S	S	S	NI	NA	S	S	S	-	S	NI	NA
CO	S	S	S	S	S	NI	NA	S	S	S	-	-	NI	NA
NO_X	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
SO_X	S	S	S	S	S	NI	NA	S	S	S	S	-	NI	NA
PM10	S	S	S	S	S	NI	NA	S	S	S	-	-	NI	NA
PM2.5	S	S	S	S	S	NI	NA	S	S	S	S	-	NI	NA
AQ-4 Operational Concentrations														
CO	-	-	-	-	-	NI	NA	-	-	-	-	-	NI	NA
NO_X	S	S	S	S	S	NI	NA	S	S	S	S	S	NI	NA
PM10	S	S	S	S	S	NI	NA	S	S	S	S	-	NI	NA
PM2.5	S	S	S	S	S	NI	NA	S	S	S	S	-	NI	NA
AQ-5 CO Hot Spots														
CO	-	-	-	-	-	NI	NA	-	-	-	-	-	NI	NA
AQ-6 Odors														
	-	-	-	-	-	NI	NA	-	-	-	-	-	NI	NA
AQ-7 Toxic Air Contaminants														
Cancer Risk – Residential	S	S	S	S	S	NI	NA	S	S	S	S	-	NI	NA
Chronic Hazard Index – Residential	-	-	-	-	-	NI	NA	-	-	-	-	-	NI	NA
Acute Hazard Index – Residential	S	S	S	S	S	NI	NA	-	-	-	-	-	NI	NA

Air Quality Impact	*Without Mitigation*								*With Mitigation*						
	PP	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*		*PP*	*Alt 1*	*Alt 2*	*Alt 3*	*Alt 4*	*Alt 5*	*Alt 6*
AQ-8 AQMP Consistency															
	-	-	-	-	-	NI	NA		-	-	-	-	-	NI	NA
AQ-9 GHG Emissions															
	NA	NA	NA	NA	NA	NI	NA		NA	NA	NA	NA	NA	NI	NA

S Significant impact

\- Less than significant impact

PP Proposed Project

NI No Impact

NA Not Applicable

Impact AQ-3 (operational emissions) summaries include construction emissions for year 2011.

Alternative 5 is the No-Federal-Action alternative and therefore has no NEPA impact.

Alternative 6 (No Project Alternative) does not require federal action; therefore, a NEPA significance evaluation is not applicable.

There are no construction activities for Alternative 6; therefore, construction impacts are not applicable.

Alternative 6 operations would not have mitigation; therefore, mitigated operational impacts are not applicable.

NEPA significance evaluations were not performed for GHG emissions.

3.2.4.3.2 Alternative 1—Alternative Development Scenario 1

Alternative 1 is an alternative development scenario that reduces the number of cruise berths (two in the Inner Harbor and one in the Outer Harbor); changes the location of the Red Car Museum and Maintenance Facility to Warehouse No. 1; and reduces Harbor Boulevard to one lane southbound, cul-de-sacking northbound Harbor Boulevard at 13th Street, constructing a roadway with one lane in each direction from Crescent Street to Sampson Way ("Viaduct"), and making other minor modifications. The majority of the proposed project elements are the same under this alternative as the proposed Project.

Impact AQ-1: Alternative 1 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Although this alternative has more construction activities than the proposed Project, the majority of the construction activities required for the proposed Project would also be required for this alternative.

Table 3.2-45 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 1 without mitigation. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-45. Summary of Peak Daily Construction Emissions—Alternative 1 without Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	423	1,666	5,411	4	797	323
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 1 minus non-Federal emissions)	374	1,334	4,440	2	732	301
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2010 Peak Daily Construction Emissions	1,209	5,362	16,099	14	3,425	1,170
Thresholds	75	550	100	150	150	55

Project Year	Peak Daily Construction Emissions (lb/day)					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 1 minus non-Federal emissions)	894	3,189	10,076	4	3,120	1,043
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	877	4,130	11,935	11	2,944	947
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 1 minus non-Federal emissions)	577	2,073	6,226	1	2,649	825
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	597	2,586	7,663	7	1,610	552
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 1 minus non-Federal emissions)	433	1,479	4,619	2	1,452	483
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	319	1,275	3,892	3	1,045	329
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 1 minus non-Federal emissions)	237	733	2,445	1	939	286
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2014 Peak Daily Construction Emissions	267	1,018	3,166	3	373	170
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 1 minus non-Federal emissions)	205	622	2,128	2	336	146
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Project Year	Peak Daily Construction Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Alternative 1 would exceed the daily construction emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during the construction period from 2009 through 2014. The peak daily SO_X emissions would be less than significant in all construction years. Therefore, significant impacts under CEQA would occur for VOC, CO, NO_X, PM10, and PM2.5 in one or more construction years.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Despite implementation of mitigation and compliance with SCAQMD Rule 403, emissions from the construction of Alternative 1 would exceed the SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5.

Table 3.2-46 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 1 after the application of Mitigation Measures MM AQ-1 through MM AQ-5. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

1 **Table 3.2-46.** Summary of Peak Daily Construction Emissions—Alternative 1 with Mitigation

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	256	1,404	3,538	4	194	119
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 1 minus non-Federal emissions)	207	1,072	2,567	2	129	97
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2010 Peak Daily Construction Emissions	612	3,801	10,016	14	510	269
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 1 minus non-Federal emissions)	297	1,628	3,993	4	205	142
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	395	2,634	7,196	11	377	169
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 1 minus non-Federal emissions)	95	577	1,487	1	82	47
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
2012 Peak Daily Construction Emissions	307	1,843	4,927	7	240	126
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 1 minus non-Federal emissions)	143	736	1,883	2	82	57
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2013 Peak Daily Construction Emissions	191	1,057	2,708	3	164	87
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 1 minus non-	109	515	1,261	1	58	44

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Federal emissions)						
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**
2014 Peak Daily Construction Emissions	170	911	2,299	3	94	69
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 1 minus non-Federal emissions)	108	515	1,261	2	57	45
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The NEPA incremental emissions for Alternative 1 are calculated by subtracting the NEPA baseline emissions. Alternative 1 would exceed the emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Despite implementation of mitigation and compliance with SCAQMD Rule 403, emissions from the construction of Alternative 1 would exceed the SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5.

Table 3.2-46 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 1 after the application of Mitigation Measures MM AQ-1 through MM AQ-5.

Impact AQ-2: Alternative 1 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Dispersion modeling of onsite Alternative 1 construction emissions was performed to assess the impact of this alternative on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2.

Table 3.2-47 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from construction without mitigation. The table shows that the maximum 1-hour and 8-hour CO concentrations would not exceed the SCAQMD thresholds. The maximum offsite 1-hour NO_2 concentration and maximum offsite 24-hour increment increases of PM10 and PM2.5 concentrations would exceed the SCAQMD significance threshold for both CEQA and NEPA impacts.

Table 3.2-47. Maximum Offsite Ambient Concentrations—Alternative 1 Construction without Mitigation

Pollutant	*Averaging Time*	*Background Concentration (µg/m3)*	*Maximum Concentration (without Background) (µg/m3)*	*CEQA Impact (µg/m3)*	*NEPA Impact (µg/m3)*	*SCAQMD Threshold (µg/m3)*
NO_2	1-hour	263	2,677	**2,940**	**2,940**	338
CO	1-hour	4,809	10,794	15,603	15,603	23,000
	8-hour	4,008	2,085	6,093	6,093	10,000
PM10	24-hour	-	233.1	**233.1**	**224.5**	10.4
PM2.5	24-hour	-	91.6	**91.6**	**61.2**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-48 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of mitigation measures, offsite ambient concentrations would be temporary but significant for NO_2, PM2.5, and PM10; however, they would be less than significant for CO.

Table 3.2-48. Maximum Offsite Ambient Concentrations—Alternative 1 Construction with Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1-hour	263	2,580	**2,843**	**2,843**	338
CO	1-hour	4,809	10,230	15,039	15,039	23,000
	8-hour	4,008	1,995	6,003	6,003	10,000
PM10	24-hour	-	57.9	**57.9**	**36.5**	10.4
PM2.5	24-hour	-	48.3	**48.3**	**30.4**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-48 above presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of mitigation measures, offsite ambient concentrations would be temporary but significant for NO_2, PM2.5, and PM10; however, they would be less than significant for CO.

Impact AQ-3: Alternative 1 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Tables 3.2-49 and 3.2-50 present the unmitigated average and peak daily criteria pollutant emissions associated with operation of this alternative. Emissions were estimated for four project study years: 2011, 2015, 2022, and 2037. Comparisons to the CEQA baseline (2006) and the NEPA baseline emissions are presented for informational purposes in Table 3.2-49; actual CEQA and NEPA significance is determined by the comparison of peak daily impacts to CEQA and NEPA thresholds in Table 3.2-50.

The operational emissions associated with this alternative assume the operation of berths at both the Inner and Outer Harbor Cruise Terminals and the following activity levels:

- Operation of three berths in 2011 at the Inner Harbor Cruise Terminal.
- Operation of two berths in 2015, 2022, and 2037 at the Inner Harbor Cruise Terminal.
- Operation of one berth in 2015, 2022, and 2037 at the Outer Harbor Cruise Terminal.

- Annual ship calls under this alternative are estimated to be 269 calls in 2011 and 275 calls thereafter.
- Average emissions from cruise ships assume the use of 2.7% sulfur fuel.
- Peak emissions from cruise ships assume the use of 4.5% sulfur fuel.
- Peak daily emissions assume that all available berths would be occupied on any given day.
- Harbor craft activity levels would not change from 2006 operations. However, since the Crawley and Millennium tugboats would be relocated to the Outer Harbor, their transit time to the harbor gate would be reduced.
- Environmental measures for cruise ships and harbor craft that are considered part of this alternative would be the same as those considered for the proposed Project (listed in Table 3.2-8).

Tables 3.2-49 and 3.2-50 show that operational activities associated with this alternative prior to mitigation would be similar to the proposed Project in 2011, and slightly less than the proposed Project for VOC, CO, SO_X, PM10, and PM2.5 in 2015, 2022, and 2037.

Table 3.2-49. Average Daily Operational Emissions without Mitigation—Alternative 1

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	144	300	3,670	3,195	411	329
Vessel hoteling	78	162	1,978	1,975	231	185
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.8	9	9	0.01	0.4	0.4
Total—Project Year 2011	**402**	**1,964**	**7,542**	**5,172**	**870**	**604**
<u>CEQA Impacts</u>						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-50	-1,159	1,105	1,185	21	93
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
<u>NEPA Impacts</u>						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 1 minus NEPA baseline	39	35	1,194	2,031	210	168

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	144	301	3,675	3,208	413	331
Vessel hoteling	79	166	2,014	2,019	236	189
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	164	1781	365	4	565	114
Terminal equipment	0.6	9	7	0.01	0.3	0.3
Total—Project Year 2015	**434**	**2,796**	**7,405**	**5,232**	**1,266**	**682**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-18	-327	968	1,245	417	171
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 1 minus NEPA baseline	115	188	3,142	4,742	516	406
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	144	301	3,647	3,208	413	331
Vessel hoteling	79	166	1,998	2,019	236	189
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	135	1349	240	4	590	117
Terminal equipment	0.4	9	4	0.01	0.2	0.1
Total—Project Year 2022	**403**	**2,584**	**6,954**	**5,232**	**1,288**	**682**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-49	-539	517	1,245	439	171
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 1 minus NEPA baseline	118	249	3,017	4,741	522	410
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	144	301	3,623	3,208	413	331
Vessel hoteling	79	166	1,986	2,019	236	189
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	81	808	129	4	656	129
Terminal equipment	0.2	9	2	0.01	0.1	0.1
Total—Project Year 2037	**349**	**2,043**	**6,805**	**5,232**	**1,354**	**694**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-103	-1,080	368	1,245	505	183
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 1 minus NEPA baseline	120	278	3,002	4,741	558	417
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-50 shows the peak daily operational emissions for Alternative 1. The peak daily emission estimates for operations include the following assumptions that were chosen to identify a maximum theoretical activity scenario:

- Ships at berth: The peak day scenario assumes that the largest combination of ships in the proposed project fleet that could be simultaneously accommodated at each berth.
- Trucks: Peak day truck trips generated by Alternative 1 were provided by the traffic study for each analysis year.
- Terminal equipment: The terminal equipment data was provided by LAHD. It was assumed that approximately 38 pieces of terminal equipment (i.e., 11 diesel forklifts, 25 propane forklifts, and 2 fuel trucks) would operate during the peak period when all cruise ships are hoteling at the Port.

Table 3.2-50. Peak Daily Operational Emissions without Mitigation—Alternative 1

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1.5	17	16	0.02	0.7	0.7
Total—Project Year 2011	**1,175**	**3,585**	**28,264**	**38,473**	**4,075**	**3,168**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	70	-918	4,329	6,385	513	486
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 1 minus NEPA baseline	66	100	1,836	2,385	249	199
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	714	1,564	18,964	26,346	2,713	2,170

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Vessel hoteling	321	669	8,474	13,556	1,284	1,027
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	164	1781	365	4	565	114
Terminal equipment	1.2	17	13	0.02	0.6	0.5
Total—Project Year 2015	**1,246**	**4,570**	**29,160**	**39,907**	**4,615**	**3,360**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	141	67	5,225	7,819	1,053	678
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 1 minus NEPA baseline	368	794	10,096	19,897	1,861	1,480
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	714	1,564	18,964	26,346	2,713	2,170
Vessel hoteling	321	669	8,474	13,556	1,284	1,027
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	135	1349	240	4	590	117
Terminal equipment	0.7	17	7	0.02	0.3	0.3
Total—Project Year 2022	**1,216**	**4,358**	**28,750**	**39,907**	**4,636**	**3,359**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	111	-145	4,815	7,819	1,074	677
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 1 minus NEPA baseline	372	855	9,992	19,896	1,866	1,484
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2037						
Vessel transit and maneuvering	714	1,564	18,964	26,346	2,713	2,170
Vessel hoteling	321	669	8,474	13,556	1,284	1,027
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	81	808	129	4	656	129
Terminal equipment	0.4	17	4	0.02	0.1	0.1
Total—Project Year 2037	**1,161**	**3,817**	**28,636**	**39,907**	**4,702**	**3,371**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	56	-686	4,701	7,819	1,140	689
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 1 minus NEPA baseline	373	885	9,995	19,896	1,902	1,491
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Due to the lengthy construction period, operational activities would overlap with construction. Table 3.2-51 shows the combined total of construction and operational emissions for year 2011 during which construction and operation activities would occur simultaneously.

Table 3.2-51. Peak Daily Construction and Operational Emissions without Mitigation—Alternative 1

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Peak Daily Construction Emissions	877	4,130	11,935	11	2,944	947
Peak Daily Operational Emissions	1,175	3,585	28,264	38,473	4,075	3,168
Total—Construction and Operation—Project Year 2011	**2,052**	**7,715**	**40,199**	**38,484**	**7,019**	**4,115**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	947	3,212	16,264	6,396	3,457	1,433
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	643	2,173	8,062	2,386	2,898	1,024
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Alternative 1 unmitigated peak daily emissions minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for VOC, NO_X, SO_X, PM10, and PM2.5 in 2011, 2015, 2022, and 2037. CO impacts would not be significant for any analysis year.

The year 2011 was chosen as the year that best represents a time when construction and operation activities would overlap. During this year, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would thus be significant under CEQA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Tables 3.2-52 and 3.2-53 show that that mitigated operational activities associated with this alternative would be similar to the proposed Project in 2011, and slightly less than the proposed Project for VOC, CO, NO_X, SO_X, PM10, and PM2.5 in 2015, 2022, and 2037.

Tables 3.2-52 and 3.2-53 present average daily and peak daily mitigated emissions associated with Alternative 1. The comparison of average daily emissions to thresholds is provided in Table 3.2-52 for informational purposes; the actual significance determinations are made by comparison of peak daily emissions to thresholds in Tables 3.2-53 and 3.2-54.

Alternative 1 peak daily emissions after mitigation minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for NO_X, SO_X, PM10, and PM2.5 in 2011. Impacts would be below CEQA thresholds for VOC and CO in all analysis years; NO_X, SO_X, PM10, and PM2.5 in 2015, 2022, and 2037.

In 2011, the combined total of construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all analyzed pollutants.

Table 3.2-52. Average Daily Operational Emissions with Mitigation—Alternative 1

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	138	288	3,424	2,221	320	256
Vessel hoteling	57	119	1,402	1,098	139	111
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0.01	0.05	0.05
Total—Project Year 2011	**374**	**1,953**	**6,632**	**3,321**	**687**	**457**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-78	-1,170	195	-666	-162	-54
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 1 minus NEPA baseline	11	24	284	180	27	21
Thresholds	55	550	55	150	150	55

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	99	207	2,299	371	121	97
Vessel hoteling	17	35	377	108	24	20
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	164	1,781	365	4	565	114
Terminal equipment	0.1	0.3	1	0	0.03	0.03
Total—Project Year 2015	**324**	**2,640**	**4,233**	**484**	**760**	**277**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-128	-483	-2,204	-3,503	-89	-234
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 1 minus NEPA baseline	5	33	-30	-6	10	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	99	207	2,282	371	121	97
Vessel hoteling	17	35	374	108	25	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	135	1,349	240	4	590	117
Terminal equipment	0.1	0.3	0.4	0	0.01	0.01
Total—Project Year 2022	**291**	**2,361**	**3,904**	**484**	**778**	**273**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-161	-762	-2,533	-3,503	-71	-238
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 1 minus NEPA baseline	6	26	-32	-7	12	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	99	207	2,267	371	121	97
Vessel hoteling	17	35	372	108	25	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	81	808	129	4	656	129
Terminal equipment	0	0.3	0.1	0	0	0
Total—Project Year 2037	**237**	**1,820**	**3,776**	**484**	**844**	**285**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 1 minus CEQA baseline	-215	-1,303	-2,661	-3,503	-5	-226
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 1 minus NEPA baseline	8	56	-27	-7	48	8
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

1 **Table 3.2-53.** Peak Daily Operational Emissions with Mitigation—Alternative 1

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	625	1,305	16,599	23,150	2,378	1,903
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.2	0.7	3	0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,088**	**3,826**	**2,969**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	3	-1,018	2,494	4,000	264	287
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 1 minus NEPA baseline	-1	0	0	0	0	0
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	547	1,142	14,116	14,461	1,633	1,306
Vessel hoteling	178	369	4,628	6,934	671	537
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	164	1781	365	4	565	114
Terminal equipment	0.2	0.6	2	0	0.1	0.1
Total—Project Year 2015	**933**	**3,910**	**20,301**	**21,401**	**2,919**	**2,004**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus	-172	-593	-3,634	-10,688	-643	-678

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
CEQA baseline						
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 1 minus NEPA baseline	54	134	1,238	1,391	165	124
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	547	1,142	14,116	14,461	1,633	1,306
Vessel hoteling	178	369	4,628	6,934	671	537
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	135	1349	240	4	590	117
Terminal equipment	0.1	0.5	0.8	0	0.03	0.02
Total—Project Year 2022	**899**	**3,631**	**19,992**	**21,401**	**2,936**	**1,999**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	-206	-872	-3,943	-10,688	-626	-683
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 1 minus NEPA baseline	55	127	1,234	1,390	166	124
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	547	1,142	14,116	14,461	1,633	1,306
Vessel hoteling	178	369	4,628	6,934	671	537

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	81	808	129	4	656	129
Terminal equipment	0.1	0.5	0.2	0	0.01	0.01
Total—Project Year 2037	**845**	**3,090**	**19,881**	**21,401**	**3,002**	**2,011**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 1 minus CEQA baseline	-260	-1,413	-4,054	-10,688	-560	-671
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 1 minus NEPA baseline	57	157	1,239	1,390	202	131
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-54. Peak Daily Construction and Operational Emissions with Mitigation—Alternative 1

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Peak Daily Construction Emissions	395	2,634	7,196	11	377	169
Peak Daily Operational Emissions	1,108	3,485	26,429	36,088	3,826	2,969

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Total—Construction & Operation—Project Year 2011	**1,503**	**6,119**	**33,625**	**36,099**	**4,203**	**3,138**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	398	1,616	9,690	4,011	641	456
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	94	577	1,487	1	82	47
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

NEPA Impact Determination

Alternative 1 unmitigated peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all pollutants in all analyzed years with the exception of CO in 2011.

In 2011, the combined total of construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Alternative 1 mitigated peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for NO_X, SO_X, PM10, and PM2.5 in 2015; and VOC, NO_X, SO_X, PM10, and PM2.5 in 2022 and 2037.

In 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for VOC, CO, and NO_X.

Impact AQ-4: Alternative 1 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Dispersion modeling of onsite and offsite operational emissions for Alternative 1 was performed to assess the impact of this alternative on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2. Table 3.2-55 presents the maximum offsite ground-level concentrations of NO_2 and CO for this alternative without mitigation. Table 3.2-56 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments without mitigation.

Table 3.2-55. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 1 without Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 1 (µg/m³)*	*Background Concentration (µg/m³)*	*Total Ground-Level Concentration (µg/m³)*	*SCAQMD Threshold (µg/m³)*
NO_2	1-hour	1,150	263	**1,413**	338
	Annual	59	53	**111**	56.4
CO	1-hour	5,633	4,809	10,442	23,000
	8-hour	2,134	4,008	6,142	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-56. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 1 without Mitigation

	Maximum Modeled Concentration of Alternative 1 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m³)*	*Ground-Level Concentration CEQA Increment (µg/m³)*	*Ground-Level Concentration NEPA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour	25.5	32.3	22.8	**7.8**	**7.7**	2.5
PM10 annual	6.6	4.3	6.5	**2.3**	**1.0**	1.0

	Maximum Modeled Concentration of Alternative 1 ($\mu g/m^3$)	Maximum Modeled Concentration of CEQA Baseline ($\mu g/m^3$)	Maximum Modeled Concentration of NEPA Baseline ($\mu g/m^3$)	Ground-Level Concentration CEQA Increment ($\mu g/m^3$)	Ground-Level Concentration NEPA Increment ($\mu g/m^3$)	SCAQMD Threshold ($\mu g/m^3$)
average						
PM2.5 24-hour	19.5	25.8	17.1	**6.2**	**6.2**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 1 minus the CEQA baseline. The NEPA increment represents the Alternative 1 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with Alternative 1 operations would be significant for NO_2 (1-hour average and annual average) and PM10 and PM2.5 (24-hour average) and annual PM10. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-57 presents the maximum offsite ground-level concentrations of NO_2 and CO for this alternative after mitigation. Table 3.2-58 shows the maximum PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations would be significant for NO_2 (1-hour average and annual average), 24-hour PM10 and 24-hour PM2.5, and annual average PM10.

Table 3.2-57. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 1 with Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 1 (µg/m³)*	*Background Concentration (µg/m³)*	*Total Ground-Level Concentration (µg/m³)*	*SCAQMD Threshold (µg/m³)*
NO_2	1-hour	770	263	**1,033**	338
	Annual	41	53	**94**	56.4
CO	1-hour	5,591	4,809	10,400	23,000
	8-hour	2,128	4,008	6,136	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-58. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 1 with Mitigation

	Maximum Modeled Concentration of Alternative 1 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m³)*	*Ground-Level Concentration CEQA Increment (µg/m³)*	*Ground-Level Concentration NEPA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour	17.6	32.3	22.8	**4.4**	**4.1**	2.5
PM10 annual average	5.8	4.3	6.5	**1.6**	0.3	1.0
PM2.5 24-hour	12.7	25.8	17.1	**3.3**	**3.2**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 1 minus the CEQA baseline. The NEPA increment represents the Alternative 1 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with Alternative 1 operations would be significant for NO_2 (1-hour average and annual average), PM10 and PM2.5 (24-hour average), and PM10 (annual average). Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-57 presents the maximum offsite ground-level concentrations of NO_2 and CO for this alternative after mitigation. Table 3.2-58 shows the maximum PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations would be significant for NO_2 (1-hour average and annual average), 24-hour PM10 and PM2.5 (24-hour average), but below significance for annual PM10.

Impact AQ-5: Alternative 1 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

Alternative 1 would generate traffic levels comparable to or less than traffic generated by the proposed Project. As discussed in the proposed project analysis, CO concentrations related to onroad traffic would not exceed state CO standards for any project study year.

CEQA Impact Determination

Significant impacts under CEQA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Significant impacts under NEPA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: Alternative 1 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with this alternative would help to disperse emissions. Additionally, the distance between this alternative's emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Thus, the potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor.

CEQA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; significant odor impacts under CEQA, therefore, are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; and, therefore, significant odor impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-7: Alternative 1 would expose receptors to significant levels of toxic air contaminants.

The main sources of TACs from Alternative 1 operations would be DPM emissions from ships, harbor craft, terminal equipment, and motor vehicles. Similar to the HRA for the proposed Project, DPM, PM10, and VOC emissions were projected over a 70-year period, from 2009 through 2078. An HRA was performed over this 70-year exposure period.

Table 3.2-59 presents the maximum predicted health impacts associated with this alternative without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed receptors. Results are presented for this alternative, CEQA baseline, NEPA baseline, CEQA increment (alternative minus CEQA baseline), and NEPA increment (alternative minus the NEPA baseline).

CEQA Impact Determination

Alternative 1 would result in fewer available berths in the Outer Harbor and fewer total ship calls after year 2015 than the proposed Project, and therefore, it would have lower DPM emissions and lower health risk impacts in the Outer Harbor. However, Table 3.2-59 shows that the maximum CEQA cancer risk increment associated with the unmitigated Alternative 1 is predicted to be 120 in a million (120×10^{-6}), at a recreational receptor. This risk value would exceed the significance criterion of 10 in a million. The CEQA cancer risk increment would also exceed the threshold at residential and occupational receptors. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be below significance for all receptor types. However, the acute hazard index CEQA increment is predicted to exceed the significance threshold of 1.0 for the residential, occupational, and recreational receptors.

Table 3.2-59. Maximum Health Impacts Associated With Alternative 1 without Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 1	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	360×10^{-6} (360 in a million)	379×10^{-6} (379 in a million)	**45×10^{-6} (45 in a million)**	139×10^{-6} (139 in a million)	**221×10^{-6} (221 in a million)**	10×10^{-6} (10 in a million)

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 1	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
	Occupational	477×10^{-6} (477 in a million)	992×10^{-6} (992 in a million)	**78×10^{-6} (78 in a million)**	171×10^{-6} (171 in a million)	**306×10^{-6} (306 in a million)**	
	Recreational	732×10^{-6} (732 in a million)	$1{,}522 \times 10^{-6}$ (1,522 in a million)	**120×10^{-6} (120 in a million)**	263×10^{-6} (263 in a million)	**469×10^{-6} (469 in a million)**	
	Sensitive	99×10^{-6} (99 in a million)	120×10^{-6} (120 in a million)	3×10^{-6} (3 in a million)	52×10^{-6} (52 in a million)	**60×10^{-6} (60 in a million)**	
	Student	6×10^{-6} (6 in a million)	8×10^{-6} (8 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	2×10^{-6} (2 in a million)	4×10^{-6} (4 in a million)	
Chronic Hazard Index	Residential	0.53	0.69	0.09	0.44	0.11	1.0
	Occupational	1.17	1.72	0.24	1.04	0.43	
	Recreational	1.17	1.72	0.24	1.04	0.43	
	Sensitive	0.13	0.13	0.02	0.11	0.03	
	Student	0.13	0.11	0.02	0.10	0.03	
Acute Hazard Index	Residential	1.64	2.40	**1.42**	1.36	**1.26**	1.0
	Occupational	2.56	3.07	**2.51**	1.76	**1.46**	
	Recreational	2.56	3.07	**2.51**	1.76	**1.46**	
	Sensitive	0.86	0.51	0.73	0.44	0.68	
	Student	0.57	0.42	0.44	0.29	0.37	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents the proposed Project minus the CEQA baseline. The NEPA increment represents the proposed Project minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 1	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
were assumed to use the average residual fuel oil of 2.7% sulfur content							

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-60 presents a summary of the maximum health impacts that would occur at a residential receptor with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 68%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 17%.

The data show that the maximum residential CEQA cancer risk increment after mitigation is predicted to be <1 in a million ($<1 \times 10^{-6}$). This risk value is well below the significance threshold of 10 in a million. The CEQA cancer risk increment would only be exceeded at recreational and occupational receptors. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0. The acute hazard index CEQA increment is predicted to be above the significance threshold of 1.0 and is therefore considered significant for the occupational, residential, and recreational receptors.

Table 3.2-60. Maximum Health Impacts Associated With Alternative 1 with Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 1	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	115 x 10^{-6} (115 in a million)	379 x 10^{-6} (379 in a million)	<1 x 10^{-6} (<1 in a million)	139 x 10^{-6} (139 in a million)	**19 x 10^{-6} (19 in a million)**	10×10^{-6} (10 in a million)
	Occupational	96 x 10^{-6} (96 in a million)	992 x 10^{-6} (992 in a million)	**21 x 10^{-6} (21 in a million)**	171 x 10^{-6} (171 in a million)	**30 x 10^{-6} (30 in a million)**	
	Recreational	147 x 10^{-6} (147 in a million)	1,522 x 10^{-6} (1,522 in a million)	**32 x 10^{-6} (32 in a million)**	263 x 10^{-6} (263 in a million)	**46 x 10^{-6} (46 in a million)**	

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 1	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
	Sensitive	48 x 10^{-6} (48 in a million)	120 x 10^{-6} (120 in a million)	<1 x 10^{-6} (<1 in a million)	52 x 10^{-6} (52 in a million)	1 x 10^{-6} (1 in a million)	
	Student	2 x 10^{-6} (2 in a million)	8 x 10^{-6} (8 in a million)	<1 x 10^{-6} (<1 in a million)	2 x 10^{-6} (2 in a million)	<1 x 10^{-6} (<1 in a million)	
Chronic Hazard Index	Residential	0.44	0.69	0.04	0.44	0.02	1.0
	Occupational	1.04	1.72	0.17	1.04	0.06	
	Recreational	1.04	1.72	0.17	1.04	0.06	
	Sensitive	0.11	0.13	0.00	0.11	0.00	
	Student	0.10	0.11	0.00	0.10	0.00	
Acute Hazard Index	Residential	1.36	2.40	**1.10**	1.36	0.94	1.0
	Occupational	1.79	3.07	**1.74**	1.76	**1.07**	
	Recreational	1.79	3.07	**1.74**	1.76	**1.07**	
	Sensitive	0.73	0.51	0.60	0.44	0.55	
	Student	0.44	0.42	0.31	0.29	0.24	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents the proposed Project minus the CEQA baseline. The NEPA increment represents the proposed Project minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

NEPA Impact Determination

Table 3.2-59 shows that the maximum NEPA cancer risk increment associated with the unmitigated Alternative 1 is predicted to be 469 in a million (469×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million and would be considered a significant impact. The NEPA cancer risk increment would also exceed the threshold at occupational, sensitive, and residential receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be below significance for all receptor types. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and is therefore considered significant for the occupational, residential, and recreational receptors.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

The maximum residential NEPA cancer risk increment after mitigation is predicted to be 46 in a million (46×10^{-6}), at a recreational receptor. This risk value is above the significance threshold of 10 in a million. The NEPA cancer risk increment also would exceed the threshold at residential and occupational receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be below the significance threshold of 1.0. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and is therefore considered significant for the occupational and recreational receptors.

Impact AQ-8: Alternative 1 would not conflict with or obstruct implementation of an applicable AQMP.

Similar to the proposed Project, this alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts.

CEQA Impact Determination

This alternative 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.

NEPA Impact Determination

This alternative would not conflict with or obstruct implementation of the AQMP; therefore, significant impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-9: Alternative 1 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.

Table 3.2-61 summarizes the total GHG construction emissions associated with Alternative 1. Table 3.2-62 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 1 without mitigation.

Table 3.2-61. Total GHG Emissions from Construction Activities—Alternative 1 without Mitigation

	Total Emissions (Metric Tons)			
Emission Source	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Catalina Express Terminal	387.96	0.05	0.00	390.31
Cruise ship terminal Berths 91–93	987.57	0.14	0.01	993.56
Cruise ship parking facilities	1,565.24	0.22	0.02	1,574.73
North Harbor	4,213.91	0.59	0.04	4,239.47
Maritime Office Building—Crowley	234.81	0.03	0.00	236.23
Maritime Office Building—Millennium	235.05	0.03	0.00	236.47
Maritime Office Building—Lane Victory	235.05	0.03	0.00	236.47
Downtown Harbor	1,886.65	0.27	0.02	1,898.09
7th Street Harbor	1,319.76	0.19	0.01	1,327.76
7th Street Pier	1,159.91	0.16	0.01	1,166.94
Downtown Square	167.73	0.02	0.00	168.74
Downtown water feature	117.95	0.02	0.00	118.66
John S. Gibson Jr. Park	173.87	0.02	0.00	174.92
Ralph J. Scott Fireboat Museum	372.10	0.05	0.00	374.35
Los Angeles Maritime Museum renovation	0.00	0.00	0.00	0.00
Los Angeles Maritime Institute	252.83	0.04	0.00	254.36

Emission Source	*Total Emissions (Metric Tons)*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Maritime Office Building	0.00	0.00	0.00	0.00
Ports O' Call Promenade—Phase 1	2,189.22	0.31	0.02	2,202.49
Ports O' Call Promenade—Phase 2	2,386.10	0.34	0.02	2,400.57
Ports O' Call Promenade—Phase 3	2,194.86	0.31	0.02	2,208.17
Southern Pacific Railyard demolition	282.14	0.04	0.00	283.85
Fishermen's Park	722.81	0.10	0.01	727.19
Ports O' Call redevelopment without restaurant	0.00	0.00	0.00	0.00
Ports O' Call Redevelopment Phase 1	2,163.88	0.30	0.02	2,177.00
Ports O' Call Redevelopment Phase 2	3,325.88	0.47	0.03	3,346.05
Ports O' Call Redevelopment with Restaurant	589.54	0.08	0.01	593.12
Ports O' Call Redevelopment Phase 3	1,701.85	0.24	0.02	1,712.18
Waterfront Red Car Maintenance Facility	615.44	0.09	0.01	619.17
Westway Terminal demolition	857.21	0.12	0.01	862.41
City Dock No. 1 promenade	2,448.96	0.34	0.02	2,463.82
Outer Harbor Cruise Terminal	4,434.33	0.62	0.04	4,461.22
Outer Harbor Park and promenade	1,090.88	0.15	0.01	1,097.50
San Pedro Park	1,111.59	0.16	0.01	1,118.33
Salinas De San Pedro/Youth Camp promenade	2,576.76	0.36	0.03	2,592.39
Sampson Way road improvements	886.34	0.12	0.01	891.72
Waterfront Red Car Line extension—Sampson Way	988.00	0.14	0.01	993.99
Waterfront Red Car Line extension—Cabrillo Beach	1,064.12	0.15	0.01	1,070.58
Waterfront Red Car Line extension—Outer Harbor	589.03	0.08	0.01	592.60
Waterfront Red Car Line extension—City Dock No. 1	601.82	0.08	0.01	605.47
Berth 240 fueling station	224.64	0.03	0.00	226.01
Total Emissions	**46,355.78**	**6.52**	**0.47**	**46,636.89**
NEPA Baseline	23,845.99	3.35	0.24	23,990.60
Alternative 1 minus NEPA Baseline	**22,509.79**	**3.16**	**0.23**	**22,646.29**

Notes:

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

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate

Emission Source	*Total Emissions (Metric Tons)*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
for each GHG represents the emission rate multiplied by its GWP. The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.				
Emissions may not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.				
The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.				
NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.				

Table 3.2-62. Annual Operational GHG Emissions—Alternative 1 without Mitigation

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	52,118	0.3	2.4	52,858
Vessel hoteling	18,464	0.1	0.8	18,726
Harbor craft	25,571	0.1	1.2	25,934
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2011	**136,807**	**3.9**	**7.9**	**139,326**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***7,538***	***-2.4***	***-1.5***	***7,018***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 1 minus NEPA baseline	***22,139***	***0.2***	***1.1***	***22,472***
Project Year 2015				
Vessel transit and maneuvering	52,728	0.3	2.4	53,476
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	23,083	0.1	1.0	23,411
Motor vehicles	61,188	7.7	8.9	64,095
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2015	**179,868**	**8.5**	**13.3**	**184,160**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***50,598***	***2.2***	***3.9***	***51,852***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 1 minus NEPA baseline	***9,561***	***0.2***	***1.2***	***9,945***
Project Year 2022				
Vessel transit and maneuvering	52,728	0.3	2.4	53,476
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	64,135	6.5	7.9	66,715
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2022	**182,391**	**7.3**	**12.3**	**186,350**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***53,121***	***1.0***	***2.9***	***54,042***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 1 minus NEPA baseline	***9,246***	***0.2***	***1.2***	***9,618***
Project Year 2037				
Vessel transit and maneuvering	52,728	0.3	2.4	53,476
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	71,310	7.3	8.8	74,186
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2037	**189,566**	**8.1**	**13.2**	**193,820**

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
CEQA baseline	129,270	6.3	9.4	132,308
Alternative 1 minus CEQA baseline	**60,296**	**1.8**	**3.8**	**61,513**
NEPA baseline	176,482	7.5	11.5	180,209
Alternative 1 minus NEPA baseline	**13,084**	**0.6**	**1.7**	**13,612**

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

The data in Table 3.2-62 show that in each future project year except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 1 would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-63 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 1 with mitigation. The data in Table 3.2-63 show that in each future project year except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 1 would produce significant levels of GHG emissions under CEQA.

Table 3.2-63. Annual Operational GHG Emissions—Alternative 1 with Mitigation

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Project Year 2011				

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Vessel transit and maneuvering	42,599	0.2	1.9	43,203
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	23,399	0.1	1.1	23,731
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	0	0.0	0.0	0
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2011	**116,859**	**3.7**	**7.0**	**119,093**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***-12,410***	***-2.6***	***-2.4***	***-13,215***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 1 minus NEPA baseline	***2,192***	***0.0***	***0.2***	***2,239***
Project Year 2015				
Vessel transit and maneuvering	43,065	0.3	2.0	43,676
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	61,188	7.7	8.9	64,095
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2015	**170,294**	**8.5**	**12.4**	**174,307**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***41,024***	***2.2***	***3.0***	***41,999***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 1 minus NEPA baseline	***-13***	***0.1***	***0.3***	***92***
Project Year 2022				
Vessel transit and maneuvering	43,065	0.3	2.0	43,676
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Motor vehicles	64,135	6.5	7.9	66,715
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2022	**173,241**	**7.3**	**11.4**	**176,926**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***43,971***	***1.0***	***2.0***	***44,619***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 1 minus NEPA baseline	***95***	***0.1***	***0.3***	***195***
Project Year 2037				
Vessel transit and maneuvering	43,065	0.3	2.0	43,676
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	71,310	7.3	8.8	74,186
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	23,798	0.2	0.1	23,839
Total for Project Year 2037	**180,415**	**8.0**	**12.3**	**184,397**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 1 minus CEQA baseline	***51,146***	***1.7***	***2.9***	***52,090***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 1 minus NEPA baseline	***3,934***	***0.5***	***0.8***	***4,189***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
are not currently available. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.				

NEPA Impact Determination

The data in Table 3.2-62 show that in each future project year, annual operational CO_2e emissions would increase from NEPA baseline levels.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-63 shows that in 2011 and 2037, annual operational CO_2e emissions would increase from NEPA baseline levels.

3.2.4.3.3 Alternative 2—Alternative Development Scenario 2

Alternative 2 has a similar cruise terminal configuration as the proposed Project, but locates the parking for the Outer Harbor Terminal to the Outer Harbor instead of shuttling passengers from the Inner Harbor. The alternative reduces Harbor Boulevard to one lane southbound, cul-de-sacking northbound Harbor Boulevard at 13th Street, and constructs the Crescent Street Viaduct (similar to Alternative 1). Finally, this alternative involves a modification to the realignment of the Waterfront Red Car along Harbor Boulevard, and modification of the Waterfront Red Car alignment along Shoshonean Road.

Impact AQ-1: Alternative 2 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Although this alternative has less construction than the proposed Project, the majority of the construction activities required for the proposed Project would also be required for this alternative.

Table 3.2-64 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 2 without mitigation. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-64. Summary of Peak Daily Construction Emissions—Alternative 2 without Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	465	1,887	6,025	5	885	359
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 2 minus non-Federal emissions)	416	1,555	5,054	3	820	337
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2010 Peak Daily Construction Emissions	1,266	5,665	17,006	15	3,308	1,171
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 2 minus non-Federal emissions)	951	3,492	10,983	5	3,003	1,044
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	929	4,397	12,779	12	2,836	948
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 2 minus non-Federal emissions)	629	2,340	7,070	2	2,541	826
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	694	3,080	9,129	8	1,867	646
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 2 minus non-Federal emissions)	530	1,973	6,085	3	1,709	577
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	319	1,275	3,892	3	1,045	329

Project Year	Peak Daily Construction Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 2 minus non-Federal emissions)	237	733	2,445	1	939	286
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2014 Peak Daily Construction Emissions	267	1,018	3,166	3	373	170
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 2 minus non-Federal emissions)	205	622	2,128	2	336	146
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Alternative 2 would exceed the daily construction emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Despite implementation of mitigation and proposed compliance with SCAQMD Rule 403, emissions from the construction of Alternative 2 would still exceed the SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5.

Table 3.2-65 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 2 after the application of Mitigation Measures MM AQ-1 through MM AQ-5. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-65. Summary of Peak Daily Construction Emissions—Alternative 2 with Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	271	1,521	3,852	5	204	124
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 2 minus non-Federal emissions)	222	1,189	2,881	3	139	102
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2010 Peak Daily Construction Emissions	633	3,960	10,456	15	504	273
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 2 minus non-Federal emissions)	318	1,787	4,433	5	199	146
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	415	2,782	7,614	12	374	174
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 2 minus non-Federal emissions)	115	725	1,905	2	79	52
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
2012 Peak Daily Construction Emissions	346	2,127	5,706	8	276	143
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69

Project Year	Peak Daily Construction Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
NEPA Emissions (Alternative 2 minus non-Federal emissions)	182	1,020	2,662	3	118	74
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2013 Peak Daily Construction Emissions	191	1,057	2,708	3	164	87
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 2 minus non-Federal emissions)	109	515	1,261	1	58	44
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**
2014 Peak Daily Construction Emissions	170	911	2,299	3	94	69
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 2 minus non-Federal emissions)	108	515	1,261	2	57	45
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The NEPA incremental emissions for Alternative 2 are calculated by subtracting the NEPA baseline emissions. Alternative 2 would exceed the emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under NEPA would occur.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Despite implementation of mitigation and proposed compliance with SCAQMD Rule 403, emissions from the construction of Alternative 2 would still exceed the SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5.

Table 3.2-65 presents a summary of the peak daily criteria pollutant emissions associated with construction of this alternative after the application of Mitigation Measures MM AQ-1 through MM AQ-5.

Impact AQ-2: Alternative 2 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Dispersion modeling of onsite Alternative 2 construction emissions was performed to assess the impact of this alternative on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2.

Table 3.2-66 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from construction without mitigation.

Table 3.2-66 shows that the maximum 1-hour and 8-hour CO concentrations would not exceed the SCAQMD thresholds. The maximum offsite 1-hour NO_2 concentration and maximum offsite 24-hour increment increases of PM10 and PM2.5 would exceed the SCAQMD significance threshold for both CEQA and NEPA.

Table 3.2-66. Maximum Offsite Ambient Concentrations—Alternative 2 Construction without Mitigation

Pollutant	*Averaging Time*	*Background Concentration (µg/m³)*	*Maximum Concentration (without Background) (µg/m³)*	*CEQA Impact (µg/m³)*	*NEPA Impact (µg/m³)*	*SCAQMD Threshold [a] (µg/m³)*
NO_2	1-hour	263	2,681	**2,944**	**2,944**	338
CO	1-hour	4,809	10,811	15,620	15,620	23,000
	8-hour	4,008	2,085	6,093	6,093	10,000
PM10	24-hour	-	299.6	**299.6**	**292.0**	10.4
PM2.5	24-hour	-	92.2	**92.2**	**72.2**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

CEQA Impact Determination

Without mitigation, maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-67 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of these mitigation measures, offsite ambient concentrations from construction activities would be significant for NO_2, PM10, and PM2.5 but would be less than significant for CO.

Table 3.2-67. Maximum Offsite Ambient Concentrations—Alternative 2 Construction with Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1-hour	263	2,586	**2,849**	**2,849**	338
CO	1-hour	4,809	10,241	15,050	15,050	23,000
	8-hour	4,008	1,995	6,003	6,003	10,000
PM10	24-hour	-	58.0	**58.0**	**36.7**	10.4
PM2.5	24-hour	-	48.3	**48.3**	**30.4**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

NEPA Impact Determination

Without mitigation, maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-67 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of these mitigation measures, offsite ambient concentrations from construction activities would be significant for NO_2, PM10, and PM2.5 but would be less than significant for CO.

Impact AQ-3: Alternative 2 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Tables 3.2-68 and 3.2-69 present the unmitigated average and peak daily criteria pollutant emissions associated with operation of this alternative. Emissions were estimated for four project study years: 2011, 2015, 2022, and 2037. Comparisons to the CEQA baseline (2006) and the NEPA baseline emissions are presented for informational purposes in Table 3.2-68; actual CEQA and NEPA significance is determined by the comparison of peak daily impacts to CEQA and NEPA thresholds in Table 3.2-69.

The operational emissions associated with this alternative assume the operation of berths at both the Inner and Outer Harbor Cruise Terminals and the following activity levels:

- Operation of three berths in 2011 at the Inner Harbor Cruise Terminal.
- Operation of two berths in 2015, 2022, and 2037 at the Inner Harbor Cruise Terminal.
- Operation of two berths in 2015, 2022, and 2037 at the Outer Harbor Cruise Terminal.
- Annual ship calls under this alternative are estimated to be 269 calls in 2011, 275 calls in 2015, 282 calls in 2022, and 287 calls in 2037 and thereafter.
- Average emissions from cruise ships assume the use of 2.7% sulfur fuel.
- Peak emissions from cruise ships assume the use of 4.5% sulfur fuel.
- Peak daily emissions assume that all available berths would be occupied on any given day.
- Harbor craft activity levels would not change from 2006 operations. However, since the Crawley and Millennium tugboats would be relocated to the Outer Harbor, their transit time to the harbor gate would be reduced.
- Environmental measures for cruise ships and harbor craft considered part of this alternative would be the same as those considered for the proposed Project (listed in Table 3.2-8).

Table 3.2-69 shows the peak daily operational emissions for Alternative 2. The peak daily emission estimates for operations include the following assumptions that were chosen to identify a maximum theoretical activity scenario:

- Ships at berth: The peak day scenario assumes the largest combination of ships in the proposed project fleet that could be simultaneously accommodated at the berths.
- Motor vehicles: Peak day truck trips generated by Alternative 2 were provided by the traffic study for each analysis year.
- Terminal equipment: The terminal equipment data was provided by LAHD. It was assumed that approximately 38 pieces of terminal equipment (i.e., 11 diesel forklifts, 25 propane forklifts, and 2 fuel trucks) would operate during the peak period when all cruise ships are hoteling at the Port.

Tables 3.2-68 and 3.2-69 show that operational activities associated with this alternative would be similar to the proposed Project in 2011, and slightly less than the proposed Project for VOC, NO_X, SO_X, PM10, and PM2.5 in 2015, 2022, and 2037.

1 **Table 3.2-68.** Average Daily Operational Emissions without Mitigation—Alternative 2

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	144	300	3,670	3,195	411	329
Vessel hoteling	78	162	1,978	1,975	231	185
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1	12	11	0.01	0.5	0.4
Total—Project Year 2011	**401**	**1,967**	**7,544**	**5,172**	**871**	**604**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA baseline	-51	-1,156	1,107	1,185	22	93
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 2 minus NEPA baseline	38	37	1,195	2,031	211	168
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	143	299	3,644	3,179	410	328
Vessel hoteling	79	166	2,014	2,019	236	189
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	186	2,115	403	4	624	126
Terminal equipment	0.8	12	8	0.01	0.4	0.3
Total—Project Year 2015	**455**	**3,131**	**7,413**	**5,203**	**1,322**	**691**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA baseline	3	8	976	1,216	473	180
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 2 minus NEPA baseline	136	523	3,150	4,713	572	415
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	147	307	3,713	3,260	420	336
Vessel hoteling	82	170	2,052	2,071	242	194
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	153	1,502	228	4	657	131
Terminal equipment	0.5	12	5	0.01	0.2	0.2
Total—Project Year 2022	**427**	**2,749**	**7,063**	**5,335**	**1,369**	**706**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA baseline	-25	-374	626	1,348	520	195
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 2 minus NEPA baseline	142	414	3,127	4,844	603	434
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	149	312	3,757	3,293	424	339
Vessel hoteling	83	173	2,076	2,107	247	197
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	94	916	146	5	744	146
Terminal equipment	0.3	12	3	0.01	0.1	0.1
Total—Project Year 2037	**372**	**2,172**	**7,047**	**5,406**	**1,464**	**728**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Alternative 2 minus CEQA baseline	-80	-951	610	1,419	615	217
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 2 minus NEPA baseline	143	407	3,244	4,915	668	451
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-69. Peak Daily Operational Emissions without Mitigation—Alternative 2

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	2	22	19	0.02	0.9	0.8
Total—Project Year 2011	**1,175**	**3,590**	**28,267**	**38,473**	**4,075**	**3,167**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	70	-913	4,332	6,384	513	485

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 2 minus NEPA baseline	67	105	1,838	2,385	249	99
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	950	2,096	25,257	35,062	3,612	2,890
Vessel hoteling	431	897	11,374	18,177	1,723	1,378
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	186	2,115	403	4	624	126
Terminal equipment	1.4	22	15	0.02	0.7	0.6
Total—Project Year 2015	**1,614**	**5,669**	**38,393**	**53,245**	**6,012**	**4,443**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	509	1,166	14,458	21,157	2,450	1,761
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 2 minus NEPA baseline	736	1,894	19,329	33,235	3,258	2,564
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	950	2,096	25,257	35,062	3,612	2,890
Vessel hoteling	431	897	11,374	18,177	1,723	1,378
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	153	1,502	228	4	657	131
Terminal equipment	0.8	22	9	0.02	0.3	0.3
Total—Project Year 2022	**1,580**	**5,276**	**37,933**	**53,245**	**6,041**	**4,444**

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	475	773	13,998	21,157	2,479	1,762
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 2 minus NEPA baseline	736	1,773	19,175	33,234	3,271	2,569
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	950	2,096	25,257	35,062	3,612	2,890
Vessel hoteling	431	897	11,374	18,177	1,723	1,378
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	94	916	146	5	744	146
Terminal equipment	0.5	22	5	0.02	0.1	0.1
Total—Project Year 2037	**1,520**	**4,690**	**37,847**	**53,246**	**6,128**	**4,459**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	415	187	13,912	21,158	2,566	1,777
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 2 minus NEPA baseline	732	1,758	19,206	33,235	3,328	2,579
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.						

Due to a lengthy construction period, operational activities would overlap with construction. Table 3.2-70 shows the combined total of construction and operational emissions for 2011 during which construction and operation activities would occur simultaneously.

Table 3.2-70. Peak Daily Construction and Operational Emissions without Mitigation—Alternative 2

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Peak Daily Construction Emissions	929	4,397	12,779	12	2,836	948
Peak Daily Operational Emissions	1,175	3,590	28,267	38,473	4,075	3,167
Total—Construction & Operation—Project Year 2011	**2,104**	**7,987**	**41,046**	**38,485**	**6,911**	**4,115**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	999	3,484	17,111	6,396	3,349	1,433
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	696	2,445	8,908	2,387	2,790	1,025
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Alternative 2 peak daily emissions minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for all pollutants during all analysis years, with the exception of CO in years 2011 and 2037.

In year 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Tables 3.2-71 and 3.2-72 show that Alternative 2 peak daily mitigated emissions minus the CEQA baseline would exceed CEQA thresholds and would thus be significant under CEQA for VOC for years 2015 and 2022; NO_X and PM10 for all analysis years; and SO_X and PM2.5 for year 2011.

In year 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Table 3.2-71. Average Daily Operational Emissions with Mitigation—Alternative 2

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	138	288	3,424	2,221	319	256
Vessel hoteling	57	119	1,402	1,098	139	111
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0.01	0.05	0.05
Total—Project Year 2011	**374**	**1,953**	**6,631**	**3,321**	**686**	**457**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA baseline	-78	-1,170	194	-666	-163	-54
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
NEPA Impacts						

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 2 minus NEPA baseline	11	24	283	180	26	20
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	98	205	2,272	366	119	95
Vessel hoteling	17	35	377	108	24	20
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	186	2,115	403	4	624	126
Terminal equipment	0.1	0.3	1	0	0.03	0.03
Total—Project Year 2015	**345**	**2,972**	**4,243**	**479**	**818**	**287**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA baseline	-107	-151	-2,194	-3,508	-31	-224
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 2 minus NEPA baseline	26	364	-20	-11	68	11
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	101	210	2,315	375	122	98
Vessel hoteling	17	35	384	111	25	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	153	1,502	228	4	657	131
Terminal equipment	0.1	0.3	0.4	0	0.01	0.01
Total—Project Year 2022	**311**	**2,518**	**3,935**	**491**	**846**	**288**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA	-141	-605	-2,502	-3,496	-3	-223

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
baseline						
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 2 minus NEPA baseline	26	182	-2	0	80	16
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	102	214	2,342	382	124	100
Vessel hoteling	17	36	389	113	25	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	94	916	146	5	744	146
Terminal equipment	0	0.3	0.1	0	0	0
Total—Project Year 2037	**254**	**1,936**	**3,885**	**500**	**936**	**305**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 2 minus CEQA baseline	-198	-1,187	-2,552	-3,487	87	-206
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 2 minus NEPA baseline	25	171	82	9	140	28
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
are not currently available. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.						

Table 3.2-72. Peak Daily Operational Emissions with Mitigation—Alternative 2

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	625	1,305	16,599	23,150	2,378	1,903
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.2	0.7	3	0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,088**	**3,826**	**2,969**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	3	-1,018	2,494	4,000	264	287
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 2 minus NEPA baseline	-1	0	0	0	0	0
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	730	1,525	18,859	19,350	2,184	1,748
Vessel hoteling	238	496	6,211	9,298	901	720
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	186	2,115	403	4	624	126
Terminal equipment	0.2	0.6	2	0	0.1	0.1
Total—Project Year 2015	**1,199**	**4,754**	**26,666**	**28,653**	**3,759**	**2,640**
CEQA Impacts						

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	94	251	2,731	-3,435	197	-42
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
<u>NEPA Impacts</u>						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 2 minus NEPA baseline	320	978	7,602	8,643	1,005	761
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	730	1,525	18,859	19,350	2,184	1,748
Vessel hoteling	238	496	6,211	9,298	901	720
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	153	1,502	228	4	657	131
Terminal equipment	0.1	0.5	0.8	0	0.03	0.02
Total—Project Year 2022	**1,162**	**4,294**	**26,307**	**28,653**	**3,784**	**2,638**
<u>CEQA Impacts</u>						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	57	-209	2,372	-3,435	222	-44
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
<u>NEPA Impacts</u>						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 2 minus NEPA baseline	318	790	7,549	8,642	1,014	763
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	730	1,525	18,859	19,350	2,184	1,748
Vessel hoteling	238	496	6,211	9,298	901	720
Harbor craft	40	770	1,008	1	42	39

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Motor vehicles	94	916	146	5	744	146
Terminal equipment	0.1	0.5	0.2	0	0.01	0.01
Total—Project Year 2037	**1,103**	**3,708**	**26,224**	**28,654**	**3,871**	**2,653**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 2 minus CEQA baseline	-2	-795	2,289	-3,434	309	-29
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**No**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 2 minus NEPA baseline	315	775	7,583	8,643	1,071	773
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-73. Peak Daily Construction and Operational Emissions with Mitigation—Alternative 2

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Peak Daily Construction Emissions	415	2,782	7,614	12	374	174
Peak Daily Operational Emissions	1,108	3,485	26,429	36,088	3,826	2,969
Total—Construction & Operation—Project Year 2011	**1,523**	**6,267**	**34,043**	**36,100**	**4,200**	**3,143**
CEQA Impacts						

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	418	1,764	10,108	4,012	638	461
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	114	725	1,905	2	79	52
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

NEPA Impact Determination

Alternative 2 peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all pollutants during all analysis years, with the exception of CO in year 2011.

In 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-72 shows that Alternative 2 peak mitigated daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all pollutants in years 2015, 2022, and 2037. All analyzed pollutants would be below significance in 2011.

In year 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for VOC, CO, and NO_X.

Impact AQ-4: Alternative 2 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Dispersion modeling of onsite and offsite operational emissions for Alternative 2 was performed to assess the impact of Alternative 2 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2. Table 3.2-74 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 2 without mitigation. Table 3.2-75 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments without mitigation.

Table 3.2-74. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 2 without Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 2 (µg/m^3)*	*Background Concentration (µg/m^3)*	*Total Ground-Level Concentration (µg/m^3)*	*SCAQMD Threshold (µg/m^3)*
NO_2	1-hour	1,559	263	**1,822**	338
	Annual	62	53	**115**	56.4
CO	1-hour	6,205	4,809	11,014	23,000
	8-hour	2,353	4,008	6,361	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-75. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 2 without Mitigation

	Maximum Modeled Concentration of Alternative 2 (µg/m^3)	*Maximum Modeled Concentration of CEQA Baseline (µg/m^3)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m^3)*	*Ground-Level Concentration CEQA Increment (µg/m^3)*	*Ground-Level Concentration NEPA Increment (µg/m^3)*	*SCAQMD Threshold (µg/m^3)*
PM10 24-hour	26.9	32.3	22.8	**15.5**	**15.4**	2.5
PM10 annual	7.3	4.3	6.5	**3.0**	**1.7**	1.0

	Maximum Modeled Concentration of Alternative 2 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m³)*	*Ground-Level Concentration CEQA Increment (µg/m³)*	*Ground-Level Concentration NEPA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
average						
PM2.5 24-hour	20.0	25.8	17.1	**12.3**	**12.3**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 2 minus the CEQA baseline. The NEPA increment represents Alternative 2 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Operation of this alternative would produce significant offsite ambient concentrations for NO_2 (1-hour and annual), PM10 (24-hour and annual), and PM2.5 (24-hour). Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-76 presents the maximum offsite ground-level concentrations of NO_2 and CO for this alternative after mitigation. Table 3.2-77 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations after mitigation are expected to remain significant for NO_2 (1-hour and annual), PM10 (24-hour and annual), and PM2.5 (24-hour).

Table 3.2-76. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 2 with Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 2 (µg/m^3)*	*Background Concentration (µg/m^3)*	*Total Ground-Level Concentration (µg/m^3)*	*SCAQMD Threshold (µg/m^3)*
NO_2	1-hour	771	263	**1,034**	338
	Annual	44	53	**97**	56.4
CO	1-hour	6,159	4,809	10,968	23,000
	8-hour	2,346	4,008	6,354	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-77. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 2 with Mitigation

	Maximum Modeled Concentration of Alternative 2 (µg/m^3)	*Maximum Modeled Concentration of CEQA Baseline (µg/m^3)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m^3)*	*Ground-Level Concentration CEQA Increment (µg/m^3)*	*Ground-Level Concentration NEPA Increment (µg/m^3)*	*SCAQMD Threshold (µg/m^3)*
PM10 24-hour	18.9	32.3	22.8	**8.3**	**8.2**	2.5
PM10 annual average	6.6	4.3	6.5	**2.4**	**1.1**	1.0
PM2.5 24-hour	13.5	25.8	17.1	**6.5**	**6.5**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 2 minus the CEQA baseline. The NEPA increment represents Alternative 2

	Maximum Modeled Concentration of Alternative 2 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)	Ground-Level Concentration NEPA Increment (µg/m^3)	SCAQMD Threshold (µg/m^3)
minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.						

NEPA Impact Determination

Operation of this alternative would produce significant offsite ambient concentrations for NO_2, (1-hour and annual), PM10 (24-hour and annual), and PM2.5 (24-hour). Therefore, significant impacts under NEPA would occur.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

<u>Residual Impacts</u>

Table 3.2-76 presents the maximum offsite ground-level concentrations of NO_2 and CO for this alternative after mitigation. Table 3.2-77 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations after mitigation are expected to remain significant for NO_2 (1-hour and annual), PM10 (24-hour and annual), and PM2.5 (24-hour).

Impact AQ-5: Alternative 2 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

This alternative would generate traffic levels comparable to or less than the traffic generated by the proposed Project. As discussed in the proposed project analysis, CO concentrations related to onroad traffic would not exceed state CO standards for any project study year.

CEQA Impact Determination

Significant impacts under CEQA are not anticipated because CO standards would not be exceeded.

<u>Mitigation Measures</u>

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Significant impacts under NEPA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: Alternative 2 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with this alternative would help to disperse emissions. Additionally, the distance between proposed emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Thus, the potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor.

CEQA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; therefore, significant odor impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; therefore, significant odor impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-7: Alternative 2 would expose receptors to significant levels of toxic air contaminants.

Operational activities associated with this alternative would be similar to the proposed Project in 2011, and slightly less than the proposed Project in 2015, 2022, and 2037. The main sources of TACs from Alternative 2 operations would be DPM emissions from ships, harbor craft, terminal equipment, and motor vehicles. Similar to the HRA for the proposed Project, DPM, PM10, and VOC emissions were projected over a 70-year period, from 2009 through 2078. An HRA was performed over this 70-year exposure period.

Table 3.2-78 presents the maximum predicted health impacts associated with this alternative without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed receptors. Results are presented for this alternative, CEQA baseline, NEPA baseline, CEQA increment (alternative minus CEQA baseline), and NEPA increment (alternative minus the NEPA baseline).

CEQA Impact Determination

Alternative 2 would have the same source locations, same number of berths, and the same number of ships as the proposed Project. It would have less Inner Harbor parking but more parking in the Outer Harbor, leading to some decreases in air emissions in the Inner Harbor but increases in the Outer Harbor, thus shifting impacts the acute health index. Table 3.2-78 shows that the maximum CEQA cancer risk increment associated with the unmitigated Alternative 2 is predicted to be 270 in a million (270×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million. The CEQA cancer risk increment would also exceed the threshold at occupational, sensitive, and residential receptors. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be less than the significance threshold of 1.0 at all receptors. The maximum acute hazard index CEQA increment is predicted to be greater than the significance threshold of 1.0 at occupational, residential, and recreational receptors.

Table 3.2-78. Maximum Health Impacts Associated with Alternative 2 without Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 2	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	340 x 10^{-6} (340 in a million)	379 x 10^{-6} (379 in a million)	**112 x 10^{-6} (112 in a million)**	139 x 10^{-6} (139 in a million)	**202 x 10^{-6} (202 in a million)**	10 × 10^{-6} (10 in a million)
	Occupational	387 x 10^{-6} (387 in a million)	992 x 10^{-6} (992 in a million)	**176 x 10^{-6} (176 in a million)**	171 x 10^{-6} (171 in a million)	**251 x 10^{-6} (251 in a million)**	
	Recreational	594 x 10^{-6} (594 in a million)	1,522 x 10^{-6}(1,522 in a million)	**270 x 10^{-6} (270 in a million)**	263 x 10^{-6} (263 in a million)	**384 x 10^{-6} (384 in a million)**	
	Sensitive	97 x 10^{-6} (97 in a million)	120 x 10^{-6} (120 in a million)	**12 x 10^{-6} (12 in a million)**	52 x 10^{-6} (52 in a million)	**58 x 10^{-6} (58 in a million)**	
	Student	6 x 10^{-6} (6 in a million)	8 x 10^{-6} (8 in a million)	1 x 10^{-6} (1 in a million)	2 x 10^{-6} (2 in a million)	4 x 10^{-6} (4 in a million)	
Chronic Hazard Index	Residential	0.53	0.69	0.09	0.44	0.12	1.0
	Occupational	1.16	1.72	0.37	1.04	0.42	
	Recreational	1.16	1.72	0.37	1.04	0.42	
	Sensitive	0.13	0.13	0.02	0.11	0.03	
	Student	0.13	0.11	0.02	0.10	0.03	
Acute Hazard Index	Residential	1.64	2.40	**1.42**	1.36	**1.26**	1.0
	Occupational	2.56	3.07	**2.51**	1.76	**1.46**	
	Recreational	2.56	3.07	**2.51**	1.76	**1.46**	
	Sensitive	0.86	0.51	0.73	0.44	0.68	
	Student	0.54	0.42	0.41	0.29	0.34	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 2 minus the CEQA baseline. The NEPA increment represents Alternative 2 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures

		Maximum Predicted Impact					
Health Impact	*Receptor Type*	*Alternative 2*	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	*Significance Threshold*
identified for Alternative 5. Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values. The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate. For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content							

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-79 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 67%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 10%.

The data show that the maximum CEQA cancer risk increment after mitigation is predicted to be 25 in a million (25×10^{-6}), at a recreational receptor. This risk value is above the significance threshold of 10 in a million. The CEQA cancer risk increment would also exceed the threshold at an occupational receptor. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index CEQA increment is predicted to be above the significance threshold of 1.0 and, therefore, is considered significant for occupational, residential, and recreational receptors.

Table 3.2-79. Maximum Health Impacts Associated with Alternative 2 with Mitigation, 2009–2078

		Maximum Predicted Impact					
Health Impact	*Receptor Type*	*Alternative 2*	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	*Significance Threshold*
Cancer Risk	Residential	111×10^{-6} (111 in a million)	379×10^{-6} (379 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	139×10^{-6} (139 in a million)	**15×10^{-6} (15 in a million)**	10×10^{-6} (10 in a million)
	Occupational	86×10^{-6} (86 in a million)	992×10^{-6} (992 in a million)	**16×10^{-6} (16 in a million)**	171×10^{-6} (171 in a million)	**25×10^{-6} (25 in a million)**	

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 2	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
	Recreational	131 x 10^{-6} (131 in a million)	1,522 x 10^{-6} (1,522 in a million)	**25 x 10^{-6} (25 in a million)**	263 x 10^{-6} (263 in a million)	**38 x 10^{-6} (38 in a million)**	
	Sensitive	47 x 10^{-6} (47 in a million)	120 x 10^{-6} (120 in a million)	<1 x 10^{-6} (<1 in a million)	52 x 10^{-6} (52 in a million)	<1 x 10^{-6} (<1 in a million)	
	Student	2 x 10^{-6} (2 in a million)	8 x 10^{-6} (8 in a million)	<1 x 10^{-6} (<1 in a million)	2 x 10^{-6} (2 in a million)	<1 x 10^{-6} (<1 in a million)	
Chronic Hazard Index	Residential	0.44	0.69	0.04	0.44	0.05	1.0
	Occupational	1.04	1.72	0.19	1.04	0.12	
	Recreational	1.04	1.72	0.19	1.04	0.12	
	Sensitive	0.11	0.13	0.00	0.11	0.00	
	Student	0.10	0.11	0.00	0.10	0.00	
Acute Hazard Index	Residential	1.48	2.40	**1.10**	1.36	0.94	1.0
	Occupational	1.88	3.07	**1.74**	1.76	**1.07**	
	Recreational	1.88	3.07	**1.74**	1.76	**1.07**	
	Sensitive	0.73	0.51	0.60	0.44	0.55	
	Student	0.42	0.42	0.29	0.29	0.23	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 2 minus the CEQA baseline. The NEPA increment represents Alternative 2 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

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

The cancer risk values reported in this table for the residential receptor are based on the 80^{th} percentile breathing rate.

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

NEPA Impact Determination

Table 3.2-78 shows that the maximum NEPA cancer risk increment associated with the unmitigated Alternative 2 is predicted to be 384 in a million (384×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million. The NEPA cancer risk increment would also exceed the threshold at occupational, residential, and sensitive receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be less than the significance threshold of 1.0 at all receptors. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and, therefore, is considered significant for occupational, residential, and recreational receptors.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-79 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 67%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 10%.

The maximum NEPA cancer risk increment after mitigation is predicted to be 38 in a million (38×10^{-6}), at a recreational receptor. This risk value is above the significance threshold of 10 in a million. The NEPA cancer risk increment would also exceed the threshold at residential and occupational receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and, therefore, is considered significant for occupational and recreational receptors.

Impact AQ-8: Alternative 2 would not conflict with or obstruct implementation of an applicable AQMP.

Similar to the proposed Project, this alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts. Thus, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

This alternative 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.

NEPA Impact Determination

This alternative would not conflict with or obstruct implementation of the AQMP; therefore, significant impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-9: Alternative 2 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.

Table 3.2-80 summarizes the total GHG construction emissions associated with Alternative 2. Table 3.2-80 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 2 without mitigation.

Table 3.2-80. Total GHG Emissions from Construction Activities—Alternative 2 without Mitigation

	Total Emissions (Metric Tons)			
Emission Source	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Catalina Express Terminal	387.96	0.05	0.00	390.31
Cruise ship terminal Berths 91–93	0.00	0.00	0.00	0.00
Cruise ship parking facilities	1,565.24	0.22	0.02	1,574.73
North Harbor	4,213.91	0.59	0.04	4,239.47
Maritime Office Building—Crowley	234.81	0.03	0.00	236.23
Maritime Office Building—Millennium	235.05	0.03	0.00	236.47
Maritime Office Building—Lane Victory	235.05	0.03	0.00	236.47

Emission Source	Total Emissions (Metric Tons)			
	CO_2	CH_4	N_2O	CO_2e
Downtown Harbor	1,886.65	0.27	0.02	1,898.09
7th Street Harbor	1,319.76	0.19	0.01	1,327.76
7th Street Pier	1,159.91	0.16	0.01	1,166.94
Downtown Square	167.73	0.02	0.00	168.74
Downtown water feature	117.95	0.02	0.00	118.66
John S. Gibson Jr. Park	173.87	0.02	0.00	174.92
Ralph J. Scott Fireboat Museum	372.10	0.05	0.00	374.35
Los Angeles Maritime Museum renovation	0.00	0.00	0.00	0.00
Los Angeles Maritime Institute	252.83	0.04	0.00	254.36
Maritime Office Building	0.00	0.00	0.00	0.00
Ports O' Call Promenade—Phase 1	2,189.22	0.31	0.02	2,202.49
Ports O' Call Promenade—Phase 2	2,386.10	0.34	0.02	2,400.57
Ports O' Call Promenade—Phase 3	2,194.86	0.31	0.02	2,208.17
Southern Pacific Railyard demolition	282.14	0.04	0.00	283.85
Fishermen's Park	722.81	0.10	0.01	727.19
Ports O' Call redevelopment without restaurant	0.00	0.00	0.00	0.00
Ports O' Call Redevelopment Phase 1	2,163.88	0.30	0.02	2,177.00
Ports O' Call Redevelopment Phase 2	3,325.88	0.47	0.03	3,346.05
Ports O' Call Redevelopment with Restaurant	589.54	0.08	0.01	593.12
Ports O' Call Redevelopment Phase 3	1,701.85	0.24	0.02	1,712.18
Waterfront Red Car Maintenance Facility	615.44	0.09	0.01	619.17
Westway Terminal demolition	857.21	0.12	0.01	862.41
City Dock No. 1 promenade	2,448.96	0.34	0.02	2,463.82
Outer Harbor Cruise Terminal	8,173.17	1.15	0.08	8,222.73
Outer Harbor Park and promenade	1,090.88	0.15	0.01	1,097.50
San Pedro Park	1,111.59	0.16	0.01	1,118.33
Salinas De San Pedro/Youth Camp promenade	2,576.76	0.36	0.03	2,592.39
Sampson Way road improvements	886.34	0.12	0.01	891.72
Waterfront Red Car Line extension—Sampson Way	988.00	0.14	0.01	993.99
Waterfront Red Car Line extension—Cabrillo Beach	1,064.12	0.15	0.01	1,070.58
Waterfront Red Car Line extension—Outer Harbor	589.03	0.08	0.01	592.60

Emission Source	*Total Emissions (Metric Tons)*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Waterfront Red Car Line extension—City Dock No. 1	601.82	0.08	0.01	605.47
Berth 240 fueling station	224.64	0.03	0.00	226.01
Total Emissions	**49,107.05**	**6.90**	**0.49**	**49,404.85**
NEPA Baseline	23,845.99	3.35	0.24	23,990.60
Alternative 2 minus NEPA Baseline	**25,261.05**	**3.55**	**0.25**	**25,414.24**

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-81. Annual Operational GHG Emissions—Alternative 2 without Mitigation

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	52,118	0.3	2.4	52,858
Vessel hoteling	18,464	0.1	0.8	18,726
Harbor craft	25,571	0.1	1.2	25,934
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	240	0.1	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2011	**138,588**	**3.9**	**7.9**	**141,107**

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***9,319***	***-2.4***	***-1.5***	***8,799***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 2 minus NEPA baseline	***23,920***	***0.2***	***1.1***	***24,254***
Project Year 2015				
Vessel transit and maneuvering	52,451	0.3	2.4	53,196
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	23,083	0.1	1.0	23,411
Motor vehicles	67,490	8.5	9.8	70,700
Terminal equipment—fossil fueled	240	0.1	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2015	**187,674**	**9.4**	**14.2**	**192,266**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***58,404***	***3.1***	***4.8***	***59,958***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 2 minus NEPA baseline	***17,367***	***1.0***	***2.1***	***18,050***
Project Year 2022				
Vessel transit and maneuvering	53,786	0.3	2.4	54,550
Vessel hoteling	19,356	0.1	0.9	19,631
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	71,360	7.3	8.8	74,233
Terminal equipment—fossil fueled	240	0.0	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2022	**192,936**	**8.1**	**13.2**	**197,211**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***63,667***	***1.8***	***3.9***	***64,903***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Alternative 2 minus NEPA baseline	***19,791***	***1.0***	***2.2***	***20,479***
Project Year 2037				
Vessel transit and maneuvering	54,497	0.3	2.5	55,271
Vessel hoteling	19,699	0.1	0.9	19,979
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	80,806	8.3	10.0	84,067
Terminal equipment—fossil fueled	240	0.0	0.0	241
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2037	**203,435**	**9.1**	**14.5**	**208,114**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***74,166***	***2.8***	***5.1***	***75,806***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 2 minus NEPA baseline	***26,954***	***1.6***	***3.0***	***27,905***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

The data in Table 3.2-81 show that in each future project year, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 2 would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-82 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 2 with mitigation. The data in Table 3.2-82 show that in each future project year except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 2 would produce significant levels of GHG emissions under CEQA.

Table 3.2-82. Annual Operational GHG Emissions—Alternative 2 with Mitigation

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	42,599	0.2	1.9	43,203
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	23,399	0.1	1.1	23,731
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	0	0.0	0.0	0
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2011	**118,665**	**3.7**	**7.0**	**120,899**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***-10,604***	***-2.6***	***-2.4***	***-11,409***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 2 minus NEPA baseline	***3,997***	***0.0***	***0.2***	***4,046***
Project Year 2015				
Vessel transit and maneuvering	43,065	0.3	2.0	43,676
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	67,490	8.5	9.8	70,700
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,487	0.1	0.1	11,506

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2015	**178,660**	**9.3**	**13.3**	**182,977**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***49,390***	***3.0***	***3.9***	***50,669***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 2 minus NEPA baseline	***8,353***	***1.0***	***1.3***	***8,761***
Project Year 2022				
Vessel transit and maneuvering	43,609	0.3	2.0	44,228
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	71,360	7.3	8.8	74,233
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,672	0.1	0.1	11,691
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2022	**183,259**	**8.0**	**12.3**	**187,247**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***53,990***	***1.7***	***2.9***	***54,940***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 2 minus NEPA baseline	***10,114***	***0.9***	***1.2***	***10,516***
Project Year 2037				
Vessel transit and maneuvering	43,998	0.3	2.0	44,622
Vessel hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	80,806	8.3	10.0	84,067
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,672	0.1	0.1	11,691
Terminal equipment - electric	340	0.0	0.0	341
Electricity usage from commercial uses and Waterfront Red Car Line	25,534	0.2	0.1	25,575
Total for Project Year 2037	**193,093**	**9.0**	**13.5**	**197,476**

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 2 minus CEQA baseline	***63,824***	***2.7***	***4.2***	***65,168***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 2 minus NEPA baseline	***16,612***	***1.5***	***2.0***	***17,267***

Notes:

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

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

AMP applies to cruise ship hoteling and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely to the given total due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The data in Table 3.2-81 show that in each future project year, annual operational CO_2e emissions would increase from NEPA baseline levels.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

<u>Residual Impacts</u>

The data in Table 3.2-82 show that in each future project year, annual operational CO_2e emissions would increase from NEPA baseline levels.

3.2.4.3.4 Alternative 3—Alternative Development Scenario 3 (Reduced Project)

Alternative 3 is an alternative development scenario that provides a similar cruise ship berth as Alternative 1. Under this alternative, only one new 1,250-foot-long cruise berth would be located in the Outer Harbor at Berths 45–47 (a reduction by one berth as compared to the proposed Project).

Impact AQ-1: Alternative 3 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Table 3.2-83 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 3 before mitigation. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-83. Summary of Peak Daily Construction Emissions—Alternative 3 without Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	423	1,666	5,411	4	797	323
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 3 minus non-Federal emissions)	374	1,334	4,440	2	732	301
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2010 Peak Daily Construction Emissions	1,074	4,676	14,174	12	2,855	999
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 3 minus non-Federal emissions)	759	2,503	8,151	2	2,550	872
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	699	3,214	9,359	8	2,273	737
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 3 minus non-Federal emissions)	399	1,157	3,650	-2	1,978	615
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	527	2,225	6,637	6	1,542	510

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 3 minus non-Federal emissions)	363	1,118	3,593	1	1,384	441
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	319	1,275	3,892	3	1,045	329
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 3 minus non-Federal emissions)	237	733	2,445	1	939	286
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2014 Peak Daily Construction Emissions	218	768	2,467	2	340	144
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 3 minus non-Federal emissions)	156	372	1,429	1	303	120
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Alternative 3 would exceed the daily construction emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Despite implementation of mitigation and proposed compliance with SCAQMD Rule 403, emissions from the construction of Alternative 3 would still exceed the SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5.

Table 3.2-84 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 3 after the application of Mitigation Measures MM AQ-1 through MM AQ-5. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-84. Summary of Peak Daily Construction Emissions—Alternative 3 with Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	256	1,404	3,538	4	194	119
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 3 minus non-Federal emissions)	207	1,072	2,567	2	129	97
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2010 Peak Daily Construction Emissions	562	3,429	8,990	13	448	247
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 3 minus non-Federal emissions)	247	1,256	2,967	3	143	120
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2011 Peak Daily Construction Emissions	329	2,143	5,837	9	303	142
Thresholds	75	550	100	150	150	55

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 3 minus non-Federal emissions)	29	86	128	-1	8	20
NEPA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
2012 Peak Daily Construction Emissions	282	1,658	4,407	6	232	121
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 3 minus non-Federal emissions)	118	551	1,363	1	74	52
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
2013 Peak Daily Construction Emissions	191	1,057	2,708	3	164	87
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 3 minus non-Federal emissions)	109	515	1,261	1	58	44
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**
2014 Peak Daily Construction Emissions	151	774	1,921	2	89	64
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 3 minus non-Federal emissions)	89	378	883	1	52	40
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The NEPA incremental emissions for Alternative 3 are calculated by subtracting the NEPA baseline emissions. Alternative 3 would exceed the emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. After mitigation, emissions of PM10 would be reduced to a less-than-significant level. However, despite implementation of mitigation and proposed compliance with SCAQMD Rule 403, emissions from the construction of Alternative 3 would still exceed the SCAQMD daily thresholds for VOC, CO, NO_X, and PM2.5.

Table 3.2-84 presents a summary of the peak daily criteria pollutant emissions associated with construction of this alternative after the application of Mitigation Measures MM AQ-1 through MM AQ-5.

Impact AQ-2: Alternative 3 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Peak construction activity for Alternative 3 is similar to Alternative 1. Therefore, Alternative 3 construction dispersion results are similar to Alternative 1. For results of those impacts, refer to Section 3.2.4.3.2 and Table 3.2-34.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2, PM10, and PM2.5.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Despite implementation of Mitigation Measures MM AQ-1 through MM AQ-8, offsite ambient concentrations from construction activities would remain significant and unavoidable for NO_2, PM10, and PM2.5.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2, PM10, and PM2.5.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Despite implementation of Mitigation Measures MM AQ-1 through MM AQ-8, offsite ambient concentrations from construction activities would remain significant and unavoidable for NO_2, PM10, and PM2.5.

Impact AQ-3: Alternative 3 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Tables 3.2-85 and 3.2-86 present the unmitigated average and peak daily criteria pollutant emissions associated with operation of this alternative. Emissions were estimated for four project study years: 2011, 2015, 2022, and 2037. Comparisons to the CEQA baseline (2006) and the NEPA baseline emissions are presented for information purposes in Table 3.2-85; actual CEQA and NEPA significance is determined by the comparison of peak daily impacts to CEQA and NEPA thresholds in Table 3.2-86.

The assumptions used in calculating average operational emissions for Alternative 3 are the same as those associated with Alternative 1.

Table 3.2-85. Average Daily Operational Emissions without Mitigation—Alternative 3

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	144	300	3,670	3,195	411	329
Vessel hoteling	78	162	1,978	1,975	231	185
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.8	9	9	0.01	0.4	0.4
Total—Project Year 2011	**401**	**1,964**	**7,542**	**5,172**	**871**	**604**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Alternative 3 minus CEQA baseline	-51	-1,159	1,105	1,185	22	93
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 3 minus NEPA baseline	38	34	1,193	2,031	211	168
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	144	301	3,675	3,208	413	331
Vessel hoteling	79	166	2,014	2,019	236	189
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	136	1,383	283	3	438	89
Terminal equipment	0.6	9	7	0.01	0.3	0.3
Total—Project Year 2015	**406**	**2,398**	**7,323**	**5,231**	**1,140**	**657**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-46	-725	886	1,244	291	146
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 3 minus NEPA baseline	87	-209	3,060	4,741	390	381
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	144	301	3,647	3,208	413	331
Vessel hoteling	79	166	1,998	2,019	236	189
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	113	1,061	189	3	464	92

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Terminal equipment	0.4	9	4	0.01	0.2	0.1
Total—Project Year 2022	**382**	**2,296**	**6,903**	**5,231**	**1,163**	**657**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-70	-827	466	1,244	314	146
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 3 minus NEPA baseline	97	-39	2,966	4,740	397	385
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	144	301	3,623	3,208	413	331
Vessel hoteling	79	166	1,986	2,019	236	189
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	70	653	104	3	530	104
Terminal equipment	0.2	9	2	0.01	0.1	0.1
Total—Project Year 2037	**339**	**1,888**	**6,780**	**5,231**	**1,229**	**669**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-113	-1,235	343	1,244	380	158
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 3 minus NEPA baseline	110	124	2,977	4,740	433	392
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Notes:						

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-86 shows the peak daily emissions and impacts associated with Alternative 3. The peak daily emission estimates for operations include the following assumptions that were chosen to identify a reasonable theoretical activity scenario:

- Ships at berth: The peak day scenario assumes that the largest combination of ships in the proposed project fleet that could be simultaneously accommodated would call at the terminals.
- Trucks: Peak day truck trips generated by Alternative 3 were provided by the traffic study for each analysis year.
- Terminal equipment: The terminal equipment data was provided by the LAHD. It was assumed that approximately 29 terminal equipment (i.e., 8 diesel forklift, 19 propane forklift, and 2 fuel trucks) would operate during the peak period when all cruise ship are hoteling at the port.

Table 3.2-86. Peak Daily Operational Emissions without Mitigation—Alternative 3

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1.5	17	16	0.02	0.7	0.7
Total—Project Year 2011	**1,174**	**3,585**	**28,264**	**38,473**	**4,075**	**3,167**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	69	-918	4,329	6,384	513	485

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 3 minus NEPA baseline	66	100	1,835	2,385	248	199
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	714	1,564	18,964	26,346	2,713	2,170
Vessel hoteling	321	669	8,474	13,556	1,284	1,027
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	136	1,383	283	3	438	89
Terminal equipment	1.2	17	13	0.02	0.6	0.5
Total—Project Year 2015	**1,218**	**4,172**	**29,078**	**39,906**	**4,488**	**3,335**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	113	-331	5,143	7,818	926	653
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 3 minus NEPA baseline	339	396	10,014	19,896	1,734	1,456
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	714	1,564	18,964	26,346	2,713	2,170
Vessel hoteling	321	669	8,474	13,556	1,284	1,027
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	113	1,061	189	3	464	92
Terminal equipment	0.7	17	7	0.02	0.3	0.3
Total—Project Year 2022	**1,193**	**4,070**	**28,699**	**39,906**	**4,510**	**3,335**

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	88	-433	4,764	7,818	948	653
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 3 minus NEPA baseline	349	566	9,941	19,895	1,740	1,460
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	714	1,564	18,964	26,346	2,713	2,170
Vessel hoteling	321	669	8,474	13,556	1,284	1,027
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	70	653	104	3	530	104
Terminal equipment	0.4	17	4	0.02	0.1	0.1
Total—Project Year 2037	**1,150**	**3,662**	**28,611**	**39,906**	**4,576**	**3,347**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	45	-841	4,676	7,818	1,014	665
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 3 minus NEPA baseline	362	729	9,970	19,895	1,776	1,467
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.						
The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.						
NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.						

Table 3.2-87 shows the combined construction and operational peak daily emissions and impacts associated with the year 2011.

Table 3.2-87. Peak Daily Construction and Operational Emissions without Mitigation—Alternative 3

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Peak Daily Construction Emissions	699	3,214	9,359	8	2,273	737
Peak Daily Operational Emissions	1,174	3,585	28,264	38,473	4,075	3,167
Total—Construction & Operation—Project Year 2011	**1,873**	**6,799**	**37,623**	**38,481**	**6,348**	**3,904**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	768	2,296	13,688	6,392	2,786	1,222
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	465	1,257	5,485	2,383	2,226	814
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Alternative 3 peak daily emissions minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for all pollutants during all analysis years, with the exception of CO in years 2011, 2015, 2022, and 2037; and VOC in 2037.

In 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Tables 3.2-88 and 3.2-89 show average and peak daily operational emissions and impacts associated with Alternative 3 after mitigation. Table 3.2-90 shows the combined construction and operational peak daily emissions for 2011.

Alternative 3 peak daily mitigated emissions minus the CEQA baseline would exceed CEQA thresholds and would thus be significant under CEQA for NO_X, SO_X, PM10, and PM2.5 in 2011.

In 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Table 3.2-88. Average Daily Operational Emissions with Mitigation—Alternative 3

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	138	288	3,424	2,221	319	256
Vessel hoteling	57	119	1,402	1,098	139	111
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0.01	0.05	0.05
Total—Project Year 2011	**374**	**1,953**	**6,631**	**3,321**	**686**	**457**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-78	-1,170	194	-666	-163	-54
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 3 minus NEPA baseline	11	24	283	180	26	20

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	99	207	2,299	371	121	97
Vessel hoteling	17	35	377	108	24	20
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	136	1,383	283	3	438	89
Terminal equipment	0.1	0.3	1	0	0.03	0.03
Total—Project Year 2015	**296**	**2,242**	**4,151**	**483**	**633**	**251**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-156	-881	-2,286	-3,505	-216	-260
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 3 minus NEPA baseline	-23	-365	-112	-7	-117	-25
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	99	207	2,282	371	121	97
Vessel hoteling	17	35	374	108	24	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	113	1,061	189	3	464	92
Terminal equipment	0.1	0.3	0.4	0	0.01	0.01
Total—Project Year 2022	**269**	**2,073**	**3,853**	**483**	**651**	**247**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-183	-1,050	-2,584	-3,505	-198	-264
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 3 minus NEPA baseline	-16	-262	-83	-8	-115	-25
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	99	207	2,267	371	121	97
Vessel hoteling	17	35	372	108	24	20
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	70	653	104	3	530	104
Terminal equipment	0	0.3	0.1	0	0	0
Total—Project Year 2037	**226**	**1,665**	**3,751**	**483**	**717**	**259**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 3 minus CEQA baseline	-226	-1,458	-2,686	-3,505	-132	-252
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 3 minus NEPA baseline	-3	-99	-52	-8	-79	-18
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Hoteling emissions include regional power plant emissions from AMP electricity generation.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

1 **Table 3.2-89.** Peak Daily Operational Emissions with Mitigation—Alternative 3

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	625	1,305	16,599	23,150	2,378	1,903
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.2	0.7	3	0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,088**	**3,826**	**2,969**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	3	-1,018	2,494	4,000	264	287
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 3 minus NEPA baseline	-1	0	0	0	0	0
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	547	1,142	14,116	14,461	1,633	1,306
Vessel hoteling	178	369	4,628	6,934	671	537
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	136	1,383	283	3	438	89
Terminal equipment	0.2	0.6	2	0	0.1	0.1
Total—Project Year 2015	**905**	**3,512**	**20,219**	**21,400**	**2,792**	**1,979**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	-200	-991	-3,716	-10,689	-770	-703
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Alternative 3 minus NEPA baseline	26	-264	1,156	1,390	38	99
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	547	1,142	14,116	14,461	1,633	1,306
Vessel hoteling	178	369	4,628	6,934	671	537
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	113	1,061	189	3	464	92
Terminal equipment	0.1	0.5	0.8	0	0.03	0.02
Total—Project Year 2022	**877**	**3,343**	**19,941**	**21,400**	**2,810**	**1,974**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	-228	-1,160	-3,994	-10,689	-752	-708
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 3 minus NEPA baseline	33	-161	1,183	1,389	40	99
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	547	1,142	14,116	14,461	1,633	1,306
Vessel hoteling	178	369	4,628	6,934	671	537
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	70	653	104	3	530	104
Terminal equipment	0.1	0.5	0.2	0	0.01	0.01
Total—Project Year 2037	**834**	**2,935**	**19,856**	**21,400**	**2,876**	**1,986**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 3 minus CEQA baseline	-271	-1,568	-4,079	-10,689	-686	-696
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
<u>NEPA Impacts</u>						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 3 minus NEPA baseline	46	2	1,214	1,389	76	106
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-90. Peak Daily Construction and Operational Emissions with Mitigation—Alternative 3

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Peak Daily Construction Emissions	329	2,143	5,837	9	303	142
Peak Daily Operational Emissions	1,108	3,485	26,429	36,088	3,826	2,969
Total—Construction & Operation—Project Year 2011	**1,437**	**5,628**	**32,266**	**36,097**	**4,129**	**3,111**
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	332	1,125	8,331	4,009	567	429
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
<u>NEPA Impacts</u>						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	28	86	128	-1	8	20
Thresholds	55	550	55	150	150	55

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

NEPA Impact Determination

Alternative 3 peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all pollutants during all analysis years, with the exception of CO in 2011 and 2015.

In 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for all pollutants.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

<u>Residual Impacts</u>

Tables 3.2-88 and 3.2-89 show average and peak daily operational emissions and impacts associated with Alternative 3 after mitigation. Table 3.2-90 shows the combined construction and operational peak daily emissions for 2011.

Alternative 3 peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for NO_X, SO_X, and PM2.5 in years 2015, 2022, and 2037.

In year 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for NO_X.

Impact AQ-4: Alternative 3 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Alternative 3 dispersion results are nearly identical to Alternative 1. Refer to Section 3.2.4.3.2 for discussion and Tables 3.2-55 and 3.2-56 for results. The complete dispersion modeling report is included in Appendix D2.

CEQA Impact Determination

Operation of this alternative would produce the same results as Alternative 1. Therefore, significant impacts under CEQA would occur for NO_2 (1-hour and annual average), PM10 (annual and 24-hour average), and PM2.5 (24-hour average).

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Impacts would remain significant for NO_2 (1-hour average and annual average), PM10 (annual and 24-hour average), and PM2.5 (24-hour average).

NEPA Impact Determination

Operation of this alternative would produce the same results as Alternative 1. Therefore, significant impacts under NEPA would occur for NO_2 (1-hour and annual average), PM10 (annual and 24-hour average), and PM2.5 (24-hour average).

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Impacts would be reduced to a less than significant level for annual PM10, but would remain significant for NO_2 (1-hour and annual average), PM10 (24-hour average), and PM2.5 (24-hour average).

Impact AQ-5: Alternative 3 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

This alternative would generate traffic levels comparable to or less than the traffic generated by the proposed Project. As discussed in the proposed project analysis, CO concentrations related to onroad traffic would not exceed state CO standards for any project study year.

CEQA Impact Determination

Significant impacts under CEQA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Significant impacts under NEPA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: Alternative 3 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with this alternative would help to disperse emissions. Additionally, the distance between proposed emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Thus, the potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor.

CEQA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; therefore, significant odor impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant under CEQA.

NEPA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; therefore, significant odor impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant under NEPA.

Impact AQ-7: Alternative 3 would expose receptors to significant levels of toxic air contaminants.

The main sources of TACs from Alternative 3 operations would be DPM emissions from ships, terminal equipment, and motor vehicles. Similar to the HRA for the proposed Project, PM10 and VOC emissions were projected over a 70-year period, from 2009 through 2078. An HRA was performed over this 70-year exposure period.

Table 3.2-91 presents the maximum predicted health impacts associated with this alternative without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed receptors. Results are presented for this alternative, CEQA baseline, NEPA baseline, CEQA increment (alternative minus CEQA baseline), and NEPA increment (alternative minus the NEPA baseline).

Table 3.2-91. Maximum Health Impacts Associated with Alternative 3 without Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 3	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	357×10^{-6} (357 in a million)	379×10^{-6} (379 in a million)	**45×10^{-6} (45 in a million)**	139×10^{-6} (139 in a million)	**219×10^{-6} (219 in a million)**	10×10^{-6} (10 in a million)
	Occupational	477×10^{-6} (477 in a million)	992×10^{-6} (992 in a million)	**78×10^{-6} (78 in a million)**	171×10^{-6} (171 in a million)	**305×10^{-6} (305 in a million)**	
	Recreational	731×10^{-6} (731 in a million)	$1,522 \times 10^{-6}$ (1,522 in a million)	**119×10^{-6} (119 in a million)**	263×10^{-6} (263 in a million)	**468×10^{-6} (468 in a million)**	
	Sensitive	99×10^{-6} (99 in a million)	120×10^{-6} (120 in a million)	3×10^{-6} (3 in a million)	52×10^{-6} (52 in a million)	**60×10^{-6} (60 in a million)**	
	Student	6×10^{-6} (6 in a million)	8×10^{-6} (8 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	2×10^{-6} (2 in a million)	4×10^{-6} (4 in a million)	
Chronic Hazard	Residential	0.53	0.69	0.08	0.44	0.10	1.0
	Occupational	1.16	1.72	0.21	1.04	0.42	

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 3	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Index	Recreational	1.16	1.72	0.21	1.04	0.42	
	Sensitive	0.13	0.13	0.02	0.11	0.03	
	Student	0.13	0.11	0.02	0.10	0.03	
Acute Hazard Index	Residential	1.58	2.40	**1.37**	1.36	**1.21**	1.0
	Occupational	2.56	3.07	**2.51**	1.76	**1.46**	
	Recreational	2.56	3.07	**2.51**	1.76	**1.46**	
	Sensitive	0.86	0.51	0.73	0.44	0.68	
	Student	0.52	0.42	0.39	0.29	0.32	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 3 minus the CEQA baseline. The NEPA increment represents Alternative 3 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

CEQA Impact Determination

Table 3.2-91 shows that the maximum CEQA cancer risk increment associated with the unmitigated Alternative 3 is predicted to be 119 in a million (119×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million. The CEQA cancer risk increment would also exceed the threshold at residential and occupational receptors. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be less than the significance threshold of 1.0 at all receptors. The maximum acute hazard index CEQA increment is predicted to be greater than the significance threshold of 1.0 at recreational, residential, and occupational receptors.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-92 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 69%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 14%.

The data show that the maximum CEQA cancer risk increment after mitigation is predicted to be 32 in a million (32×10^{-6}) at a recreational receptor. This risk value is above the significance threshold of 10 in a million. The CEQA cancer risk increment would also be exceeded at an occupational receptor. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index CEQA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for occupational, recreational, and residential receptors.

Table 3.2-92. Maximum Health Impacts Associated with Alternative 3 with Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 3	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	112×10^{-6} (112 in a million)	379×10^{-6} (379 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	139×10^{-6} (139 in a million)	**19×10^{-6} (19 in a million)**	10×10^{-6} (10 in a million)
	Occupational	95×10^{-6} (95 in a million)	992×10^{-6} (992 in a million)	**21×10^{-6} (21 in a million)**	171×10^{-6} (171 in a million)	**29×10^{-6} (29 in a million)**	
	Recreational	146×10^{-6} (146 in a million)	$1{,}522 \times 10^{-6}$ (1,522 in a million)	**32×10^{-6} (32 in a million)**	263×10^{-6} (263 in a million)	**45×10^{-6} (45 in a million)**	
	Sensitive	48×10^{-6} (48 in a million)	120×10^{-6} (120 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	52×10^{-6} (52 in a million)	1×10^{-6} (1 in a million)	
	Student	2×10^{-6} (2 in a million)	8×10^{-6} (8 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	2×10^{-6} (2 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	
Chronic	Residential	0.44	0.69	0.01	0.44	0.02	1.0

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 3	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Hazard Index	Occupational	1.04	1.72	0.15	1.04	0.06	
	Recreational	1.04	1.72	0.15	1.04	0.06	
	Sensitive	0.11	0.13	0.00	0.11	0.00	
	Student	0.10	0.11	0.00	0.10	0.00	
Acute Hazard Index	Residential	1.36	2.40	**1.07**	1.36	0.91	1.0
	Occupational	1.79	3.07	**1.74**	1.76	**1.05**	
	Recreational	1.79	3.07	**1.74**	1.76	**1.05**	
	Sensitive	0.73	0.51	0.60	0.44	0.55	
	Student	0.41	0.42	0.28	0.29	0.22	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 3 minus the CEQA baseline. The NEPA increment represents Alternative 3 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

NEPA Impact Determination

Table 3.2-91 shows that the maximum NEPA cancer risk increment associated with the unmitigated Alternative 3 is predicted to be 468 in a million (468×10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million and would be considered a significant impact. The NEPA cancer risk increment would also exceed the threshold at residential, sensitive, and occupational receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be less than the significance threshold of 1.0 at all receptors. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for occupational, recreational, and residential receptors.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-92 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 69%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 14%.

The maximum NEPA cancer risk increment after mitigation is predicted to be 45 in a million (45×10^{-6}), at a recreational receptor. This risk value is above the significance threshold of 10 in a million. The NEPA cancer risk increment would also exceed the threshold at residential and occupational receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for occupational and recreational receptors.

Impact AQ-8: Alternative 3 would not conflict with or obstruct implementation of an applicable AQMP.

Similar to the proposed Project, this alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts.

CEQA Impact Determination

This alternative 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.

NEPA Impact Determination

This alternative would not conflict with or obstruct implementation of the AQMP; therefore, significant impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-9: Alternative 3 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.

Table 3.2-93 summarizes the total GHG construction emissions associated with Alternative 3. Table 3.2-79 summarizes the annual GHG emissions that would occur in California from the operation of Alternative 3 without mitigation.

Table 3.2-93. Total GHG Emissions from Construction Activities—Alternative 3 without Mitigation

	Total Emissions (Metric Tons)			
Emission Source	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Catalina Express Terminal	387.96	0.05	0.00	390.31
Cruise ship terminal Berths 91–93	0.00	0.00	0.00	0.00
Cruise ship parking facilities	1,565.24	0.22	0.02	1,574.73
North Harbor	4,213.91	0.59	0.04	4,239.47
Maritime Office Building—Crowley	234.81	0.03	0.00	236.23
Maritime Office Building—Millennium	235.05	0.03	0.00	236.47
Maritime Office Building—Lane Victory	235.05	0.03	0.00	236.47
Downtown Harbor	1,886.65	0.27	0.02	1,898.09
7th Street Harbor	1,319.76	0.19	0.01	1,327.76
7th Street Pier	1,159.91	0.16	0.01	1,166.94
Downtown Square	167.73	0.02	0.00	168.74
Downtown water feature	117.95	0.02	0.00	118.66
John S. Gibson Jr. Park	173.87	0.02	0.00	174.92
Ralph J. Scott Fireboat Museum	372.10	0.05	0.00	374.35
Los Angeles Maritime Museum renovation	0.00	0.00	0.00	0.00
Los Angeles Maritime Institute	252.83	0.04	0.00	254.36
Maritime Office Building	0.00	0.00	0.00	0.00
Ports O' Call Promenade—Phase 1	2,189.22	0.31	0.02	2,202.49
Ports O' Call Promenade—Phase 2	2,386.10	0.34	0.02	2,400.57
Ports O' Call Promenade—Phase 3	2,194.86	0.31	0.02	2,208.17

Southern Pacific Railyard demolition	282.14	0.04	0.00	283.85
Fishermen's Park	722.81	0.10	0.01	727.19
Ports O' Call redevelopment without restaurant	0.00	0.00	0.00	0.00
Ports O' Call Redevelopment Phase 1	1,081.94	0.15	0.01	1,088.50
Ports O' Call Redevelopment Phase 2	1,662.94	0.23	0.02	1,673.02
Ports O' Call Redevelopment with Restaurant	589.54	0.08	0.01	593.12
Ports O' Call Redevelopment Phase 3	850.93	0.12	0.01	856.09
Waterfront Red Car Maintenance Facility	615.44	0.09	0.01	619.17
Westway Terminal demolition	857.21	0.12	0.01	862.41
City Dock No. 1 promenade	2,448.96	0.34	0.02	2,463.82
Outer Harbor Cruise Terminal	4,434.33	0.62	0.04	4,461.22
Outer Harbor Park and promenade	1,090.88	0.15	0.01	1,097.50
San Pedro Park	1,111.59	0.16	0.01	1,118.33
Salinas De San Pedro/Youth Camp promenade	2,576.76	0.36	0.03	2,592.39
Sampson Way road improvements	886.34	0.12	0.01	891.72
Waterfront Red Car Line extension—Sampson Way	988.00	0.14	0.01	993.99
Waterfront Red Car Line extension—Cabrillo Beach	1,064.12	0.15	0.01	1,070.58
Waterfront Red Car Line extension—Outer Harbor	589.03	0.08	0.01	592.60
Waterfront Red Car Line extension—City Dock No. 1	601.82	0.08	0.01	605.47
Berth 240 fueling station	224.64	0.03	0.00	226.01
Total Emissions	**41,772.40**	**5.87**	**0.42**	**42,025.72**
NEPA Baseline	23,845.99	3.35	0.24	23,990.60
Alternative 3 minus NEPA Baseline	**17,926.41**	**2.52**	**0.18**	**18,035.12**

Notes:

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

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

Emissions may not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

1 **Table 3.2-94.** Annual Operational GHG Emissions—Alternative 3 without Mitigation

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Project Year 2011				
Vessel transit and maneuvering	52,118	0.3	2.4	52,858
Vessel hoteling	18,464	0.1	0.8	18,726
Harbor craft	25,571	0.1	1.2	25,934
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	195	1.0	0.0	216
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2011	**133,291**	**4.8**	**7.8**	**135,821**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***4,022***	***-1.5***	***-1.5***	***3,513***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 3 minus NEPA baseline	***18,623***	***1.1***	***1.0***	***18,968***
Project Year 2015				
Vessel transit and maneuvering	52,728	0.3	2.4	53,476
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	23,083	0.1	1.0	23,411
Motor vehicles	105,033	6.0	6.9	107,288
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2015	**220,196**	**6.8**	**11.3**	**223,828**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***90,927***	***0.5***	***1.9***	***91,521***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 3 minus NEPA baseline	***49,889***	***-1.6***	***-0.8***	***49,613***

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Project Year 2022				
Vessel transit and maneuvering	52,728	0.3	2.4	53,476
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	111,577	6.0	6.9	113,832
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2022	**226,317**	**6.8**	**11.2**	**229,943**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***97,047***	***0.4***	***1.9***	***97,635***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 3 minus NEPA baseline	***53,171***	***-0.4***	***0.2***	***53,211***
Project Year 2037				
Vessel transit and maneuvering	52,728	0.3	2.4	53,476
Vessel hoteling	18,876	0.1	0.9	19,144
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	127,549	5.9	7.1	129,873
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2037	**242,289**	**6.6**	**11.5**	**245,984**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***113,019***	***0.3***	***2.1***	***113,676***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 3 minus NEPA baseline	***65,807***	***-0.9***	***0.0***	***65,775***
Notes:				

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

The data in Table 3.2-94 show that in each future project year, except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 3 would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-95 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 3 with mitigation. The data in Table 3.2-95 show that in each future project year except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 3 would produce significant levels of GHG emissions under CEQA.

Table 3.2-95. Annual Operational GHG Emissions—Alternative 3 with Mitigation

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Project Year 2011				
Ships—transit	42,599	0.2	1.9	43,203
Ships—hoteling	10,106	0.1	0.5	10,249
Harbor craft	23,399	0.1	1.1	23,731
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment—fossil fueled	25	0.0	0.0	25

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
AMP electricity usage	0	0.0	0.0	0
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2011	**113,343**	**3.7**	**6.9**	**115,569**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***-15,926***	***-2.6***	***-2.4***	***-16,739***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 3 minus NEPA baseline	***-1,324***	***0.0***	***0.1***	***-1,285***
Project Year 2015				
Ships—transit	43,065	0.3	2.0	43,676
Ships—hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	105,033	6.0	6.9	107,288
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2015	**210,623**	**6.7**	**10.4**	**213,976**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***81,353***	***0.4***	***1.0***	***81,668***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 3 minus NEPA baseline	***40,316***	***-1.6***	***-1.7***	***39,760***
Project Year 2022				
Ships—transit	43,065	0.3	2.0	43,676
Ships—hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	111,577	6.0	6.9	113,832
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Total for Project Year 2022	**217,166**	**6.7**	**10.4**	**220,519**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***87,897***	***0.4***	***1.0***	***88,212***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 3 minus NEPA baseline	***44,021***	***-0.4***	***-0.7***	***43,788***
Project Year 2037				
Ships—transit	43,065	0.3	2.0	43,676
Ships—hoteling	10,106	0.1	0.5	10,249
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	127,549	5.9	7.1	129,873
Terminal equipment—fossil fueled	25	0.0	0.0	25
AMP electricity usage	11,229	0.1	0.1	11,247
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	20,282	0.2	0.1	20,315
Total for Project Year 2037	**233,139**	**6.6**	**10.6**	**236,561**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 3 minus CEQA baseline	***103,869***	***0.3***	***1.2***	***104,253***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 3 minus NEPA baseline	***56,657***	***-0.9***	***-0.9***	***56,352***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The data in Table 3.2-94 show that in each future project year, annual operational CO_2e emissions would increase from NEPA baseline levels.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

The data in Table 3.2-95 show that in each future project year except 2011, annual operational CO_2e emissions would increase from NEPA baseline levels.

3.2.4.3.5 Alternative 4—Alternative Development Scenario 4

Alternative 4 is an alternative development scenario that would eliminate the proposed North Harbor, modify the location of the associated uses that would have been located to the North Harbor (i.e., tugboats, S.S. Lane Victory), and eliminate the Outer Harbor cruise terminals.

Alternative 4 would keep the three existing cruise ship berths in the Inner Harbor. No new cruise ship berth would be located in the Outer Harbor. Therefore, Alternative 4 would be a reduction of two berths in the Outer Harbor as compared to the proposed Project.

The Crowley and Millennium Tugboat operations would be relocated to Berths 70–71 (at the existing Westway Terminal site) since the North Harbor would not be developed as part of Alternative 4.

Impact AQ-1: Alternative 4 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Table 3.2-96 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 4 before mitigation. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

1 **Table 3.2-96.** Summary of Peak Daily Construction Emissions—Alternative 4 without Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	361	1,334	4,491	4	664	270
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 4 minus non-Federal emissions)	312	1,002	3,520	2	599	248
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2010 Peak Daily Construction Emissions	1,060	4,621	13,955	12	3,088	1,041
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 4 minus non-Federal emissions)	745	2,448	7,932	2	2,783	914
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	807	3,795	10,954	10	2,793	888
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 4 minus non-Federal emissions)	507	1,738	5,245	0	2,498	766
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	425	1,947	5,653	5	1,311	432
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 4 minus non-Federal emissions)	261	840	2,609	0	1,153	363
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	218	970	2,864	3	897	269
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 4 minus	136	428	1,417	1	791	226

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
non-Federal emissions)						
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**
2014 Peak Daily Construction Emissions	166	713	2,137	2	225	109
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 4 minus non-Federal emissions)	104	317	1,099	1	188	85
NEPA Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Alternative 4 would exceed the daily construction emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Table 3.2-97 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 4 after the application of Mitigation Measures MM AQ-1 through MM AQ-5. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-97. Summary of Peak Daily Construction Emissions—Alternative 4 with Mitigation

Project Year	*Peak Daily Construction Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	234	1,230	3,067	3	179	112
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	49	332	971	2	65	22
NEPA Emissions (Alternative 4 minus non-Federal emissions)	185	898	2,096	1	114	90
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**
2010 Peak Daily Construction Emissions	551	3,366	8,828	12	463	246
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	315	2,173	6,023	10	305	127
NEPA Emissions (Alternative 4 minus non-Federal emissions)	236	1,193	2,805	2	158	119
NEPA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	363	2,421	6,615	10	353	156
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	300	2,057	5,709	10	295	122
NEPA Emissions (Alternative 4 minus non-Federal emissions)	63	364	906	0	58	34
NEPA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
2012 Peak Daily Construction Emissions	201	1,309	3,557	5	176	85
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Non-Federal Construction Emissions	164	1,107	3,044	5	158	69
NEPA Emissions (Alternative 4 minus non-Federal emissions)	37	202	513	0	18	16
NEPA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
2013 Peak Daily Construction Emissions	116	736	1,919	3	124	58
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Non-Federal Construction Emissions	82	542	1,447	2	106	43
NEPA Emissions (Alternative 4 minus non-Federal emissions)	34	194	472	1	18	15
NEPA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
2014 Peak Daily Construction Emissions	96	590	1,510	2	54	39
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Non-Federal Construction Emissions	62	396	1,038	1	37	24
NEPA Emissions (Alternative 4 minus non-Federal emissions)	34	194	472	1	17	15
NEPA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Notes:

CEQA significance is determined by comparing the peak daily construction emissions directly to the thresholds.

Non-Federal Construction Emissions include the peak daily construction emissions, construction truck trips, and workers vehicle trips associated with the no-federal-action project elements. There is no construction activity for the harbor cuts and promenades.

NEPA significance is determined first by subtracting the Non-Federal Construction Emissions (Table 3.2-10) from the peak daily construction emissions. The resulting NEPA increment represents the construction emissions beyond what would occur under a NEPA construction scenario. The NEPA increment is then compared to the thresholds.

Non-Federal Construction Emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The NEPA incremental emissions for Alternative 4 are calculated by subtracting the NEPA baseline emissions. Alternative 4 would exceed the emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 during construction. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

The residual air quality impacts would be temporary but significant. Table 3.2-97 presents the peak daily emissions associated with this alternative after mitigation. Despite implementation of mitigation and compliance with SCAQMD Rule 403, emissions from the construction of Alternative 4 would still exceed SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5.

Impact AQ-2: Alternative 4 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Dispersion modeling of onsite construction emissions for Alternative 4 was performed to assess the impact of this alternative on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2.

Table 3.2-98 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from construction without mitigation.

Table 3.2-98 shows that the maximum offsite 1-hour and 8-hour CO concentrations would not exceed the SCAQMD thresholds. The maximum offsite 1-hour NO_2 concentration and the maximum 24-hour increment increases of PM10 and PM2.5 concentrations would exceed the SCAQMD significance threshold under both CEQA and NEPA.

Table 3.2-98. Maximum Offsite Ambient Concentrations—Alternative 4 Construction without Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without Background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1-hour	263	2,676	**2,939**	**2,939**	338
CO	1-hour	4,809	10,709	15,518	15,518	23,000
	8-hour	4,008	2,074	6,082	6,082	10,000
PM10	24-hour	-	198.2	**198.2**	**158.9**	10.4
PM2.5	24-hour	-	91.8	**91.8**	**61.5**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5.

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without Background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.						

CEQA Impact Determination

Without mitigation, maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-99 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of Mitigation Measures MM AQ-1 through MM AQ-8, temporary offsite ambient concentrations from construction activities would be significant for PM10, PM2.5, and NO_2, but would be less than significant for CO.

Table 3.2-99. Maximum Offsite Ambient Concentrations—Alternative 4 Construction with Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without background) ($\mu g/m^3$)*	*CEQA Impact ($\mu g/m^3$)*	*NEPA Impact ($\mu g/m^3$)*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1-hour	263	2,579	**2,842**	**2,842**	338
CO	1-hour	4,809	10,158	14,967	14,967	23,000
	8-hour	4,008	1,986	5,994	5,994	10,000
PM10	24-hour	-	57.8	**57.8**	**36.5**	10.4
PM2.5	24-hour	-	48.2	**48.2**	**30.4**	10.4
Notes: Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values. The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact						

Pollutant	Averaging Time	Background Concentration (µg/m^3)	Maximum Concentration (without background) (µg/m^3)	CEQA Impact (µg/m^3)	NEPA Impact (µg/m^3)	SCAQMD Threshold (µg/m^3)
equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed Project concentration (without background). The NEPA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The NEPA Impact equals the incremental concentration (proposed Project minus NEPA baseline) for PM10 and PM2.5. Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles. In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling. NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.						

NEPA Impact Determination

Without mitigation, maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average) as well as for 24-hour PM10 and PM2.5. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Table 3.2-99 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. Despite implementation of Mitigation Measures MM AQ-1 through MM AQ-8, temporary offsite ambient concentrations from construction activities would be significant for NO_2, PM10, and PM2.5.

Impact AQ-3: Alternative 4 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Tables 3.2-100 and 3.2-101 present the unmitigated average and peak daily criteria pollutant emissions associated with operation of this alternative. Emissions were estimated for four project study years: 2011, 2015, 2022, and 2037. Comparisons to the CEQA baseline (2006) and the NEPA baseline emissions are presented to determine CEQA and NEPA significance, respectively. Comparisons to the CEQA and NEPA baseline emissions are presented for information purposes in Table 3.2-

100; actual CEQA and NEPA significance is determined by the comparison of peak daily impacts to CEQA and NEPA thresholds in Table 3.2-101.

The operational emissions associated with this alternative assume the following activity levels:

- Operation of three berths at the Inner Harbor Cruise Terminal for the life of the proposed Project.
- Annual ship calls under this alternative are estimated to be 269 calls in 2011 and 275 calls thereafter.
- Average emissions from cruise ships assume the use of 2.7% sulfur fuel.
- Peak emissions from cruise ships assume the use of 4.5% sulfur fuel.
- Peak daily emissions assume that all available berths would be occupied on any given day.
- Harbor craft activity levels would not change from 2006 operations. However, since the Crawley and Millennium tugboats would be relocated to the Berths 70–71 (at the existing Westway Terminal site), their transit time to the harbor gate would be reduced in comparison to existing conditions.
- Environmental measures for cruise ships and harbor craft considered part of this alternative would be the same as those considered for the proposed Project (listed in Table 3.2-8).

Table 3.2-101 shows the peak daily operational emissions and impacts associated with Alternative 4. The peak daily emission estimates for operations include the following assumptions that were chosen to identify a maximum theoretical activity scenario:

- Ships at berth: The peak day scenario assumes that the largest combination of ships in the proposed project fleet that could be simultaneously accommodated at the wharf would call at the terminal.
- Trucks: Peak day truck trips generated by the proposed Project were provided by the traffic study for each analysis year.
- Terminal equipment: The terminal equipment data was provided by the LAHD. It was assumed that approximately 29 pieces of terminal equipment (i.e., 8 diesel forklifts, 19 propane forklifts, and 2 fuel trucks) would operate during the peak period when all cruise ship are hoteling at the port.

Table 3.2-102 shows the combined construction and operational emissions and impacts in 2011 due to the overlap of construction and operational activities.

1 **Table 3.2-100.** Average Daily Operational Emissions without Mitigation—Alternative 4

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	134	279	3,421	2,982	383	307
Vessel hoteling	75	156	1,898	1,907	222	178
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.8	9	9	0.01	0.4	0.4
Total—Project Year 2011	**388**	**1,937**	**7,212**	**4,891**	**834**	**575**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-64	-1,186	775	904	-15	64
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 4 minus NEPA baseline	25	8	864	1,750	174	138
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	137	286	3,482	3,049	392	313
Vessel hoteling	76	159	1,932	1,949	227	182
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	158	1,763	361	4	559	113
Terminal equipment	0.6	9	7	0.01	0.3	0.3
Total—Project Year 2015	**418**	**2,756**	**7,126**	**5,003**	**1,230**	**657**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-34	-367	689	1,016	381	146
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 4 minus NEPA baseline	99	148	2,863	4,513	480	381
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	137	286	3,455	3,049	392	313
Vessel hoteling	76	159	1,917	1,949	227	182
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	128	1,333	237	4	583	116
Terminal equipment	0.4	9	4	0.01	0.2	0.1
Total—Project Year 2022	**386**	**2,546**	**6,679**	**5,003**	**1,251**	**656**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-66	-577	242	1,016	402	145
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272
Alternative 4 minus NEPA baseline	101	210	2,742	4,512	485	384
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	137	286	3,433	3,049	392	313
Vessel hoteling	76	159	1,905	1,949	227	182
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	72	756	120	4	613	121
Terminal equipment	0.2	9	2	0.01	0.1	0.1
Total—Project Year 2037	**330**	**1,969**	**6,525**	**5,003**	**1,281**	**661**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Alternative 4 minus CEQA baseline	-122	-1,154	88	1,016	432	150
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 4 minus NEPA baseline	101	204	2,722	4,512	485	384
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add to the given total due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-101. Peak Daily Operational Emissions without Mitigation—Alternative 4

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1.5	17	16	0.02	0.7	0.7
Total—Project Year 2011	**1,174**	**3,585**	**28,264**	**38,473**	**4,075**	**3,167**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	69	-918	4,329	6,384	513	485

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 4 minus NEPA baseline	66	100	1,835	2,385	248	199
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	158	1,763	361	4	559	113
Terminal equipment	1.2	17	13	0.02	0.6	0.5
Total—Project Year 2015	**1,199**	**4,394**	**28,081**	**38,476**	**4,457**	**3,238**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	94	-109	4,146	6,387	895	556
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 4 minus NEPA baseline	321	618	9,017	18,466	1,703	1,359
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	128	1,333	237	4	583	116
Terminal equipment	0.7	17	7	0.02	0.3	0.3
Total—Project Year 2022	**1,168**	**4,184**	**27,672**	**38,476**	**4,478**	**3,238**

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	63	-319	3,737	6,387	916	556
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 4 minus NEPA baseline	324	680	8,914	18,465	1,708	1,363
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	72	756	120	4	613	121
Terminal equipment	0.4	17	4	0.02	0.1	0.1
Total—Project Year 2037	**1,111**	**3,607**	**27,552**	**38,476**	**4,508**	**3,243**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	6	-896	3,617	6,387	946	561
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 4 minus NEPA baseline	323	674	8,911	18,465	1,708	1,363
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.						

Table 3.2-102. Peak Daily Construction and Operational Emissions without Mitigation—Alternative 4

	Peak Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Peak Daily Construction Emissions	807	3,795	10,954	10	2,793	888
Peak Daily Operational Emissions	1,174	3,585	28,264	38,473	4,075	3,167
Total—Construction & Operation—Project Year 2011	**1,981**	**7,380**	**39,218**	**38,483**	**6,868**	**4,055**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	876	2,877	15,283	6,394	3,306	1,373
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA Baseline	573	1,838	7,080	2,385	2,746	965
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Alternative 4 peak daily emissions minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for all pollutants except CO during all analysis years and VOC in 2037.

In year 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Tables 3.2-103 and 3.2-104 show average and peak daily operational emissions and impacts associated with Alternative 4 after mitigation. Table 3.2-105 shows the combined construction and operational peak daily emissions for 2011.

Alternative 4 peak daily mitigated emissions minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for NO_X, SO_X, PM10, and PM2.5 in 2011.

In 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Table 3.2-103. Average Daily Operational Emissions with Mitigation—Alternative 4

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	129	269	3,196	2,077	298	239
Vessel hoteling	55	114	1,345	1,062	134	107
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0.01	0.05	0.05
Total—Project Year 2011	**363**	**1,929**	**6,348**	**3,141**	**660**	**436**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-89	-1,194	-89	-846	-189	-75
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	363	1,929	6,348	3,141	660	436
Alternative 4 minus NEPA baseline	0	0	0	0	0	-1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2015						
Vessel transit and maneuvering	96	200	2,217	359	117	93
Vessel hoteling	22	45	497	127	31	25
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	158	1,763	361	4	559	113
Terminal equipment	0.1	0.3	1	0	0.03	0.03
Total—Project Year 2015	**320**	**2,626**	**4,267**	**491**	**756**	**277**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-132	-497	-2,170	-3,497	-93	-234
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	319	2,608	4,263	490	750	276
Alternative 4 minus NEPA baseline	1	18	4	1	6	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	96	200	2,200	359	117	93
Vessel hoteling	22	45	493	127	31	25
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	128	1,333	237	4	583	116
Terminal equipment	0.1	0.3	0.4	0	0.01	0.01
Total—Project Year 2022	**286**	**2,349**	**3,939**	**491**	**772**	**273**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-166	-774	-2,498	-3,497	-77	-238
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	285	2,335	3,937	491	766	272

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Alternative 4 minus NEPA baseline	1	13	2	0	6	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	96	200	2,186	359	117	93
Vessel hoteling	22	45	490	127	31	25
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	72	756	120	4	613	121
Terminal equipment	0	0.3	0.1	0	0	0
Total—Project Year 2037	**230**	**1,772**	**3,804**	**491**	**802**	**278**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 4 minus CEQA baseline	-222	-1,351	-2,633	-3,497	-47	-233
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	229	1,765	3,803	491	796	277
Alternative 4 minus NEPA baseline	1	7	1	0	6	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-104. Peak Daily Operational Emissions with Mitigation—Alternative 4

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	625	1,305	16,599	23,150	2,378	1,903
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.2	0.7	3	0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,088**	**3,826**	**2,969**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	3	-1,018	2,494	4,000	264	287
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,108	3,485	26,429	36,088	3,826	2,969
Alternative 4 minus NEPA baseline	-1	0	0	0	0	0
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	509	1,063	13,129	13,384	1,513	1,210
Vessel hoteling	168	350	4,385	6,622	638	511
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	158	1,763	361	4	559	113
Terminal equipment	0.2	0.6	2	0	0.1	0.1
Total—Project Year 2015	**880**	**3,794**	**19,068**	**20,011**	**2,760**	**1,880**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	-225	-709	-4,867	-12,077	-802	-802
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
NEPA Impacts						
NEPA baseline emissions	879	3,776	19,064	20,010	2,754	1,879
Alternative 4 minus NEPA baseline	1	18	4	1	6	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	509	1,063	13,129	13,384	1,513	1,210
Vessel hoteling	168	350	4,385	6,622	638	511
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	128	1,333	237	4	583	116
Terminal equipment	0.1	0.5	0.8	0	0.03	0.02
Total—Project Year 2022	**845**	**3,517**	**18,760**	**20,011**	**2,776**	**1,876**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 4 minus CEQA baseline	-260	-986	-5,175	-12,077	-786	-806
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA Impacts						
NEPA baseline emissions	844	3,504	18,758	20,011	2,770	1,875
Alternative 4 minus NEPA baseline	1	13	2	0	6	1
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	509	1,063	13,129	13,384	1,513	1,210
Vessel hoteling	168	350	4,385	6,622	638	511
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	72	756	120	4	613	121
Terminal equipment	0.1	0.5	0.2	0	0.01	0.01
Total—Project Year 2037	**789**	**2,940**	**18,642**	**20,011**	**2,806**	**1,881**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Alternative 4 minus CEQA baseline	-316	-1,563	-5,293	-12,077	-756	-801
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
NEPA baseline emissions	788	2,933	18,641	20,011	2,800	1,880
Alternative 4 minus NEPA baseline	16	-849	-316	149	114	17
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-105. Peak Daily Construction and Operational Emissions with Mitigation—Alternative 4

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Peak Daily Construction Emissions	363	2,421	6,615	10	353	156
Peak Daily Operational Emissions	1,108	3,485	26,429	36,088	3,826	2,969
Total—Construction & Operation—Project Year 2011	**1,471**	**5,906**	**33,044**	**36,098**	**4,179**	**3,125**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	366	1,403	9,109	4,010	617	443
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Impacts						
NEPA baseline emissions	1,408	5,542	32,138	36,098	4,121	3,091
Project Year 2011 minus NEPA	62	364	906	0	58	34

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Baseline						
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**

Notes:

Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

Truck, ship, and worker commute emissions include transport within the SCAB.

Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

Alternative 4 peak daily emissions minus the NEPA baseline would exceed NEPA thresholds and would therefore be significant under NEPA for all pollutants during all analysis years, with the exception of CO in 2011.

In 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would therefore be significant under NEPA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Tables 3.2-103 and 3.2-104 show average daily and peak daily criteria pollutant emissions for each study year and impacts associated with Alternative 4 after mitigation. Alternative 4 peak daily mitigated emissions minus the NEPA baseline would be below NEPA thresholds and thus not significant under NEPA for all pollutants during all analysis years.

In 2011, the combined construction and operational emissions minus the NEPA baseline would exceed NEPA emission thresholds and would thus be significant under NEPA for VOC and NO_X.

Impact AQ-4: Alternative 4 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Dispersion modeling of onsite and offsite operational emissions for Alternative 4 was performed to assess the impact of Alternative 4 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2. Table 3.2-106 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 4 without mitigation. Table 3.2-107 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments without mitigation.

Table 3.2-106. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 4 without Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 4 (µg/m³)*	*Background Concentration (µg/m³)*	*Total Ground-Level Concentration (µg/m³)*	*SCAQMD Threshold (µg/m³)*
NO_2	1-hour	1,131	263	**1,394**	338
	Annual	63	53	**116**	56.4
CO	1-hour	5,645	4,809	10,454	23,000
	8-hour	2,133	4,008	6,141	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-107. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 4 without Mitigation

	Maximum Modeled Concentration of Alternative 4 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Maximum Modeled Concentration of NEPA Baseline (µg/m³)*	*Ground-Level Concentration CEQA Increment (µg/m³)*	*Ground-Level Concentration NEPA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour	34.3	32.3	22.8	**9.4**	**14.7**	2.5
PM10 annual	6.8	4.3	6.5	**2.5**	**1.3**	1.0

average						
PM2.5 24-hour	26.9	25.8	17.1	**7.0**	**11.8**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 4 minus the CEQA baseline. The NEPA increment represents Alternative 4 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

Operation of this alternative would produce significant offsite ambient concentrations for NO_2 (1-hour and annual), PM10 (24-hour and annual) and PM2.5 (24-hour). Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-107 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 4 after mitigation. Table 3.2-109 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations after mitigation are expected to remain significant under CEQA for NO_2 (1-hour and annual) and PM10 (24-hour and annual). Maximum offsite concentrations would be reduced to less than significant for PM2.5 (24-hour).

Table 3.2-108. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 4 with Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 4 (μg/m³)*	*Background Concentration (μg/m³)*	*Total Ground-Level Concentration (μg/m³)*	*SCAQMD Threshold (μg/m³)*
NO_2	1-hour	836	263	**1,099**	338
	Annual	45	53	**98**	56.4
CO	1-hour	5,580	4,809	10,389	23,000
	8-hour	2,120	4,008	6,128	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, and 2006 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-109. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 4 with Mitigation

	Maximum Modeled Concentration of Alternative 4 (μg/m³)	*Maximum Modeled Concentration of CEQA Baseline (μg/m³)*	*Maximum Modeled Concentration of NEPA baseline (μg/m³)*	*Ground-Level Concentration CEQA Increment (μg/m³)*	*Ground-Level Concentration NEPA Increment (μg/m³)*	*SCAQMD Threshold (μg/m³)*
PM10 24-hour	21.4	32.3	22.8	**3.5**	0.1	2.5
PM10 annual average	5.6	4.3	6.5	**1.4**	<0.1	1.0
PM2.5 24-hour	15.8	25.8	17.1	2.1	0.1	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 4 minus the CEQA baseline. The NEPA increment represents Alternative 4 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

Operation of this alternative would produce significant offsite ambient concentrations for NO_2 (1-hour and annual), PM10 (24-hour and annual), and PM2.5 (24-hour). Therefore, significant impacts under NEPA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-108 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 4 after mitigation. Table 3.2-109 shows the maximum CEQA and NEPA PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations after mitigation are expected to remain significant under NEPA for NO_2 (1-hour and annual). Impacts would be reduced to less-than-significant levels for PM10 (24-hour and annual) and PM2.5 (24-hour).

Impact AQ-5: Alternative 4 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

This alternative would generate less truck traffic than the proposed Project for all analysis years. As discussed in the proposed project analysis, CO concentrations related to onroad traffic would not exceed state CO standards for any project study year.

CEQA Impact Determination

Significant impacts under CEQA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Significant impacts under NEPA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: Alternative 4 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with this alternative would help to disperse emissions. Additionally, the distance between proposed emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Thus, the potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor.

CEQA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; therefore, significant odor impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

The potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor; therefore, significant odor impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-7: Alternative 4 would expose receptors to significant levels of toxic air contaminants.

The main sources of TACs from Alternative 4 operations would be DPM emissions from ships, harbor craft, terminal equipment, and motor vehicles. Similar to the HRA for the proposed Project, DPM, PM10, and VOC emissions were projected over a 70-year period, from 2009 through 2078. An HRA was performed over this 70-year exposure period.

Table 3.2-110 presents the maximum predicted health impacts associated with this alternative without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed receptors. Results are presented for this alternative, CEQA baseline, NEPA baseline, CEQA increment (alternative minus CEQA baseline), and NEPA increment (alternative minus the NEPA baseline).

Table 3.2-110. Maximum Health Impacts Associated with Alternative 4 without Mitigation, 2009–2078

		Maximum Predicted Impact					
Health Impact	*Receptor Type*	*Alternative 4*	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	*Significance Threshold*
Cancer Risk	Residential	500 x 10^{-6} (500 in a million	379 x 10^{-6} (379 in a million)	**140 x 10^{-6} (140 in a million)**	139 x 10^{-6} (139 in a million)	**362 x 10^{-6} (362 in a million)**	10 × 10^{-6} (10 in a million)
	Occupational	925 x 10^{-6} (925 in a million	992 x 10^{-6} (992 in a million)	**82 x 10^{-6} (82 in a million)**	171 x 10^{-6} (171 in a million)	**754 x 10^{-6} (754 in a million)**	
	Recreational	1,419 x 10^{-6} (1,419 in a million	1,522 x 10^{-6} (1,522 in a million)	**126 x 10^{-6} (126 in a million)**	263 x 10^{-6} (263 in a million)	**1,156 x 10^{-6} (1,156 in a million)**	
	Sensitive	144 x 10^{-6} (144 in a million	120 x 10^{-6} (120 in a million)	**23 x 10^{-6} (23 in a million)**	52 x 10^{-6} (52 in a million)	**105 x 10^{-6} (105 in a million)**	
	Student	9 x 10^{-6} (9 in a million	8 x 10^{-6}(8 in a million)	1 x 10^{-6} (1 in a million)	2 x 10^{-6} (2 in a million)	7 x 10^{-6} (7 in a million)	
Chronic Hazard Index	Residential	0.53	0.69	0.09	0.44	0.21	1.0
	Occupational	1.17	1.72	0.15	1.04	0.91	
	Recreational	1.17	1.72	0.15	1.04	0.91	
	Sensitive	0.13	0.13	0.02	0.11	0.06	
	Student	0.13	0.11	0.02	0.10	0.06	
Acute Hazard Index	Residential	1.64	2.40	**1.42**	1.36	**1.26**	1.0
	Occupational	2.56	3.07	**2.51**	1.76	**1.46**	
	Recreational	2.56	3.07	**2.51**	1.76	**1.46**	
	Sensitive	0.86	0.51	0.73	0.44	0.68	
	Student	0.53	0.42	0.40	0.29	0.33	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Alternative 4	CEQA Baseline	CEQA Increment	NEPA Baseline	NEPA Increment	

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 3 minus the CEQA baseline. The NEPA increment represents Alternative 3 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

CEQA Impact Determination

Table 3.2-110 shows that the maximum CEQA cancer risk increment associated with the unmitigated Alternative 4 is predicted to be 140 in a million (140×10^{-6}), at a residential receptor. This risk value exceeds the significance criterion of 10 in a million. The CEQA cancer risk increment would also exceed the threshold at recreational, occupational, and sensitive receptors. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0 at all receptors. The maximum acute hazard index CEQA increment is predicted to be greater than the significance threshold of 1.0 at the residential, occupational, and recreational receptors. These exceedances are considered significant impacts under CEQA.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-111 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 72%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 17%.

The data show that the maximum CEQA cancer risk increment after mitigation is predicted to be less than 1 in a million at all receptors. Therefore, the CEQA cancer risk increment would be less than significant.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index CEQA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for the residential, occupational, and recreational receptors.

Table 3.2-111. Maximum Health Impacts Associated with Alternative 4 with Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*					*Significance Threshold*
		Alternative 4	*CEQA Baseline*	*CEQA Increment*	*NEPA Baseline*	*NEPA Increment*	
Cancer Risk	Residential	139 x 10^{-6} (139 in a million)	379 x 10^{-6} (379 in a million)	<1 x 10^{-6} (<1 in a million)	139 x 10^{-6} (139 in a million)	3 x 10^{-6} (3 in a million)	10 × 10^{-6} (10 in a million)
	Occupational	172 x 10^{-6} (172 in a million)	992 x 10^{-6} (992 in a million)	<1 x 10^{-6} (<1 in a million)	171 x 10^{-6} (171 in a million)	2 x 10^{-6} (2 in a million)	
	Recreational	263 x 10^{-6} (263 in a million)	1,522 x 10^{-6} (1,522 in a million)	<1 x 10^{-6} (<1 in a million)	263 x 10^{-6} (263 in a million)	3 x 10^{-6} (3 in a million)	
	Sensitive	53 x 10^{-6} (53 in a million)	120 x 10^{-6} (120 in a million)	<1 x 10^{-6} (<1 in a million)	52 x 10^{-6} (52 in a million)	<1 x 10^{-6} (<1 in a million)	
	Student	2 x 10^{-6} (2 in a million)	8 x 10^{-6} (8 in a million)	<1 x 10^{-6} (<1 in a million)	2 x 10^{-6} (2 in a million)	<1 x 10^{-6} (<1 in a million)	
Chronic Hazard Index	Residential	0.44	0.69	0.04	0.44	0.01	1.0
	Occupational	1.04	1.72	0.13	1.04	0.05	
	Recreational	1.04	1.72	0.13	1.04	0.05	
	Sensitive	0.11	0.13	0.00	0.11	0.00	
	Student	0.10	0.11	0.00	0.10	0.00	
Acute Hazard Index	Residential	1.36	2.40	**1.10**	1.36	0.94	1.0
	Occupational	1.79	3.07	**1.74**	1.76	**1.04**	
	Recreational	1.79	3.07	**1.74**	1.76	**1.04**	
	Sensitive	0.73	0.51	0.60	0.44	0.55	
	Student	0.41	0.42	0.28	0.29	0.22	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact.

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Alternative 4	CEQA Baseline	CEQA Increment	NEPA Baseline	NEPA Increment	
The example given in Table 3.2-36 above illustrates how the increments are calculated. The CEQA increment represents Alternative 3 minus the CEQA baseline. The NEPA increment represents Alternative 3 minus the NEPA baseline. NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5. Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values. The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate. For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content							

NEPA Impact Determination

Table 3.2-110 shows that the maximum NEPA cancer risk increment associated with the unmitigated Alternative 4 is predicted to be 1,156 in a million (1,156 × 10^{-6}), at a recreational receptor. This risk value exceeds the significance criterion of 10 in a million. The NEPA cancer risk increment also would exceed the threshold at occupational, residential, and sensitive receptors. These exceedances are considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be less than the significance threshold of 1.0 at all receptors. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for the residential, occupational, and recreational receptors.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-111 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 72%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 17%.

The data show that the maximum NEPA cancer risk increment after mitigation is predicted to be 3 in a million (3 × 10^{-6}), at a recreational receptor. This risk value is below the significance threshold of 10 in a million. The NEPA cancer risk increments are not exceeded at any receptors and are therefore not considered significant impacts under NEPA.

The maximum chronic hazard index NEPA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index NEPA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for occupational and recreational receptors.

Impact AQ-8: Alternative 4 would not conflict with or obstruct implementation of an applicable AQMP.

Similar to the proposed Project, this alternative would comply with SCAQMD rules and regulations, and would be consistent with SCAG regional employment and population growth forecasts. Thus, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

This alternative 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.

NEPA Impact Determination

This alternative would not conflict with or obstruct implementation of the AQMP; therefore, significant impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-9: Alternative 4 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.

Table 3.2-112 summarizes the total GHG construction emissions associated with Alternative 4. Table 3.2-113 summarizes the annual GHG emissions that would occur within California from the operation of this alternative without mitigation.

1 **Table 3.2-112.** Total GHG Emissions from Construction Activities—Alternative 4 without Mitigation

Emission Source	*Total Emissions (Metric Tons)*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Catalina Express Terminal	387.96	0.05	0.00	390.31
Cruise ship terminal Berths 91–93	987.57	0.14	0.01	993.56
Cruise ship parking facilities	782.62	0.11	0.01	787.36
North Harbor	0.00	0.00	0.00	0.00
Maritime Office Building—Crowley	0.00	0.00	0.00	0.00
Maritime Office Building—Millennium	0.00	0.00	0.00	0.00
Maritime Office Building—Lane Victory	235.05	0.03	0.00	236.47
Downtown Harbor	1,886.65	0.27	0.02	1,898.09
7th Street Harbor	1,319.76	0.19	0.01	1,327.76
7th Street Pier	1,159.91	0.16	0.01	1,166.94
Downtown Square	167.73	0.02	0.00	168.74
Downtown water feature	117.95	0.02	0.00	118.66
John S. Gibson Jr. Park	173.87	0.02	0.00	174.92
Ralph J. Scott Fireboat Museum	372.10	0.05	0.00	374.35
Los Angeles Maritime Museum renovation	0.00	0.00	0.00	0.00
Los Angeles Maritime Institute	252.83	0.04	0.00	254.36
Maritime Office Building	0.00	0.00	0.00	0.00
Ports O' Call Promenade—Phase 1	2,189.22	0.31	0.02	2,202.49
Ports O' Call Promenade—Phase 2	2,386.10	0.34	0.02	2,400.57
Ports O' Call Promenade—Phase 3	2,194.86	0.31	0.02	2,208.17
Southern Pacific Railyard demolition	282.14	0.04	0.00	283.85
Fishermen's Park	722.81	0.10	0.01	727.19
Ports O' Call redevelopment without restaurant	0.00	0.00	0.00	0.00
Ports O' Call Redevelopment Phase 1	2,163.88	0.30	0.02	2,177.00
Ports O' Call Redevelopment Phase 2	3,325.88	0.47	0.03	3,346.05
Ports O' Call Redevelopment with Restaurant	589.54	0.08	0.01	593.12
Ports O' Call Redevelopment Phase 3	1,701.85	0.24	0.02	1,712.18
Waterfront Red Car Maintenance Facility	615.44	0.09	0.01	619.17
Westway Terminal demolition	857.21	0.12	0.01	862.41
City Dock No. 1 promenade	2,448.96	0.34	0.02	2,463.82
Outer Harbor Cruise Terminal	0.00	0.00	0.00	0.00

Emission Source	*Total Emissions (Metric Tons)*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Outer Harbor Park and promenade	1,090.88	0.15	0.01	1,097.50
San Pedro Park	1,111.59	0.16	0.01	1,118.33
Salinas De San Pedro/Youth Camp promenade	2,576.76	0.36	0.03	2,592.39
Sampson Way road improvements	886.34	0.12	0.01	891.72
Waterfront Red Car Line extension—Sampson Way	988.00	0.14	0.01	993.99
Waterfront Red Car Line extension—Cabrillo Beach	1,064.12	0.15	0.01	1,070.58
Waterfront Red Car Line extension—Outer Harbor	589.03	0.08	0.01	592.60
Waterfront Red Car Line extension—City Dock No. 1	601.82	0.08	0.01	605.47
Berth 240 fueling station	224.64	0.03	0.00	226.01
Total Emissions	**36,455.06**	**5.12**	**0.37**	**36,676.13**
NEPA Baseline	23,845.99	3.35	0.24	23,990.60
Alternative 4 minus NEPA Baseline	**12,609.07**	**1.77**	**0.13**	**12,685.53**

Notes:

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

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

Emissions may not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

Table 3.2-113. Annual Operational GHG Emissions—Alternative 4 without Mitigation

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	48,486	0.3	2.2	49,174
Vessel hoteling	17,791	0.1	0.8	18,043
Harbor craft	25,571	0.1	1.2	25,934
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment - fossil fueled	195	0.0	0.0	196

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2011	**133,680**	**3.9**	**7.7**	**136,137**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***4,411***	***-2.5***	***-1.7***	***3,829***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 4 minus NEPA baseline	***19,013***	***0.2***	***0.9***	***19,284***
Project Year 2015				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	23,083	0.1	1.0	23,411
Motor vehicles	57,615	7.6	8.7	60,459
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2015	**173,625**	**8.3**	**12.9**	**177,798**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***44,355***	***2.0***	***3.5***	***45,491***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 4 minus NEPA baseline	***3,318***	***0.0***	***0.9***	***3,583***
Project Year 2022				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	63,278	6.5	7.8	65,825
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Total for Project Year 2022	**178,864**	**7.2**	**12.0**	**182,735**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***49,594***	***0.9***	***2.6***	***50,427***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 4 minus NEPA baseline	***5,719***	***0.1***	***0.9***	***6,004***
Project Year 2037				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	66,613	6.8	8.2	69,301
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2037	**182,199**	**7.6**	**12.4**	**186,211**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***52,929***	***1.3***	***3.1***	***53,903***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 4 minus NEPA baseline	***5,717***	***0.1***	***0.9***	***6,002***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

CEQA Impact Determination

The data in Table 3.2-113 show that in each future project year after 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 4 would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-114 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 4 with mitigation. The data in Table 3.2-114 show that in each future project year except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 4 would produce significant levels of GHG emissions under CEQA.

Table 3.2-114. Annual Operational GHG Emissions—Alternative 4 with Mitigation

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	39,639	0.2	1.8	40,202
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	23,399	0.1	1.1	23,731
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	0	0.0	0.0	0
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2011	**114,725**	**3.7**	**6.8**	**116,911**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***-14,544***	***-2.6***	***-2.6***	***-15,397***
NEPA baseline	*114,668*	*3.7*	*6.8*	*116,853*
Alternative 4 minus NEPA baseline	***58***	***0.0***	***0.0***	***58***
Project Year 2015				

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Vessel transit and maneuvering	40,071	0.2	1.8	40,640
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	57,615	7.6	8.7	60,459
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	14,830	0.1	0.1	14,853
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2015	**168,154**	**8.3**	**12.0**	**172,061**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***38,884***	***2.0***	***2.7***	***39,753***
NEPA baseline	*170,307*	*8.3*	*12.0*	*174,215*
Alternative 4 minus NEPA baseline	***-2,153***	***0.0***	***0.0***	***-2,154***
Project Year 2022				
Vessel transit and maneuvering	40,071	0.2	1.8	40,640
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	63,278	6.5	7.8	65,825
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	14,830	0.1	0.1	14,853
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2022	**173,817**	**7.2**	**11.2**	**177,428**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***44,547***	***0.9***	***1.8***	***45,120***
NEPA baseline	*173,145*	*7.1*	*11.1*	*176,731*
Alternative 4 minus NEPA baseline	***671***	***0.1***	***0.1***	***696***
Project Year 2037				

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Vessel transit and maneuvering	40,071	0.2	1.8	40,640
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	66,613	6.8	8.2	69,301
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	14,830	0.1	0.1	14,853
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2037	**177,151**	**7.6**	**11.6**	**180,903**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 4 minus CEQA baseline	***47,882***	***1.3***	***2.2***	***48,596***
NEPA baseline	*176,482*	*7.5*	*11.5*	*180,209*
Alternative 4 minus NEPA baseline	***670***	***0.1***	***0.1***	***694***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA baseline emissions include as proposed project elements the same mitigation measures identified for Alternative 5.

NEPA Impact Determination

The data in Table 3.2-113 show that in each future project year, annual operational CO_2e emissions would increase from NEPA baseline levels.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

The data in Table 3.2-114 show that in each future project year except 2015, annual operational CO_2e emissions would increase from NEPA baseline levels.

3.2.4.3.6 Alternative 5—No-Federal-Action Alternative

The No-Federal-Action Alternative (Alternative 5) includes the construction and operational impacts likely to occur absent USACE permits (i.e., air emissions and traffic likely to occur without issuance of permits to modify wharves or dredge).

The No-Federal-Action Alternative eliminates all of the proposed project elements that would require a federal permit or other substantial federal interest, such as property or funding. Such elements include all harbor cuts and dredging activities; removal of existing and construction of new bulkheads, wharves, pilings, piers, rock slope protection, floating docks, and promenades that cover waters of the United States; and ocean disposal of dredge material. Landside construction activities within 100 feet of the shoreline necessary to complete the in-water activities also would be within the USACE's regulatory purview. Additionally, the Outer Harbor cruise terminals, which are upland components, are included in the scope of federal review because they would not be constructed if a permit were not issued by the USACE for the cruise berth upgrades.

Impact AQ-1: Alternative 5 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Construction of the No-Federal-Action Alternative would be similar to the proposed Project, except that the harbor and promenade components would not be built.

Table 3.2-115 presents a summary of the peak daily criteria pollutant emissions associated with construction of Alternative 5 without mitigation. This table contains peak daily construction emissions for each project year, as well as CEQA and NEPA significance determinations. Maximum emissions for each construction phase were determined by totaling the daily emissions from those construction activities that occur simultaneously in the proposed construction schedule (Table 2-5). Detailed tables of emissions for each proposed project activity can be found in Appendix D1. In addition, Appendix D6 contains data on emission levels for each construction equipment type in each proposed project activity.

Table 3.2-115. Summary of Peak Daily Construction Emissions—Alternative 5 without Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	126	631	1,826	2	340	120

Project Year	Peak Daily Construction Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2010 Peak Daily Construction Emissions	759	3,680	10,468	10	2,568	824
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	717	3,459	9,854	9	2,479	789
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	375	1,770	5,075	5	1,279	408
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	173	803	2,333	2	865	246
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2014 Peak Daily Construction Emissions	120	547	1,607	1	193	86
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**

CEQA Impact Determination

Alternative 5 would exceed the daily construction emission thresholds for VOC, CO, NO_X, PM10, and PM2.5 without mitigation. Therefore, impacts would be significant.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

After mitigation and compliance with SCAQMD Rule 403, emissions from Alternative 5 would continue to exceed SCAQMD daily thresholds for VOC, CO, NO_X, PM10, and PM2.5, as shown in Table 3.2-116. Impacts under CEQA would be temporary but significant.

Table 3.2-116. Summary of Peak Daily Construction Emissions—Alternative 5 with Mitigation

	Peak Daily Construction Emissions (lb/day)					
Project Year	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
2009 Peak Daily Construction Emissions	49	332	971	2	65	22
Thresholds	75	550	100	150	150	55
CEQA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
2010 Peak Daily Construction Emissions	315	2,173	6,023	10	305	127
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2011 Peak Daily Construction Emissions	300	2,057	5,709	10	295	122
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2012 Peak Daily Construction Emissions	164	1,107	3,044	5	158	69
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2013 Peak Daily Construction Emissions	82	542	1,447	2	106	43
Thresholds	75	550	100	150	150	55
CEQA Significant?	**Yes**	**No**	**Yes**	**No**	**No**	**No**
2014 Peak Daily Construction Emissions	62	396	1,038	1	37	24
Thresholds	75	550	100	150	150	55
CEQA Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-2: Alternative 5 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Dispersion modeling of onsite construction emissions was performed to assess the impact of this alternative on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2.

Table 3.2-117 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from construction without mitigation. The table shows that the maximum offsite 1-hour and 8-hour CO concentrations would not exceed SCAQMD thresholds. The maximum offsite 1-hour NO_2 concentration and the maximum offsite 24-hour increment increase in PM10 and PM2.5 concentrations would exceed the SCAQMD significance thresholds.

Table 3.2-117. Maximum Offsite Ambient Concentrations—Alternative 5 Construction without Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without Background) ($\mu g/m^3$)*	*CEQA Impact*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1 hour	263	1,856	**2,119**	338
CO	1 hour	4,809	7,575	12,384	23,000
	8 hours	4,008	1,554	5,562	10,000
PM10	24 hours	-	167.0	**167.0**	10.4
PM2.5	24 hours	-	82.7	**82.7**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

CEQA Impact Determination

Without mitigation, maximum offsite ambient pollutant concentrations associated with construction would be significant for NO_2 (1-hour average), PM10 and PM2.5 (24-hour) increment. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-1 through MM AQ-8.

Residual Impacts

Impacts would be significant and unavoidable. Table 3.2-118 presents the maximum offsite ground-level concentrations of NO_2, CO, PM10, and PM2.5 from all construction phases after mitigation. With implementation of these mitigation measures, offsite ambient concentrations from construction activities would be significant for NO_2, PM10, and PM2.5 but would be less than significant for CO.

Table 3.2-118. Maximum Offsite Ambient Concentrations—Alternative 5 Construction with Mitigation

Pollutant	*Averaging Time*	*Background Concentration ($\mu g/m^3$)*	*Maximum Concentration (without background) ($\mu g/m^3$)*	*CEQA Impact*	*SCAQMD Threshold ($\mu g/m^3$)*
NO_2	1-hour	263	1,812	**2,075**	338
CO	1-hour	4,809	6,989	11,798	23,000
	8-hour	4,008	1,468	5,476	10,000
PM10	24-hour	-	46.1	**46.1**	10.4
PM2.5	24-hour	-	34.9	**34.9**	10.4

Notes:

Exceedances of the thresholds are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the concentrations without background are compared to the thresholds. The thresholds for NO_2 and CO are absolute thresholds; therefore, the total concentrations (with background) are compared to the thresholds. NO_2 thresholds represent the 2007 adopted CAAQS values.

The CEQA Impact equals the total concentration (proposed Project plus background) for NO_2 and CO. The CEQA Impact equals the incremental concentration (proposed Project minus CEQA baseline) for PM10 and PM2.5. However, because there is no construction for the CEQA baseline, the CEQA Impact for PM10 and PM2.5 is equivalent to the maximum modeled proposed project concentration (without background).

Construction schedules are assumed to be 8 hours per day for all construction equipment and vehicles.

In accordance with SCAQMD guidance (SCAQMD 2005), offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, tugboat emissions associated with barge tending and dredging operations while at the construction site and onsite truck emissions were included in the modeling.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-3: Alternative 5 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Since this alternative would not include activities that require federal approval, such as harbor cuts and construction of new wharves, the Outer Harbor Cruise Terminal berths would not be built. The Inner Harbor Cruise Terminal would continue to operate with three berths. Since the North Harbor would not be developed under this alternative, the Crowley and Millennium tugboat operations would be relocated to Berths 70–71 (at the existing Westway Terminal site). Catalina Express would relocate to Berth 95 as a result of the approved China Shipping Project, which displaces Catalina Express from Berth 96.

Tables 3.2-119 and 3.2-120 present the unmitigated average and peak daily criteria pollutant emissions associated with operation of this alternative. Emissions were estimated for four project study years: 2011, 2015, 2022, and 2037. Comparisons to the CEQA baseline emissions are presented for information purposes in Table 3.2-119; actual CEQA significance is determined by the comparison of peak daily impacts to CEQA thresholds in Table 3.2-120.

The operational emissions associated with this alternative assume the operation of three berths at the Inner Harbor Cruise Terminal and the following activity levels:

- Annual ship calls would be 269 calls in 2011 and 275 calls thereafter.
- Peak daily emissions assume that all three available berths would be occupied on any given day.
- Harbor craft activity levels would not change from 2006 operations; however, since the Crowley and Millennium tugboats would be relocated to Berths 70–71, their transit time to the harbor gate would be reduced.
- Environmental measures for cruise ships and harbor craft would be the same as those considered for the proposed Project (listed in Table 3.2-8).

Tables 3.2-119 and 3.2-120 show average and peak daily operational emissions, respectively, for Alternative 5. Since Alternative 5 is equivalent to the NEPA baseline, the methodology for calculating Alternative 5 emissions is described in Section 3.2.4.1.15, "NEPA Impact Determination."

Due to a lengthy construction period, operational activities would overlap with construction. Table 3.2-121 shows the combined total of construction and operational emissions for year 2011, during which construction and operation activities would occur simultaneously.

Table 3.2-119. Average Daily Operational Emissions without Mitigation—Alternative 5

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	134	279	3,421	2,982	383	307
Vessel hoteling	75	156	1,898	1,907	222	178
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.8	9	9	0.01	0.4	0.4
Total—Project Year 2011	**388**	**1,937**	**7,212**	**4,891**	**834**	**575**
<u>CEQA Impacts</u>						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-64	-1,186	775	904	-15	64
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	137	286	3,482	3,049	392	313
Vessel hoteling	76	159	1,932	1,949	227	182
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	157	1,745	357	3	553	112
Terminal equipment	0.6	9	7	0.01	0.3	0.3
Total—Project Year 2015	**417**	**2,738**	**7,122**	**5,002**	**1,224**	**656**
<u>CEQA Impacts</u>						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-35	-385	685	1,015	375	145

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	137	286	3,455	3,049	392	313
Vessel hoteling	76	159	1,917	1,949	227	182
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	127	1,320	235	4	577	115
Terminal equipment	0.4	9	4	0.01	0.2	0.1
Total—Project Year 2022	**385**	**2,533**	**6,677**	**5,003**	**1,245**	**655**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-67	-590	240	1,016	396	144
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	137	286	3,433	3,049	392	313
Vessel hoteling	76	159	1,905	1,949	227	182
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	71	749	119	4	607	120
Terminal equipment	0.2	9	2	0.01	0.1	0.1
Total—Project Year 2011	**329**	**1,962**	**6,524**	**5,003**	**1,275**	**660**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-123	-1,161	87	1,016	426	149
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

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

The emission estimates presented in this table were calculated using the latest available data, assumptions, and

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.						

Table 3.2-120. Peak Daily Operational Emissions without Mitigation—Alternative 5

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	480	1,719	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1.5	17	16	0.02	0.7	0.7
Total—Project Year 2011	**1,174**	**3,585**	**28,264**	**38,473**	**4,075**	**3,167**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	69	-918	4,329	6,384	513	485
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	46	539	1,344	1	52	48
Motor vehicles	157	1,745	357	3	553	112
Terminal equipment	1.2	17	13	0.02	0.6	0.5
Total—Project Year 2015	**1,198**	**4,376**	**28,077**	**38,475**	**4,451**	**3,237**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	93	-127	4,142	6,386	889	555
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2022						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	127	1,320	235	4	577	115
Terminal equipment	0.7	17	7	0.02	0.3	0.3
Total—Project Year 2022	**1,167**	**4,171**	**27,670**	**38,476**	**4,472**	**3,237**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	62	-332	3,735	6,387	910	555
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	45	759	1,065	1	49	45
Motor vehicles	71	749	119	4	607	120
Terminal equipment	0.4	17	4	0.02	0.1	0.1
Total—Project Year 2011	**1,110**	**3,600**	**27,551**	**38,476**	**4,502**	**3,242**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	5	-903	3,616	6,387	940	560
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

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

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

Table 3.2-121. Peak Daily Construction and Operational Emissions without Mitigation—Alternative 5

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Maximum daily construction emissions	717	3,459	9,854	9	2,479	789
Maximum daily operational emissions	1,174	3,585	28,264	38,473	4,075	3,167
Total—Construction & Operation—Project Year 2011	**1,891**	**7,044**	**38,118**	**38,482**	**6,554**	**3,956**
CEQA Impacts						
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	786	2,541	14,183	6,393	2,992	1,274
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Alternative 5 peak daily emissions minus the CEQA baseline would exceed CEQA thresholds and would therefore be significant under CEQA for all pollutants during all analysis years, with the exception of CO in years 2011, 2015, 2022, and 2037; and VOC in 2037.

In year 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Tables 3.2-122 and 3.2-123 show average and peak daily operational emissions, respectively, for the mitigated Alternative 5. Alternative 5 peak daily emissions minus the CEQA baseline would be above CEQA thresholds and therefore significant under CEQA for NO_X, SO_X, PM10, and PM2.5 in 2011.

In year 2011, the combined construction and operational emissions minus the CEQA baseline would exceed CEQA emission thresholds and would therefore be significant under CEQA for all pollutants.

Table 3.2-122. Average Daily Operational Emissions with Mitigation—Alternative 5

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	129	269	3,196	2,077	298	239
Vessel hoteling	55	114	1,345	1,062	134	107
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.1	0.4	1	0.01	0.05	0.05
Total—Project Year 2011	**363**	**1,929**	**6,348**	**3,141**	**660**	**436**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-89	-1,194	-89	-846	-189	-75
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2015						
Vessel transit and maneuvering	96	200	2,217	359	117	93
Vessel hoteling	22	45	497	127	31	25
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	157	1,745	357	3	553	112
Terminal equipment	0.1	0.3	1	0	0.03	0.03
Total—Project Year 2015	**319**	**2,608**	**4,263**	**490**	**750**	**276**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-133	-515	-2,174	-3,498	-99	-235
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	96	200	2,200	359	117	93
Vessel hoteling	22	45	493	127	31	25
Harbor craft	40	770	1,008	1	42	39

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Motor vehicles	127	1,320	235	4	577	115
Terminal equipment	0.1	0.3	0.4	0	0.01	0.01
Total—Project Year 2022	**285**	**2,336**	**3,937**	**491**	**766**	**272**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-167	-787	-2,500	-3,497	-83	-239
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	96	200	2,186	359	117	93
Vessel hoteling	22	45	490	127	31	25
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	71	749	119	4	607	120
Terminal equipment	0	0.3	0.1	0	0	0
Total—Project Year 2037	**229**	**1,765**	**3,803**	**491**	**796**	**277**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 5 minus CEQA baseline	-223	-1,358	-2,634	-3,497	-53	-234
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions represent annual emissions divided by 365 days per year of operation.

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

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

Table 3.2-123. Peak Daily Operational Emissions with Mitigation—Alternative 5

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	625	1,305	16,599	23,150	2,378	1,903

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	533	1,639	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.2	0.7	3	0	0.1	0.1
Total—Project Year 2011	**1,108**	**3,485**	**26,429**	**36,088**	**3,826**	**2,969**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	3	-1,018	2,494	4,000	264	287
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	509	1,063	13,129	13,384	1,513	1,210
Vessel hoteling	168	350	4,385	6,622	638	511
Harbor craft	44	617	1,191	1	50	46
Motor vehicles	157	1,745	357	3	553	112
Terminal equipment	0.2	0.6	2	0	0.1	0.1
Total—Project Year 2015	**879**	**3,776**	**19,064**	**20,010**	**2,754**	**1,879**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	-226	-727	-4,871	-12,078	-808	-803
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2022						
Vessel transit and maneuvering	509	1,063	13,129	13,384	1,513	1,210
Vessel hoteling	168	350	4,385	6,622	638	511
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	127	1,320	235	4	577	115
Terminal equipment	0.1	0.5	0.8	0	0.03	0.02
Total—Project Year 2022	**844**	**3,504**	**18,758**	**20,011**	**2,770**	**1,875**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Alternative 5 minus CEQA baseline	-261	-999	-5,177	-12,077	-792	-807
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Project Year 2037						
Vessel transit and maneuvering	509	1,063	13,129	13,384	1,513	1,210
Vessel hoteling	168	350	4,385	6,622	638	511
Harbor craft	40	770	1,008	1	42	39
Motor vehicles	71	749	119	4	607	120
Terminal equipment	0.1	0.5	0.2	0	0.01	0.01
Total—Project Year 2037	**788**	**2,933**	**18,641**	**20,011**	**2,800**	**1,880**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 5 minus CEQA baseline	-317	-1,570	-5,294	-12,077	-762	-802
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

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

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

Table 3.2-124. Peak Daily Construction and Operational Emissions with Mitigation—Alternative 5

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Maximum daily construction emissions	300	2,057	5,709	10	295	122
Maximum daily operational emissions	1,108	3,485	26,429	36,088	3,826	2,969
Total: Construction & Operation—Project Year 2011	**1,408**	**5,542**	**32,138**	**36,098**	**4,121**	**3,091**
CEQA Impacts						

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
CEQA Baseline Emissions	1,105	4,503	23,935	32,088	3,562	2,682
Project Year 2011 minus CEQA Baseline	303	1,039	8,203	4,010	559	409
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-4: Alternative 5 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Dispersion modeling of onsite and offsite operational emissions for Alternative 5 was performed to assess the impact of Alternative 5 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2. Table 3.2-125 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 5 without mitigation. Table 3.2-126 shows the maximum CEQA PM10 and PM2.5 concentration increments without mitigation.

Table 3.2-125. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 5 without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 5 ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ground-Level Concentration ($\mu g/m^3$)	SCAQMD Threshold ($\mu g/m^3$)
NO_2	1 hour	1,131	263	**1,394**	338
	Annual	63	53	**115**	56.4
CO	1 hour	5,592	4,809	10,401	23,000

	8 hours	2,113	4,008	6,121	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-126. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 5 without Mitigation

	Maximum Modeled Concentration of Alternative 5 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Ground- Level Concentration CEQA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour period	35.2	32.3	**10.3**	2.5
PM10 annual average	7.8	4.3	**3.5**	1.0
PM2.5 24-hour period	27.4	25.8	**7.9**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 5 minus the CEQA baseline.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the operation of Alternative 5 would be significant for NO_2 (1-hour and annual average), PM10 (24-hour and annual average), and PM2.5 (24-hour average). Therefore, significant impacts under CEQA would occur.

Mitigation Measures

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-127 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 5 after mitigation. Table 3.2-128 shows the maximum PM10 and PM2.5 concentration increments after mitigation. Maximum offsite concentrations would remain significant for NO_2 (1-hour and annual average), PM10 (24-hour and annual average), and PM2.5 (24-hour average).

Table 3.2-127. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 5 with Mitigation

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 5 (µg/m³)*	*Background Concentration (µg/m³)*	*Total Ground-Level Concentration (µg/m³)*	*SCAQMD Threshold (µg/m³)*
NO_2	1 hour	836	263	**1,099**	338
	Annual	45	50	**95**	56
CO	1 hour	5,528	4,809	10,337	23,000
	8 hours	2,099	4,008	6,107	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach monitoring station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method that uses ozone data from the North Long Beach monitoring station. The conversion of NO_X to NO_2 is dependent on the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-128. Maximum Offsite PM10 and PM2.5 Concentrations Associated with Operation of Alternative 5 with Mitigation

	Maximum Modeled Concentration of Alternative 5 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Ground- Level Concentration CEQA Increment (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour period	22.8	32.3	**5.0**	2.5
PM10 annual average	6.5	4.3	**2.3**	1.0

PM2.5 24-hour period	17.1	25.8	**3.5**	2.5

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 5 minus the CEQA baseline.

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-5: Alternative 5 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

This alternative would generate traffic levels comparable to or less than traffic generated by the proposed Project. As discussed in the proposed project analysis, CO concentrations related to onroad traffic would not exceed state CO standards for any project study year.

CEQA Impact Determination

Significant impacts under CEQA are not anticipated because CO standards would not be exceeded.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-6: Alternative 5 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with Alternative 5 would help to disperse emissions. Additionally, the distance between proposed emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Thus, the potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor.

CEQA Impact Determination

The potential is low for Alternative 5 to produce objectionable odors that would affect a sensitive receptor; therefore, impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-7: Alternative 5 would expose receptors to significant levels of toxic air contaminants.

The main sources of TACs from Alternative 5 operations would be DPM emissions from increased ship activity in the Inner Harbor and the additional emissions from motor vehicles using the new Inner Harbor parking structure. DPM, PM10, and VOC emissions were projected over a 70-year period, from 2009 through 2078. An HRA was performed over this 70-year exposure period.

Table 3.2-129 presents the maximum predicted health impacts associated with this alternative. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed receptors. Results are presented for this alternative, the CEQA baseline, and the CEQA increment (alternative minus CEQA baseline).

Table 3.2-129. Maximum Health Impacts Associated with Alternative 5 without Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*			*Significance Threshold*
		Alternative 5	*CEQA Baseline*	*CEQA Increment*	
Cancer Risk	Residential	500×10^{-6} (500 in a million)	379×10^{-6} (379 in a million)	**139×10^{-6} (139 in a million)**	10×10^{-6} 10 in a million
	Occupational	925×10^{-6} (925 in a million)	992×10^{-6} (992 in a million)	**82×10^{-6} (82 in a million)**	
	Recreational	$1,419 \times 10^{-6}$ (1,419 in a million)	1522×10^{-6} (1,522 in a million)	**126×10^{-6} (126 in a million)**	
	Sensitive	144×10^{-6} (144 in a million)	120×10^{-6} (120 in a million)	**23×10^{-6} (23 in a million)**	
	Student	9×10^{-6} (9 in a million)	8×10^{-6} (8 in a million)	1×10^{-6} (1 in a million)	
Chronic Hazard Index	Residential	0.53	0.69	0.08	1.0
	Occupational	1.17	1.72	0.14	
	Recreational	1.17	1.72	0.14	

Health Impact	*Receptor Type*	*Maximum Predicted Impact*			*Significance Threshold*
		Alternative 5	*CEQA Baseline*	*CEQA Increment*	
	Sensitive	0.13	0.13	0.02	
	Student	0.13	0.11	0.02	
Acute Hazard Index	Residential	1.36	2.40	0.59	1.0
	Occupational	1.87	3.07	**1.81**	
	Recreational	1.87	3.07	**1.81**	
	Sensitive	0.44	0.51	0.28	
	Student	0.29	0.42	0.15	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA and NEPA increments only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 5 minus the CEQA baseline.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

CEQA Impact Determination

Table 3.2-129 shows that the maximum CEQA cancer risk increment associated with Alternative 5 is predicted to be 139 in a million (139×10^{-6}), at a residential receptor. This risk value is above the significance criterion of 10 in a million. The CEQA cancer risk increment would also exceed the threshold at occupational, recreational, and sensitive receptors. These exceedances are considered significant impacts under CEQA.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0 at all receptors. The maximum acute hazard index CEQA increment is predicted to be greater than the significance threshold of 1.0 at the occupational and recreational receptors. These exceedances are considered significant impacts under CEQA.

<u>Mitigation Measures</u>

Implement Mitigation Measures MM AQ-9 through MM AQ-24.

Residual Impacts

Table 3.2-130 presents a summary of the maximum health impacts that would occur with operation of this alternative with mitigation. The mitigation measures would reduce the maximum residential cancer risk associated with this alternative by about 72%. The maximum residential chronic hazard index would be reduced by about 17%. The maximum residential acute hazard index would be reduced by about 6%.

The data show that the maximum CEQA cancer risk increment after mitigation is predicted to be less than 1 in a million (<1 × 10^{-6}) at all receptors. Therefore, the CEQA cancer risk increment would be less than significant.

The maximum chronic hazard index CEQA increment is predicted to be below the significance threshold of 1.0 at all receptors. The acute hazard index CEQA increment is predicted to be above the significance threshold of 1.0 and is, therefore, considered significant for occupational and recreational receptors.

Table 3.2-130. Maximum Health Impacts Associated with Alternative 5 with Mitigation, 2009–2078

Health Impact	*Receptor Type*	*Maximum Predicted Impact*			*Significance Threshold*
		Alternative 5	*CEQA Baseline*	*CEQA Increment*	
Cancer Risk	Residential	139 x 10^{-6} (139 in a million)	379 x 10^{-6} (379 in a million)	<1 x 10^{-6} (<1 in a million)	10 × 10^{-6} 10 in a million
	Occupational	171 x 10^{-6} (171 in a million)	992 x 10^{-6} (992 in a million)	<1 x 10^{-6} (<1 in a million)	
	Recreational	263 x 10^{-6} (263 in a million)	1,522 x 10^{-6} 1,522 in a million	<1 x 10^{-6} <1 in a million	
	Sensitive	52 x 10^{-6} (52 in a million)	120 x 10^{-6} (120 in a million)	<1 x 10^{-6} (<1 in a million)	
	Student	2 x 10^{-6} (2 in a million)	8 x 10^{-6} (8 in a million)	<1 x 10^{-6} (<1 in a million)	
Chronic Hazard Index	Residential	0.44	0.69	0.03	1.0
	Occupational	1.04	1.72	0.13	
	Recreational	1.04	1.72	0.13	
	Sensitive	0.11	0.13	0.00	
	Student	0.10	0.11	0.00	
Acute Hazard Index	Residential	1.36	2.40	0.38	1.0
	Occupational	1.76	3.07	**1.14**	
	Recreational	1.76	3.07	**1.14**	
	Sensitive	0.44	0.51	0.16	

Health Impact	Receptor Type	Maximum Predicted Impact			Significance Threshold
		Alternative 5	CEQA Baseline	CEQA Increment	
	Student	0.29	0.42	0.09	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the proposed project impact. The example given in Table 3.2-36 above illustrates how the increments are calculated.

The CEQA increment represents Alternative 5 minus the CEQA baseline.

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

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

For the acute hazard index, half the ships were assumed to use residual fuel oil with a 4.5% sulfur content and the other half were assumed to use the average residual fuel oil of 2.7% sulfur content

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-8: Alternative 5 would not conflict with or obstruct implementation of an applicable AQMP.

This alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts. Therefore, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

The proposed Project would not conflict with or obstruct implementation of the AQMP; therefore, there would be no impacts.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact AQ-9: Alternative 5 would produce GHG emissions that would exceed the CEQA baseline.

Table 3.2-131 summarizes the total GHG construction emissions associated with Alternative 5. Table 3.2-132 summarizes the annual GHG emissions that would occur in California from the operation of Alternative 5 without mitigation.

Table 3.2-131. Total GHG Emissions from Construction Activities—Alternative 5 without Mitigation

	Total Emissions (Metric Tons)			
Emission Source	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Catalina Express Terminal	0.00	0.00	0.00	0.00
Cruise ship terminal Berths 91–93	987.57	0.14	0.01	993.56
Cruise ship parking facilities	782.62	0.11	0.01	787.36
North Harbor	0.00	0.00	0.00	0.00
Maritime Office Building—Crowley	0.00	0.00	0.00	0.00
Maritime Office Building—Millennium	0.00	0.00	0.00	0.00
Maritime Office Building—Lane Victory	0.00	0.00	0.00	0.00
Downtown Harbor	0.00	0.00	0.00	0.00
7th Street Harbor	0.00	0.00	0.00	0.00
7th Street Pier	0.00	0.00	0.00	0.00

Emission Source	Total Emissions (Metric Tons)			
	CO_2	CH_4	N_2O	CO_2e
Downtown Square	167.73	0.02	0.00	168.74
Downtown water feature	117.95	0.02	0.00	118.66
John S. Gibson Jr. Park	173.87	0.02	0.00	174.92
Ralph J. Scott Fireboat Museum	0.00	0.00	0.00	0.00
Los Angeles Maritime Museum renovation	0.00	0.00	0.00	0.00
Los Angeles Maritime Institute	0.00	0.00	0.00	0.00
Maritime Office Building	0.00	0.00	0.00	0.00
Ports O’ Call Promenade—Phase 1	0.00	0.00	0.00	0.00
Ports O’ Call Promenade—Phase 2	0.00	0.00	0.00	0.00
Ports O’ Call Promenade—Phase 3	0.00	0.00	0.00	0.00
Southern Pacific Railyard demolition	282.14	0.04	0.00	283.85
Fishermen's Park	722.81	0.10	0.01	727.19
Ports O’ Call redevelopment without restaurant	0.00	0.00	0.00	0.00
Ports O’ Call Redevelopment Phase 1	2,163.88	0.30	0.02	2,177.00
Ports O’ Call Redevelopment Phase 2	3,325.88	0.47	0.03	3,346.05
Ports O’ Call Redevelopment with Restaurant	589.54	0.08	0.01	593.12
Ports O’ Call Redevelopment Phase 3	1,701.85	0.24	0.02	1,712.18
Waterfront Red Car Maintenance Facility	615.44	0.09	0.01	619.17
Westway Terminal demolition	857.21	0.12	0.01	862.41
City Dock No. 1 promenade	2,448.96	0.34	0.02	2,463.82
Outer Harbor Cruise Terminal	0.00	0.00	0.00	0.00
Outer Harbor Park and promenade	1,090.88	0.15	0.01	1,097.50
San Pedro Park	1,111.59	0.16	0.01	1,118.33
Salinas De San Pedro/Youth Camp promenade	2,576.76	0.36	0.03	2,592.39
Sampson Way road improvements	886.34	0.12	0.01	891.72
Waterfront Red Car Line extension—Sampson Way	988.00	0.14	0.01	993.99
Waterfront Red Car Line extension—Cabrillo Beach	1,064.12	0.15	0.01	1,070.58
Waterfront Red Car Line extension—Outer Harbor	589.03	0.08	0.01	592.60
Waterfront Red Car Line extension—City Dock No. 1	601.82	0.08	0.01	605.47
Berth 240 fueling station	0.00	0.00	0.00	0.00

Emission Source	*Total Emissions (Metric Tons)*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Total Emissions	**23,845.99**	**3.35**	**0.24**	**23,990.60**

Notes:

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

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

Emissions may not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.

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

Table 3.2-132. Annual Operational GHG Emissions—Alternative 5 without Mitigation

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	48,486	0.3	2.2	49,174
Vessel hoteling	17,791	0.1	0.8	18,043
Harbor craft	25,571	0.1	1.2	25,934
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2011	**133,680**	**3.9**	**7.7**	**136,137**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***4,411***	***-2.5***	***-1.7***	***3,829***
Project Year 2015				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	23,083	0.1	1.0	23,411
Motor vehicles	57,615	7.6	8.7	60,459
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA

Project Scenario/Source Type	*Metric Tons Per Year*			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2015	**173,625**	**8.3**	**12.9**	**177,798**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***44,355***	***2.0***	***3.5***	***45,491***
Project Year 2022				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	63,278	6.5	7.8	65,825
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2022	**178,864**	**7.2**	**12.0**	**182,735**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***49,594***	***0.9***	***2.6***	***50,427***
Project Year 2037				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	22,659	0.1	1.0	22,981
Motor vehicles	66,613	6.8	8.2	69,301
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	24,976	0.2	0.1	25,016
Total for Project Year 2037	**182,199**	**7.6**	**12.4**	**186,211**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***52,929***	***1.3***	***3.1***	***53,903***

Notes:

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

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its GWP. The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.				
AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.				
Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.				
The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.				

CEQA Impact Determination

The data in Table 3.2-132 show that in each future project year after 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 5 would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.

Residual Impacts

Table 3.2-133 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 5 with mitigation. The data in Table 3.2-133 show that in each future project year except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 5 would produce significant levels of GHG emissions under CEQA.

Table 3.2-133. Annual Operational GHG Emissions—Alternative 5 with Mitigation

Project Scenario/Source Type	Metric Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
Project Year 2011				
Vessel transit and maneuvering	39,639	0.2	1.8	40,202
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	23,399	0.1	1.1	23,731
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	0	0.0	0.0	0
Terminal equipment - electric	271	0.0	0.0	271

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Electricity usage from commercial uses and Waterfront Red Car Line	24,918	0.2	0.1	24,958
Total for Project Year 2011	**114,668**	**3.7**	**6.8**	**116,853**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***-14,602***	***-2.6***	***-2.6***	***-15,454***
Project Year 2015				
Vessel transit and maneuvering	40,071	0.2	1.8	40,640
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	59,826	7.6	8.7	62,671
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	14,830	0.1	0.1	14,853
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,918	0.2	0.1	24,958
Total for Project Year 2015	**170,307**	**8.3**	**12.0**	**174,215**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***41,038***	***2.0***	***2.7***	***41,908***
Project Year 2022				
Vessel transit and maneuvering	40,071	0.2	1.8	40,640
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	62,665	6.4	7.7	65,187
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	14,830	0.1	0.1	14,853
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,918	0.2	0.1	24,958
Total for Project Year 2022	**173,145**	**7.1**	**11.1**	**176,731**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***43,876***	***0.8***	***1.7***	***44,424***
Project Year 2037				

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Vessel transit and maneuvering	40,071	0.2	1.8	40,640
Vessel hoteling	9,753	0.1	0.4	9,892
Harbor craft	20,612	0.1	0.9	20,904
Motor vehicles	66,001	6.8	8.1	68,664
Terminal equipment - fossil fueled	25	0.0	0.0	25
AMP electricity usage	14,830	0.1	0.1	14,853
Terminal equipment - electric	271	0.0	0.0	271
Electricity usage from commercial uses and Waterfront Red Car Line	24,918	0.2	0.1	24,958
Total for Project Year 2037	**176,482**	**7.5**	**11.5**	**180,209**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 5 minus CEQA baseline	***47,212***	***1.2***	***2.1***	***47,901***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

NEPA Impact Determination

Because the No-Federal-Action Alternative is identical to the NEPA baseline, this alternative would have no impact under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

3.2.4.3.7 Alternative 6—No-Project Alternative

This alternative considers what would reasonably be expected to occur on the site if no LAHD or federal action would occur. LAHD would not issue any permits or discretionary approvals and would take no further action to construct or permit the construction of any portion of the proposed Project. The USACE would not issue any permits or discretionary approvals for dredge or fill actions, transport or ocean disposal of dredged material, or construction of wharves, and there would be no significance determinations under NEPA. This alternative would not allow implementation of the proposed Project or other physical improvements associated with the proposed Project. Under this alternative, no construction impacts would occur. No environmental controls beyond those imposed by local, state, and federal regulatory agencies would be implemented.

Impact AQ-1: Alternative 6 would not result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.

Construction would not occur for this alternative.

CEQA Impact Determination

No impacts would occur.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-2: Alternative 6 construction would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.

Construction would not occur for this alternative.

CEQA Impact Determination

No impacts would occur.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-3: Alternative 6 would not result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.

Alternative 6 would not allow implementation of the proposed Project or other physical improvements associated with the proposed Project or Alternatives 1–5.

The cruise ship facilities would continue to operate three berths in the Inner Harbor and would be brought under CAAP compliance as leases renew. Catalina Express would relocate to Berth 95 as a result of the approved China Shipping Project, which would displace Catalina Express from Berth 96.

The operational emissions associated with this alternative assume the operation of three berths at the Inner Harbor Cruise Terminal and the following activity levels:

- Annual ship calls would be 269 calls in 2011 and 275 calls thereafter.

- Peak daily emissions assume that all three available berths would be occupied on any given day.
- Harbor craft activity levels would not change from 2006 operations. However, since the Crowley and Millennium tugboats would be relocated to Berths 70–71, their transit time to the harbor gate would be reduced.

Environmental measures for cruise ships and harbor craft, considered part of Alternative 6, would be the same as those considered for the proposed Project (listed in Table 3.2-8).

Tables 3.2-134 and 3.2-135 show average and peak daily emissions, respectively, for Alternative 6.

Table 3.2-134. Average Daily Operational Emissions—Alternative 6

	Average Daily Emissions (lb/day)					
Emission Source	*VOC*	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	134	279	3,421	2,982	383	307
Vessel hoteling	75	156	1,898	1,907	222	178
Harbor craft	53	480	1,721	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	0.8	9	9	0.01	0.4	0.4
Total—Project Year 2011	**388**	**1,937**	**7,214**	**4,891**	**834**	**575**
<u>CEQA Impacts</u>						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 6 minus CEQA baseline	-64	-1,186	777	904	-15	64
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	137	286	3,482	3,049	392	313
Vessel hoteling	76	159	1,932	1,949	227	182
Harbor craft	53	614	1,561	1	61	56
Motor vehicles	99	932	192	2	297	60
Terminal equipment	0.6	9	7	0.01	0.3	0.3
Total—Project Year 2015	**366**	**2,000**	**7,174**	**5,001**	**977**	**612**
<u>CEQA Impacts</u>						

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO_X	SO_X	PM10	PM2.5
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 6 minus CEQA baseline	-86	-1,123	737	1,014	128	101
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	137	286	3,455	3,049	392	313
Vessel hoteling	76	159	1,917	1,949	227	182
Harbor craft	52	869	1,229	1	57	52
Motor vehicles	83	719	129	2	316	63
Terminal equipment	0.4	9	4	0.01	0.2	0.1
Total—Project Year 2022	**348**	**2,042**	**6,735**	**5,001**	**992**	**610**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 6 minus CEQA baseline	-104	-1,081	298	1,014	143	99
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	137	286	3,433	3,049	392	313
Vessel hoteling	76	159	1,905	1,949	227	182
Harbor craft	52	869	1,229	1	57	52
Motor vehicles	49	428	68	2	349	69
Terminal equipment	0.2	9	2	0.01	0.1	0.1
Total—Project Year 2011	**314**	**1,751**	**6,637**	**5,001**	**1,025**	**616**
CEQA Impacts						
CEQA baseline emissions	452	3,123	6,437	3,987	849	511
Alternative 6 minus CEQA baseline	-138	-1,372	200	1,014	176	105
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Emission Source	*Average Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Notes: Emissions represent annual emissions divided by 365 days per year of operation. Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.						

Table 3.2-135. Peak Daily Operational Emissions—Alternative 6

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Project Year 2011						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	480	1,721	1	62	57
Motor vehicles	126	1,013	166	1	166	33
Terminal equipment	1.5	17	16	0.02	0.7	0.7
Total—Project Year 2011	**1,174**	**3,585**	**28,266**	**38,473**	**4,075**	**3,167**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 6 minus CEQA baseline	69	-918	4,331	6,384	513	485
Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2015						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	53	614	1,561	1	61	56
Motor vehicles	99	932	192	2	297	60
Terminal equipment	1.2	17	13	0.02	0.6	0.5
Total—Project Year 2015	**1,147**	**3,638**	**28,129**	**38,474**	**4,204**	**3,193**
CEQA Impacts						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 6 minus CEQA baseline	42	-865	4,194	6,385	642	511

Emission Source	*Peak Daily Emissions (lb/day)*					
	VOC	*CO*	*NO_X*	*SO_X*	*PM10*	*PM2.5*
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2022						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	52	869	1,229	1	57	52
Motor vehicles	83	719	129	2	316	63
Terminal equipment	0.7	17	7	0.02	0.3	0.3
Total—Project Year 2022	**1,130**	**3,680**	**27,728**	**38,474**	**4,219**	**3,192**
<u>CEQA Impacts</u>						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 6 minus CEQA baseline	25	-823	3,793	6,385	657	510
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**
Project Year 2037						
Vessel transit and maneuvering	690	1,442	18,341	25,534	2,626	2,101
Vessel hoteling	304	633	8,022	12,937	1,220	976
Harbor craft	52	869	1,229	1	57	52
Motor vehicles	49	428	68	2	349	69
Terminal equipment	0.4	17	4	0.02	0.1	0.1
Total—Project Year 2011	**1,095**	**3,389**	**27,664**	**38,474**	**4,252**	**3,198**
<u>CEQA Impacts</u>						
CEQA baseline emissions	1,105	4,503	23,935	32,088	3,562	2,682
Alternative 6 minus CEQA baseline	-10	-1,114	3,729	6,385	690	516
Thresholds	55	550	55	150	150	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.

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

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

CEQA Impact Determination

Alternative 6 peak daily emissions minus the CEQA baseline would be above CEQA thresholds for NO_X, SO_X, PM10, and PM2.5 for all analysis years; and for VOC in 2011. Impacts under Alternative 6 are provided for comparison purposes with respect to the proposed Project and other alternatives. While impacts for Alternative 6 under may exceed CEQA thresholds, this alternative represents no action on behalf of the LAHD. Therefore, this alternative is not subject to significance determinations under CEQA as there are no discretionary approvals triggering CEQA compliance.

Mitigation Measures

Mitigation measures are not applicable to Alternative 6 operations because this alternative would not introduce new uses.

Residual Impacts

No impacts would occur

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-4: Alternative 6 operations would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.

Dispersion modeling of onsite and offsite operational emissions for Alternative 6 was performed to assess the impact of Alternative 6 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix D2. Table 3.2-136 presents the maximum offsite ground-level concentrations of NO_2 and CO for Alternative 6 without mitigation. Table 3.2-137 shows the maximum CEQA PM10 and PM2.5 concentration increments without mitigation.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the operation of Alternative 6 would exceed thresholds for NO_2 (1-hour and annual average), PM10

(24-hour average), and PM2.5 (24-hour average). Impacts under Alternative 6 are provided for comparison purposes with respect to the proposed Project and other alternatives. While impacts for Alternative 6 under may exceed CEQA thresholds, this alternative represents no action on behalf of the LAHD. Therefore, this alternative is not subject to significance determinations under CEQA as there are no discretionary approvals triggering CEQA compliance.

Table 3.2-136. Maximum Offsite NO_2 and CO Concentrations Associated with Operation of Alternative 6

Pollutant	*Averaging Time*	*Maximum Modeled Concentration of Alternative 6 (µg/m³)*	*Background Concentration (µg/m³)*	*Total Ground-Level Concentration (µg/m³)*	*SCAQMD Threshold (µg/m³)*
NO_2	1-hour	1,129	263	**1,392**	338
	Annual	56	53	**109**	56.4
CO	1-hour	3,634	4,809	8,443	23,000
	8-hour	1,361	4,008	5,369	10,000

Notes:

Exceedances of the thresholds are indicated in bold.

The background concentrations were obtained from the North Long Beach Monitoring Station. The maximum concentrations during the years of 2004, 2005, 2006, and 2007 were used.

NO_2 concentrations were calculated using the ozone limiting method using ozone data from the North Long Beach monitor. The conversion of NO_X to NO_2 is dependent upon the hourly ozone concentration and hourly NO_X emission rates.

Table 3.2-137. Maximum Offsite PM10 Concentrations Associated with Operation of Alternative 6

	Maximum Modeled Concentration of Alternative 6 (µg/m³)	*Maximum Modeled Concentration of CEQA Baseline (µg/m³)*	*Ground-Level Concentration CEQA Increment[c] (µg/m³)*	*SCAQMD Threshold (µg/m³)*
PM10 24-hour	33.2	32.3	**7.7**	2.5
PM10 annual average	5.1	4.3	0.8	1.0
PM2.5 24-hour	26.2	25.8	**6.0**	1.0

Notes:

Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

The maximum increments presented in this table do not necessarily occur at the same receptor location as the maximum concentrations. This means that the increments cannot necessarily be determined by simply subtracting the baseline concentrations from the proposed project concentration in the table. Table 3.2-36 in the discussion of Impact AQ-7 for the proposed Project describes how the increments are calculated.

The CEQA increment represents Alternative 6 minus CEQA baseline.

Mitigation Measures

Mitigation measures are not applicable to Alternative 6 during operations because this alternative would not introduce new uses.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-5: Alternative 6 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

This alternative would generate traffic levels comparable to or less than traffic generated by the proposed Project. As discussed in the proposed Project analysis, CO concentrations related to onroad traffic would not exceed state CO standards for any project study year.

CEQA Impact Determination

CO standards would not be exceeded; therefore, impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

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

Similar to the proposed Project, the mobile nature of the emission sources associated with Alternative 6 would help to disperse emissions. Additionally, the distance between Alternative 6 emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Thus, the potential is low for this alternative to produce objectionable odors that would affect a sensitive receptor.

CEQA Impact Determination

The potential is low for Alternative 6 to produce objectionable odors that would affect a sensitive receptor; therefore, impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-7: Alternative 6 would not expose receptors to significant levels of toxic air contaminants.

The main source of TACs from Alternative 6 operations would be DPM emissions from ship operations. PM10 and VOC emissions were projected over a 70-year period, from 2009 to 2078. An HRA was performed over this 70-year exposure period**.**

Table 3.2-138 presents the maximum predicted health impacts associated with Alternative 6. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed receptors. Results are presented for Alternative 6, the CEQA baseline, and the CEQA increment (Alternative 6 minus the CEQA baseline).

Table 3.2-138. Maximum Health Impacts Associated With Alternative 6

Health Impact	*Receptor Type*	*Maximum Predicted Impact*			*Significance Threshold*
		Alternative 6	*CEQA Baseline*	*CEQA Increment*	
Cancer Risk	Residential	396×10^{-6} (396 in a million)	379×10^{-6} (379 in a million)	**18×10^{-6} (18 in a million)**	10×10^{-6} 10 in a million
	Occupational	955×10^{-6} (955 in a million)	992×10^{-6} (992 in a million)	**18×10^{-6} (18 in a million)**	
	Recreational	$1,465 \times 10^{-6}$ (1,465 in a million)	$1,522 \times 10^{-6}$ (1,522 in a million)	**27×10^{-6} (27 in a million)**	
	Sensitive	127×10^{-6} (127 in a million)	120×10^{-6} (120 in a million)	7×10^{-6} (7 in a million)	
	Student	8×10^{-6} (8 in a million)	8×10^{-6} (8 in a million)	$<1 \times 10^{-6}$ (<1 in a million)	
Chronic Hazard Index	Residential	0.31	0.81	<0.01	1.0
	Occupational	0.94	2.58	<0.01	
	Recreational	0.06	0.15	<0.01	
	Sensitive	0.05	0.09	<0.01	
	Student	0.94	2.58	<0.01	
Acute Hazard Index	Residential	0.66	1.67	0.23	1.0
	Occupational	0.85	2.19	0.36	
	Recreational	0.35	1.24	0.20	

Health Impact	*Receptor Type*	*Maximum Predicted Impact*			*Significance Threshold*
		Alternative 6	*CEQA Baseline*	*CEQA Increment*	
	Sensitive	0.35	0.93	0.20	
	Student	0.85	2.19	0.36	

Notes:

Exceedances of the significance criteria are in bold. The significance thresholds apply to the CEQA increment only.

The maximum increments might not necessarily occur at the same receptor locations as the maximum impacts. This means that the increments cannot necessarily be determined by simply subtracting the baseline impacts from the impact for Alternative 6. The example given in the text, before the CEQA Impact Determination, illustrates how the increments are calculated.

The CEQA increment represents the Alternative 6 minus CEQA baseline.

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

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

CEQA Impact Determination

Table 3.2-138 shows that the maximum CEQA cancer risk increment associated with Alternative 6 is predicted to be greater than the SCAQMD significance threshold level of 10 in a million (10×10^{-6}) for residential, occupational, and recreational receptors. The maximum incremental risk is 27 in a million, at a recreational receptor. Impacts under Alternative 6 are provided for comparison purposes with respect to the proposed Project and other alternatives. While impacts for Alternative 6 under may exceed CEQA thresholds, this alternative represents no action on behalf of the LAHD. Therefore, this alternative is not subject to significance determinations under CEQA as there are no discretionary approvals triggering CEQA compliance.

The maximum chronic and acute hazard index increments associated with Alternative 6 are predicted to be less than significant for all receptors.

Mitigation Measures

Not applicable.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-8: Alternative 6 would not conflict with or obstruct implementation of an applicable AQMP.

This alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts. Therefore, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

Alternative 6 would not conflict with or obstruct implementation of the AQMP; therefore, no impacts would occur.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

NEPA Impact Determination

This alternative is not applicable to NEPA.

Mitigation Measures

Not applicable.

Residual Impacts

Not applicable.

Impact AQ-9: Alternative 6 would produce GHG emissions that would exceed CEQA baseline.

Table 3.2-139 summarizes the annual GHG emissions that would occur in California from the operation of Alternative 6.

1 **Table 3.2-139.** Annual Operational GHG Emissions—Alternative 6

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Project Year 2011				
Vessel transit and maneuvering	48,486	0.3	2.2	49,174
Vessel hoteling	17,791	0.1	0.8	18,043
Harbor craft	26,423	0.1	1.2	26,786
Motor vehicles	16,661	3.1	3.4	17,773
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	21,383	0.2	0.1	21,417
Total for Project Year 2011	**130,939**	**3.8**	**7.6**	**133,391**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 6 minus CEQA baseline	***1,670***	***-2.5***	***-1.7***	***1,083***
Project Year 2015				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	25,593	0.1	1.2	25,956
Motor vehicles	32,054	4.1	4.6	33,579
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	21,383	0.2	0.1	21,417
Total for Project Year 2015	**146,980**	**4.8**	**9.0**	**149,865**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 6 minus CEQA baseline	***17,710***	***-1.5***	***-0.4***	***17,557***
Project Year 2022				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	25,169	0.1	1.1	25,526

	Metric Tons Per Year			
Project Scenario/Source Type	*CO_2*	*CH_4*	*N_2O*	*CO_2e*
Motor vehicles	34,261	3.5	4.2	35,642
Terminal equipment - fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	21,383	0.2	0.1	21,417
Total for Project Year 2022	**148,763**	**4.3**	**8.5**	**151,498**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 6 minus CEQA baseline	***19,494***	***-2.1***	***-0.8***	***19,190***
Project Year 2037				
Vessel transit and maneuvering	49,568	0.3	2.2	50,271
Vessel hoteling	18,188	0.1	0.8	18,446
Harbor craft	25,169	0.1	1.1	25,526
Motor vehicles	37,870	3.9	4.7	39,400
Terminal equipment—fossil fueled	195	0.0	0.0	196
AMP electricity usage	NA	NA	NA	NA
Terminal equipment - electric	NA	NA	NA	NA
Electricity usage from commercial uses and Waterfront Red Car Line	21,383	0.2	0.1	21,417
Total for Project Year 2037	**152,372**	**4.6**	**9.0**	**155,256**
CEQA baseline	*129,270*	*6.3*	*9.4*	*132,308*
Alternative 6 minus CEQA baseline	***23,103***	***-1.7***	***-0.4***	***22,948***

Notes:

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

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

AMP applies to cruise ship hoteling, and partially to assist tug hoteling, as a proposed project mitigation measure.

Emissions may not add precisely due to rounding. Values less than 0.5 for CO_2 and CO_2e, and less than 0.05 for CH_4 and N_2O, are rounded to zero. For more explanation, refer to the discussion in Section 3.2.4.1.

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

CEQA Impact Determination

The data in Table 3.2-139 show that in each future project year, except 2011, annual operational CO_2e emissions would increase from CEQA baseline levels. Impacts under Alternative 6 are provided for comparison purposes with respect to the proposed Project and other alternatives. While impacts for Alternative 6 under may exceed CEQA thresholds, this alternative represents no action on behalf of the LAHD. Therefore, this alternative is not subject to significance determinations under CEQA as there are no discretionary approvals triggering CEQA compliance.

<u>Mitigation Measures</u>

Mitigation measures are not applicable to Alternative 6 because this alternative would not introduce new uses.

<u>Residual Impacts</u>

No impacts would occur.

NEPA Impact Determination

This alternative is not applicable to NEPA.

<u>Mitigation Measures</u>

Not applicable.

<u>Residual Impacts</u>

Not applicable.

3.2.4.3.8 Summary of Impact Determinations

Table 3.2-140 summarizes the CEQA and NEPA impact determinations of the proposed Project and its alternatives related to air quality, as described in the detailed discussion in Sections 3.2.4.3.1 through 3.2.4.3.7. This table is meant to allow easy comparison between the potential impacts of the proposed Project and its alternatives with respect to this resource. 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.

For each type of potential impact, the table describes the impact, notes the CEQA and NEPA 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 3.2-140. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality and Meteorology Associated with the Proposed Project and Alternatives

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology				
Proposed Project	**Impact AQ-1:** The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.	CEQA: Significant	**MM AQ-1. Harbor Craft Engine Standards.** All harbor craft used during the construction phase of the proposed Project shall, at a minimum, be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2. Additionally, where available, harbor craft shall meet the proposed EPA Tier 3 (which are proposed to be phased-in beginning 2009) or cleaner marine engine emission standards. **MM AQ-2. Dredging Equipment Electrification.** The proposed Project shall use electric dredging equipment. **MM AQ-3. Fleet Modernization for Onroad Trucks.** 1. Trucks hauling materials such as debris or fill shall be fully covered while operating off Port property. 2. Idling shall be restricted to a maximum of 5 minutes when not in use. 3. Tier Specifications: January 1, 2009 to December 31, 2011: All onroad heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with EPA 2004 onroad PM emission standards and be the cleanest available with	CEQA: Significant and unavoidable

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			respect to NO_X (0.10g/bhp-hr PM10 and 2.0 g/bhp-hr NO_X). In addition, all onroad trucks shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. <u>Post-January 2011</u>: All onroad heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with 2010 emission standards, where available. In addition, all onroad trucks shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified EPA rating, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment **MM AQ-4. Fleet Modernization for Construction Equipment.** 1. Construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards. 2. Idling shall be restricted to a maximum of	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			5 minutes when not in use. 3. Tier Specifications: January 1, 2009, to December 31, 2011: All offroad diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels, shall meet Tier 2 offroad emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. January 1, 2012, to December 31, 2014: All offroad diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels, shall meet Tier 3 offroad emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. Post-January 1, 2015: All offroad diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy 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 shall be provided at the time of mobilization of each applicable unit of equipment. Construction equipment shall incorporate, where feasible, emissions-saving technology such as hybrid drives and specific fuel economy standards. **MM AQ-5. Additional Fugitive Dust Controls.** The calculation of fugitive dust (PM10) from unmitigated proposed project earth-moving activities assumes a 75% reduction from uncontrolled levels to simulate rigorous watering of the site and use of other measures (listed below) to ensure proposed project compliance with SCAQMD Rule 403. The construction contractor shall further reduce fugitive dust emissions to 90% from uncontrolled levels. The construction contractor shall designate personnel to monitor the dust control program and to order increased watering or other dust control measures, as necessary, to ensure a 90% control level. Their duties shall include holiday and weekend periods when work may not be in progress. The following measures, at minimum, must	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			be part of the contractor Rule 403 dust control plan: • Active grading sites shall be watered one additional time per day beyond that required by Rule 403; • Contractors shall apply approved nontoxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas; • Construction contractors shall provide temporary wind fencing around sites being graded or cleared; • Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code; • Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads or wash off tires of vehicles and any equipment leaving the construction site; • The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed; and • Trucks hauling materials such as debris or fill shall be fully covered while operating off LAHD property. **MM AQ-6. Best Management Practices.**	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			The following types of measures are required on construction equipment (including onroad trucks): 1. Use diesel oxidation catalysts and catalyzed diesel particulate traps. 2. Maintain equipment according to manufacturers' specifications 3. Restrict idling of construction equipment to a maximum of 5 minutes when not in use 4. Install high-pressure fuel injectors on construction equipment vehicles LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list. **MM AQ-7. General Mitigation Measure.** For any of the above mitigation measures (MM AQ-1 through AQ-6), 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 the LAHD. **MM AQ-8. Special Precautions near Sensitive Sites.** When construction activities are planned within 1,000 feet of sensitive receptors (defined as schools, playgrounds, day care centers, and hospitals), the construction contractor shall notify each of these sites in writing at least 30 days before	

Alternative	Environmental Impacts*	Impact Determination	Mitigation Measures	Impacts after Mitigation
			construction activities begin.	
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-2: Proposed project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.	CEQA: Significant	Implement Mitigation Measures AQ-1 through AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures AQ-1 through AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.	CEQA: Significant	**MM AQ-9. Alternative Maritime Power (AMP) for Cruise Vessels.** Cruise vessels calling at the Inner Harbor Cruise Terminal shall use AMP at the following percentages while hoteling in the Port: • 30% of all calls in 2009, and • 80% of all calls in 2013 and thereafter to accommodate existing lease agreements and home ported vessels. This portion of the mitigation measure is not quantified. Ships calling at the Outer Harbor Cruise Terminal shall use AMP while hoteling at the Port as follows (minimum percentage): • 97% of all calls in 2013 and thereafter. Additionally, by 2013, all ships retrofitted for AMP shall be required to use AMP while hoteling, with a compliance rate of 100%, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship. **MM AQ-10. Low-Sulfur Fuel.** All ships	CEQA: Significant and unavoidable

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			(100%) calling at the Inner and Outer Harbor Cruise Terminals shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) beginning on Day 1 of operation. Ships with mono-tank systems or having technical issues prohibiting use of low sulfur fuel would be exempt from this requirement. The tenant shall notify the Port of such vessels prior to arrival and shall make every effort to retrofit such ships within one year. The following minimum annual participation rates were assumed in the air quality analysis: Inner Harbor • 30% of all calls in 2009, and • 90% of all calls in 2013 and thereafter. Outer Harbor: • 90% of all calls in 2013. Low-sulfur fuel requirements shall apply independently of AMP participation. **MM AQ-11. Vessel Speed-Reduction Program.** Ships calling at the Inner Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: • 30% of all calls in 2009, and • 100% of all calls in 2013 and thereafter.	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			Ships calling at the Outer Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: • 100% of all calls in 2013 and thereafter. **MM AQ-12. New Vessel Builds.** The purchaser shall confer with the ship designer and engine manufacture to determine the feasibility of incorporating all emission reduction technology and/or design options and when ordering new ships bound for the Port of Los Angeles. Such technology shall be designed to reduce criteria pollutant emissions (NO_X, SO_X, and PM) and GHG emission (CO, CH_4, N_2O, and HFCs). Design considerations and technology shall include, but is not limited to: 1. Selective Catalytic Reduction Technology 2. Exhaust Gas Recirculation 3. In-line fuel emulsification technology 4. Diesel Particulate Filters (DPFs) or exhaust scrubbers 5. Medium Speed Marine Engine (Common Rail) Direct Fuel Injection 6. Low NO_X Burners for Boilers 7. Implement fuel economy standards by vessel class and engine 8. Diesel-electric pod propulsion systems **MM AQ-13. Clean Terminal Equipment.**	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			All terminal equipment shall be electric, where available. All terminal equipment other than electric forklifts at the cruise terminal building shall implement the following measures: • Beginning in 2009, all non-yard tractor purchases shall be either (1) the cleanest available NO_X alternative-fueled engine meeting 0.015 g/bhp-hr for PM or (2) the cleanest available NO_X diesel-fueled engine meeting 0.015 g/bhp-hr for PM. If there are no engines available that meet 0.015 g/bhp-hr for PM, the new engines shall be the cleanest available (either fuel type) and shall have the cleanest VDEC; • By the end of 2012, all non-yard tractor terminal equipment less than 750 hp shall meet the EPA Tier 4 nonroad engine standards; and • By the end of 2014, all terminal equipment shall meet EPA Tier 4 nonroad engine standards. **MM AQ-14. LNG-Powered Shuttle Busses.** All shuttle buses from parking lots to cruise ship terminals shall be LNG powered. **MM AQ-15. Truck Emission Standards.** Onroad heavy-duty diesel trucks (above 14,000 pounds) entering the cruise terminal building shall achieve EPA's 2007 Heavy-Duty Highway Diesel Rule emission standards for onroad heavy-duty diesel engines (EPA 2001a) in the following percentages: 20% in 2009, 40% in 2012, and	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			80% in 2015 and thereafter. **MM AQ-16. Truck Idling-Reduction Measure.** The cruise terminal building operator shall ensure that heavy-duty truck idling is reduced at both the Inner and Outer Harbor Cruise Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the times when the gates are left open, including during off-peak hours, (2) operator shall implement an appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck-flow capacity to ensure queuing is minimized. **MM AQ-17. AMP for Tugboats.** Crowley and Millennium tugboats calling at the North Harbor cut shall use AMP while hoteling at the Port as follows (minimum percentage): • 100% compliance in 2014. **MM AQ-18. Engine Standards for Tugboats.** Tugboats calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): • 30% in 2010, and • 100% in 2014. Tugs calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 3 as follows (minimum percentages):	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			• 20% in 2015, • 50% in 2018, and • 100% in 2020. **MM AQ-19. Tugboats Idling Reduction.** The tug companies shall ensure that tug idling is reduced at the cruise terminal building. This measure is not quantified. **MM AQ-20. Catalina Express Ferry Idling Reduction Measure.** Catalina Express shall ensure that ferry idling is reduced at the cruise terminal building. This measure is not quantified. **MM AQ-21. Catalina Express Ferry Engine Standards.** Ferries calling at the Catalina Express Terminal shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): • 30% in 2010, and • 100% in 2014. **MM AQ-22. Periodic Review of New Technology and Regulations.** LAHD shall require the cruise terminal and tug company tenants to review, in terms of feasibility, any LAHD-identified or other new emissions-reduction technology, and report to LAHD. Such technology feasibility reviews shall take place at the time of LAHD's consideration of any lease amendment or facility modification for the cruise terminal and tug company property. If the technology is determined by LAHD to be feasible in terms of cost,	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			technical, and operational feasibility, the tenant shall work with LAHD to implement such technology. **MM AQ-23. Throughput Tracking.** If the proposed Project exceeds project throughput assumptions/projections (in terms of cruise terminal passenger numbers) anticipated through the years 2011, 2015, 2022, or 2037, LAHD staff shall evaluate the effects of this on the emissions sources (ship and truck calls) relative to the EIS/EIR. If it is determined that these emissions sources exceed EIS/EIR assumptions, staff shall evaluate actual air emissions for comparison with the EIS/EIR and if the criteria pollutant emissions exceed those in the EIS/EIR, then new or additional mitigations would be applied. **MM AQ-24. General Mitigation Measure.** For any of the above mitigation measures (MM AQ-9 through AQ-23), 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 measure pending approval by LAHD. The technology's emissions reductions must be verifiable through EPA, CARB, or other reputable certification and/or demonstration studies to LAHD's satisfaction.	
		NEPA: Significant	Implement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-4: Proposed	CEQA: Significant	Implement Mitigation Measures MM AQ-9	CEQA: Significant and

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.		through MM AQ-24.	unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-5: The proposed Project would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-6: The proposed Project would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-7: The proposed Project would expose receptors to significant levels of TACs.	CEQA: Significant	Implement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-8: The proposed Project would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-9: The proposed Project would produce GHG emissions that would exceed CEQA and NEPA baseline levels.	CEQA: Significant	Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, and MM AQ-16 through MM AQ-20. **MM AQ-25. Recycling.** The terminal buildings shall achieve a minimum recycling rate of 40% by 2012 and 60% by 2015.	CEQA: Significant and unavoidable

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			Recycled materials shall include • white and colored paper; • Post-it notes; • magazines; • newspaper; • file folders; • all envelopes, including those with plastic windows; • all cardboard boxes and cartons; • all metal and aluminum cans; • glass bottles and jars; and • all plastic bottles. **MM AQ-26. Leadership in Energy and Environmental Design.** The cruise terminal building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level. LEED certification is made at one of the following four levels, in ascending order of environmental sustainability: certified, silver, gold, and platinum. The certification level is determined on a point-scoring basis where various points are given for design features that address the following areas (U.S. Green Building Council 2005): • sustainable sites, • water efficiency, • energy and atmosphere,	

Alternative	Environmental Impacts*	Impact Determination	Mitigation Measures	Impacts after Mitigation
			• materials and resources, • indoor environmental quality, and • innovation and design process. **MM AQ-27. Compact Fluorescent Light Bulbs.** All interior terminal buildings shall use compact fluorescent light bulbs. Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. Although not quantified in this analysis, implementation of this measure is expected to reduce the proposed project's GHG emissions by less than 0.1%. **MM AQ-28: Energy Audit.** The tenant shall conduct a third-party energy audit every 5 years and install innovative power-saving technology where feasible, such as power-factor correction systems and lighting power regulators. Such systems help maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use. **MM AQ-29. Solar Panels.** Solar panels shall be installed on the cruise terminal building. Solar panels will provide the cruise terminal building with a clean source of electricity and replace some of its fossil-fuel-generated electricity use. Although not quantified in this analysis, implementation of this measure is expected to reduce the proposed project's GHG emissions by less than 0.1%. **MM AQ-30. Tree Planting**. Shade trees	

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
			shall be planted around the cruise terminal building. Trees act as insulators from weather, thereby decreasing energy requirements. Onsite trees also provide carbon storage (AEP 2007). Although not quantified, implementation of this measure is expected to reduce the proposed project's GHG emissions by less than 0.1%. Future Port-wide GHG emission reductions are also anticipated through AB 32 rule promulgation. However, such reductions have not yet been quantified because AB 32 implementation is still under development by CARB.	
		NEPA: Not applicable	Not applicable.	NEPA: Not applicable
Alternative 1	**Impact AQ-1:** Alternative 1 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-2: Alternative 1 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-3: Alternative 1 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable

Alternative	Environmental Impacts*	Impact Determination	Mitigation Measures	Impacts after Mitigation
	Table 3.2-15.			
	Impact AQ-4: Alternative 1 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant
	Impact AQ-5: Alternative 1 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-6: Alternative 1 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-7: Alternative 1 would expose receptors to significant levels of TACs.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-8: Alternative 1 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-9: Alternative 1 would produce GHG emissions that would exceed CEQA and NEPA	CEQA: Significant	Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, MM AQ-16 through MM AQ-20, and MM AQ-25 through MM AQ-30.	CEQA: Significant and unavoidable

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	baseline levels.	NEPA: Not applicable	Not applicable.	NEPA: Not applicable
Alternative 2	**Impact AQ-1:** Alternative 2 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-2: Alternative 2 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-3: Alternative 2 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-4: Alternative 2 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-5: Alternative 2 would not generate onroad traffic that would contribute to an exceedance	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	of the 1-hour or 8-hour CO standards.			significant
	Impact AQ-6: Alternative 2 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-7: Alternative 2 would expose receptors to significant levels of TACs.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-8: Alternative 2 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-9: Alternative 2 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.	CEQA: Significant	Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, and MM AQ-16 through MM AQ-30.	CEQA: Significant and unavoidable
		NEPA: Not applicable	Not applicable.	NEPA: Not applicable
Alternative 3	**Impact AQ-1:** Alternative 3 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-2: Alternative 3 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	threshold of significance in Table 3.2-14.			
	Impact AQ-3: Alternative 3 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-4: Alternative 3 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-5: Alternative 3 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-6: Alternative 3 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-7: Alternative 3 would expose receptors to significant levels of TACs.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-8: Alternative 3 would not conflict with or	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	obstruct implementation of an applicable AQMP.	NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-9: Alternative 3 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.	CEQA: Significant	Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, and MM AQ-16 through MM AQ-30	CEQA: Significant and unavoidable
		NEPA: Not applicable	Not applicable.	NEPA: Not applicable
Alternative 4	**Impact AQ-1:** Alternative 4 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-2: Alternative 4 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	NEPA: Significant and unavoidable
	Impact AQ-3: Alternative 4 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable
	Impact AQ-4: Alternative 4 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Significant and unavoidable

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	significance in Table 3.2-16.			
	Impact AQ-5: Alternative 4 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-6: Alternative 4 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-7: Alternative 4 would expose receptors to significant levels of TACs.	CEQA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: Significant	Impement Mitigation Measures MM AQ-9 through MM AQ-24.	NEPA: Less than significant
	Impact AQ-8: Alternative 4 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Less than significant	No mitigation is required.	NEPA: Less than significant
	Impact AQ-9: Alternative 4 would produce GHG emissions that would exceed CEQA and NEPA baseline levels.	CEQA: Significant	Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, and MM AQ-16 through MM AQ-30	CEQA: Significant and unavoidable
		NEPA: Not applicable	Not applicable.	NEPA: Not applicable
Alternative 5	**Impact AQ-1:** Alternative 5 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: No impact	No mitigation is required.	NEPA: No impact

Alternative	Environmental Impacts*	Impact Determination	Mitigation Measures	Impacts after Mitigation
	13.			
	Impact AQ-2: Alternative 5 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.	CEQA: Significant	Implement Mitigation Measures MM AQ-1 through MM AQ-8.	CEQA: Significant and unavoidable
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-3: Alternative 5 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.	CEQA: Significant	Implement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-4: Alternative 5 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.	CEQA: Significant	Implement Mitigation Measures MM AQ-9 through MM AQ-24.	CEQA: Significant and unavoidable
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-5: Alternative 5 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-6: Alternative 5 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-7: Alternative	CEQA: Significant	Implement Mitigation Measures MM AQ-9	CEQA: Less than

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	5 would expose receptors to significant levels of TACs.		through MM AQ-24.	significant
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-8: Alternative 5 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant	Mitigation not required	CEQA: Less than significant
		NEPA: No impact	No mitigation is required.	NEPA: No impact
	Impact AQ-9: Alternative 5 would produce GHG emissions that would exceed the CEQA baseline.	CEQA: Significant	Implement Mitigation Measures MM AQ-9, MM AQ-11 through MM AQ-13, and MM AQ-16 through MM AQ-30.	CEQA: Significant and unavoidable
		NEPA: No impact	No mitigation is required.	NEPA: No impact
Alternative 6	**Impact AQ-1:** Alternative 6 would not result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable[†]	No mitigation is required.	NEPA: Not applicable
	Impact AQ-2: Alternative 6 construction would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-3: Alternative 6 would not result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-4: Alternative	CEQA: No impact	No mitigation is required.	CEQA: No impact

Alternative	*Environmental Impacts**	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
	6 operations would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16.	NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-5: Alternative 6 would not generate onroad traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-6: Alternative 6 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-7: Alternative 6 would not expose receptors to significant levels of TACs.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-8: Alternative 6 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: No impact	Mitigation not required	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable
	Impact AQ-9: Alternative 6 would not produce GHG emissions that would exceed the CEQA baseline.	CEQA: No impact	No mitigation is required.	CEQA: No impact
		NEPA: Not applicable	No mitigation is required.	NEPA: Not applicable

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

Notes:

* Impact descriptions for each of the alternatives are the same as for the proposed project, unless otherwise noted.

† The term *not applicable* is used in cases where a particular impact is not identified as a CEQA- or NEPA-related issue in the threshold of significance criteria, or where there is no federal action requiring a NEPA determination of significance.

3.2.4.4 Mitigation Monitoring

Table 3.2-141. Mitigation Monitoring for Air Quality and Meteorology

Impact AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-13. *(Also applies to Impact AQ-1 for Alternatives 1–5.)*	
Mitigation Measure	**MM AQ-1. Harbor Craft Engine Standards.** All harbor craft used during the construction phase of the proposed Project shall, at a minimum, be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2. Additionally, where available, harbor craft shall meet the proposed EPA Tier 3 (which are proposed to be phased-in beginning 2009) or cleaner marine engine emission standards.
Timing	During specified construction phases.
Methodology	LAHD will include 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. Dredging Equipment Electrification.** The proposed Project shall use electric dredging equipment.
Timing	During specified construction phases.
Methodology	LAHD will include 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. Fleet Modernization for Onroad Trucks.** 1. Trucks hauling materials such as debris or fill shall be fully covered while operating off Port property. 2. Idling shall be restricted to a maximum of 5 minutes when not in use. 3. Tier Specifications: January 1, 2009 to December 31, 2011: All onroad heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with EPA 2004 onroad PM emission standards and be the cleanest available with respect to NO_X (0.10g/bhp-hr PM10 and 2.0 g/bhp-hr NO_X). In addition, all onroad trucks shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. Post-January 2011: All onroad heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with 2010 emission standards, where available. In addition, all onroad trucks shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

	A copy of each unit's certified EPA rating, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment
Timing	During specified construction phases.
Methodology	LAHD will include 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. Fleet Modernization for Construction Equipment.** 1. Construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards. 2. Idling shall be restricted to a maximum of 5 minutes when not in use. 3. Tier Specifications: January 1, 2009, to December 31, 2011: All offroad diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels, shall meet Tier 2 offroad emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. January 1, 2012, to December 31, 2014: All offroad diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels, shall meet Tier 3 offroad emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. Post-January 1, 2015: All offroad diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy 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 shall be provided at the time of mobilization of each applicable unit of equipment.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-4 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Residual Impacts	Significant
Mitigation Measure	**MM AQ-5. Additional Fugitive Dust Controls.** The calculation of fugitive dust (PM10) from unmitigated proposed project earth-moving activities assumes a 75% reduction from uncontrolled levels to simulate rigorous watering of the site and use of other measures (listed below) to ensure proposed project compliance with SCAQMD

	Rule 403. The construction contractor shall further reduce fugitive dust emissions to 90% from uncontrolled levels. The construction contractor shall designate personnel to monitor the dust control program and to order increased watering, as necessary, to ensure a 90% control level. Their duties shall include holiday and weekend periods when work may not be in progress. The following measures, at minimum, must be part of the contractor Rule 403 dust control plan: • Active grading sites shall be watered one additional time per day beyond that required by Rule 403; • Contractors shall apply approved nontoxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas; • Construction contractors shall provide temporary wind fencing around sites being graded or cleared; • Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code; • Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads or wash off tires of vehicles and any equipment leaving the construction site; • The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed; and • Trucks hauling materials such as debris or fill shall be fully covered while operating off LAHD property.
Timing	During specified construction phases.
Methodology	LAHD will include 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. Best Management Practices.** The following types of measures are required on construction equipment (including onroad trucks): 1. Use diesel oxidation catalysts and catalyzed diesel particulate traps. 2. Maintain equipment according to manufacturers' specifications 3. Restrict idling of construction equipment to a maximum of 5 minutes when not in use 4. Install high-pressure fuel injectors on construction equipment vehicles LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list.
Timing	During specified construction phases.
Methodology	LAHD will include 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. General Mitigation Measure.** For any of the above mitigation measures (MM AQ-1 through AQ-6), 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 the LAHD.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-7 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-8. Special Precautions near Sensitive Sites.** When construction activities are planned within 1,000 feet of sensitive receptors (defined as schools, playgrounds, day care centers, and hospitals), the construction contractor shall notify each of these sites in writing at least 30 days before construction activities begin.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-8 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Residual Impacts	Significant
Impact AQ-2: Proposed project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-14. *(Also applies to Impact AQ-2 for Alternatives 1-5.)*	
Mitigation Measure	See Mitigation Measures MM AQ-1 through MM AQ-8 above.
Residual Impacts	Significant
Impact AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-15. *(Also applies to Impact AQ-3 for Alternatives 1-5.)*	
Mitigation Measure	**MM AQ-9. Alternative Maritime Power (AMP) for Cruise Vessels.** Cruise vessels calling at the Inner Harbor Cruise Terminal shall use AMP at the following percentages while hoteling in the Port: • 30% of all calls in 2009, and • 80% of all calls in 2013 and thereafter to accommodate existing lease agreements and home ported vessels. This portion of the mitigation measure is not quantified. Ships calling at the Outer Harbor Cruise Terminal shall use AMP while hoteling at the Port as follows (minimum percentage): • 97% of all calls in 2013 and thereafter. Additionally, by 2013, all ships retrofitted for AMP shall be required to use AMP while hoteling, with a compliance rate of 100%, with the exception of circumstances when an

	AMP-capable berth is unavailable due to utilization by another AMP-capable ship.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, LAHD
Mitigation Measure	**MM AQ-10. Low-Sulfur Fuel.** All ships (100%) calling at the Inner and Outer Harbor Cruise Terminals shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) beginning on Day 1 of operation. Ships with mono-tank systems or having technical issues prohibiting use of low sulfur fuel would be exempt from this requirement. The tenant shall notify the Port of such vessels prior to arrival and shall make every effort to retrofit such ships within one year. The following minimum annual participation rates were assumed in the air quality analysis: Inner Harbor • 30% of all calls in 2009, and • 90% of all calls in 2013 and thereafter. Outer Harbor: • 90% of all calls in 2013. Low-sulfur fuel requirements shall apply independently of AMP participation.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, LAHD
Mitigation Measure	**MM AQ-11. Vessel Speed-Reduction Program.** Ships calling at the Inner Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: • 30% of all calls in 2009, and • 100% of all calls in 2013 and thereafter. Ships calling at the Outer Harbor Cruise Terminal shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: • 100% of all calls in 2013 and thereafter.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, LAHD

Mitigation Measure	**MM AQ-12. New Vessel Builds.** The purchaser shall confer with the ship designer and engine manufacture to determine the feasibility of incorporating all emission reduction technology and/or design options and when ordering new ships bound for the Port of Los Angeles. Such technology shall be designed to reduce criteria pollutant emissions (NO_X, SO_X and PM) and GHG emission (CO, CH_4, N_2O, and HFCs). Design considerations and technology shall include, but is not limited to: 1. Selective Catalytic Reduction Technology 2. Exhaust Gas Recirculation 3. In-line fuel emulsification technology 4. Diesel Particulate Filters (DPFs) or exhaust scrubbers 5. Medium Speed Marine Engine (Common Rail) Direct Fuel Injection 6. Low NO_X Burners for Boilers 7. Implement fuel economy standards by vessel class and engine 8. Diesel-electric pod propulsion systems
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, Crawley and Millennium Tugboat Operators, Catalina Express, LAHD
Mitigation Measure	**MM AQ-13. Clean Terminal Equipment.** All terminal equipment shall be electric, where available. All terminal equipment other than electric forklifts at the cruise terminal building shall implement the following measures: • Beginning in 2009, all non-yard tractor purchases shall be either (1) the cleanest available NO_X alternative-fueled engine meeting 0.015 g/bhp-hr for PM or (2) the cleanest available NO_X diesel-fueled engine meeting 0.015 g/bhp-hr for PM. If there are no engines available that meet 0.015 g/bhp-hr for PM, the new engines shall be the cleanest available (either fuel type) and shall have the cleanest VDEC; • By the end of 2012, all non-yard tractor terminal equipment less than 750 hp shall meet the EPA Tier 4 nonroad engine standards; and • By the end of 2014, all terminal equipment shall meet EPA Tier 4 nonroad engine standards.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, LAHD
Mitigation Measure	**MM AQ-14. LNG-Powered Shuttle Busses.** All shuttle buses from parking lots to cruise ship terminals shall be LNG powered.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship terminal operators, LAHD
Mitigation Measure	**MM AQ-15. Truck Emission Standards.** Onroad heavy-duty diesel trucks (above 14,000 pounds) entering the cruise terminal building shall achieve EPA's 2007 Heavy-

	Duty Highway Diesel Rule emission standards for onroad heavy-duty diesel engines (EPA 2001a) in the following percentages: 20% in 2009, 40% in 2012, and 80% in 2015 and thereafter.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship terminal operators, LAHD
Mitigation Measure	**MM AQ-16. Truck Idling-Reduction Measure.** The cruise terminal building operator shall ensure that heavy-duty truck idling is reduced at both the Inner and Outer Harbor Cruise Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the times when the gates are left open, including during off-peak hours, (2) operator shall implement an appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck-flow capacity to ensure queuing is minimized.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship terminal operators, LAHD
Mitigation Measure	**MM AQ-17. AMP for Tugboats.** Crowley and Millennium tugboats calling at the North Harbor cut shall use AMP while hoteling at the Port as follows (minimum percentage): • 100% compliance in 2014.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship terminal operators, LAHD
Mitigation Measure	**MM AQ-18. Engine Standards for Tugboats.** Tugboats calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): • 30% in 2010, and • 100% in 2014. Tugs calling at the North Harbor cut shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 3 as follows (minimum percentages): • 20% in 2015, • 50% in 2018, and • 100% in 2020.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Crawley and Millennium Tugboat operators, LAHD
Mitigation Measure	**MM AQ-19. Tugboats Idling Reduction.** The tug companies shall ensure that tug idling is reduced at the cruise terminal building. This measure is not quantified.
Timing	During operation

Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Crawley and Millennium Tugboat operators, LAHD
Mitigation Measure	**MM AQ-20. Catalina Express Ferry Idling Reduction Measure.** Catalina Express shall ensure that ferry idling is reduced at the cruise terminal building. This measure is not quantified.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Crawley and Millennium Tugboat operators, LAHD
Mitigation Measure	**MM AQ-21. Catalina Express Ferry Engine Standards.** Ferries calling at the Catalina Express Terminal shall be repowered to meet the cleanest existing marine engine emission standards or EPA Tier 2 as follows (minimum percentages): • 30% in 2010, and • 100% in 2014.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Crawley and Millennium Tugboat operators, LAHD
Mitigation Measure	**MM AQ-22. Periodic Review of New Technology and Regulations.** LAHD shall require the cruise terminal and tug company tenants to review, in terms of feasibility, any LAHD-identified or other new emissions-reduction technology, and report to LAHD. Such technology feasibility reviews shall take place at the time of LAHD's consideration of any lease amendment or facility modification for the cruise terminal and tug company property. If the technology is determined by LAHD to be feasible in terms of cost, technical, and operational feasibility, the tenant shall work with LAHD to implement such technology.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Catalina Express, LAHD
Mitigation Measure	**MM AQ-23. Throughput Tracking.** If the proposed Project exceeds project throughput assumptions/projections (in terms of cruise terminal passenger numbers) anticipated through the years 2011, 2015, 2022, or 2037, LAHD staff shall evaluate the effects of this on the emissions sources (ship and truck calls) relative to the EIS/EIR. If it is determined that these emissions sources exceed EIS/EIR assumptions, staff shall evaluate actual air emissions for comparison with the EIS/EIR and if the criteria pollutant emissions exceed those in the EIS/EIR, then new or additional mitigations would be applied.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Catalina Express, LAHD
Mitigation Measure	**MM AQ-24. General Mitigation Measure.** For any of the above mitigation measures (MM AQ-9 through AQ-23), 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 measure pending approval by

	LAHD. The technology's emissions reductions must be verifiable through EPA, CARB, or other reputable certification and/or demonstration studies to LAHD's satisfaction.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, Crawley and Millennium Tugboat operators, Catalina Express, LAHD
Residual Impacts	Significant
Impact AQ-4: Proposed project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-16. *(Also applies to Impact AQ-4 for Alternatives 1-5.)*	
Mitigation Measure	See Mitigation Measures MM AQ-9 through MM AQ-24 above.
Residual Impacts	Significant
Impact AQ-7: The proposed Project would expose receptors to significant levels of TACs. *(Also applies to Impact AQ-7 for Alternatives 1-5.)*	
Mitigation Measure	See Mitigation Measures MM AQ-9 through MM AQ-24 above.
Residual Impacts	Significant
Impact AQ-9: The proposed Project would produce GHG emissions that would exceed CEQA and NEPA baseline levels. *(Also applies to Impact AQ-9 for Alternatives 1-5.)*	
Mitigation Measure	See Mitigation Measures MM AQ-9 through MM AQ-24 above.
Residual Impacts	Significant
Mitigation Measure	**MM AQ-25. Recycling.** The terminal buildings shall achieve a minimum recycling rate of 40% by 2012 and 60% by 2015. Recycled materials shall include • white and colored paper; • Post-it notes; • magazines; • newspaper; • file folders; • all envelopes, including those with plastic windows; • all cardboard boxes and cartons; • all metal and aluminum cans; • glass bottles and jars; and • all plastic bottles.

Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, Crawley and Millennium Tugboat operators, Catalina Express, Ports O'Call tenants, LAHD
Mitigation Measure	**MM AQ-26. Leadership in Energy and Environmental Design.** The cruise terminal building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level. LEED certification is made at one of the following four levels, in ascending order of environmental sustainability: certified, silver, gold, and platinum. The certification level is determined on a point-scoring basis where various points are given for design features that address the following areas (U.S. Green Building Council 2005): • sustainable sites, • water efficiency, • energy and atmosphere, • materials and resources, • indoor environmental quality, and • innovation and design process.
Timing	During construction and operation
Methodology	LAHD will include LEED designs in construction design specifications. Operation of the cruise terminal building consistent with LEED standards shall be included as a mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, LAHD
Mitigation Measure	**MM AQ-27. Compact Fluorescent Light Bulbs.** All interior terminal buildings shall use compact fluorescent light bulbs. Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. Although not quantified in this analysis, implementation of this measure is expected to reduce the proposed project's GHG emissions by less than 0.1%.
Timing	During construction and operation
Methodology	LAHD will include compact fluorescent bulbs in construction specifications. Use and replacement of such bulbs shall be included as a mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, LAHD
Mitigation Measure	**MM AQ-28: Energy Audit.** The tenant shall conduct a third-party energy audit every 5 years and install innovative power-saving technology where feasible, such as power-factor correction systems and lighting power regulators. Such systems help maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, Crawley and Millennium tugboat operators, Catalina Express, Ports O'Call tenants, LAHD

Mitigation Measure	**MM AQ-29. Solar Panels.** Solar panels shall be installed on the cruise terminal building. Solar panels will provide the cruise terminal building with a clean source of electricity and replace some of its fossil-fuel-generated electricity use. Although not quantified in this analysis, implementation of this measure is expected to reduce the proposed project's GHG emissions by less than 0.1%.
Timing	During construction
Methodology	LAHD will include solar panels in construction specifications.
Responsible Parties	LAHD
Mitigation Measure	**MM AQ-30. Tree Planting**. Shade trees shall be planted around the cruise terminal building. Trees act as insulators from weather, thereby decreasing energy requirements. Onsite trees also provide carbon storage (AEP 2007). Although not quantified, implementation of this measure is expected to reduce the proposed project's GHG emissions by less than 0.1%. Future Port-wide GHG emission reductions are also anticipated through AB 32 rule promulgation. However, such reductions have not yet been quantified because AB 32 implementation is still under development by CARB.
Timing	During operation
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	Cruise ship lines, Crawley and Millennium Tugboat operators, Catalina Express, Ports O'Call tenants, LAHD

3.2.5 Significant Unavoidable Impacts

Emissions from proposed Project construction would increase relative to CEQA and NEPA baseline emissions for VOC, CO, NO_X, PM10, and PM2.5. After mitigation, the proposed Project and Alternatives 1, 2, and 4 would result in significant and unavoidable impacts for VOC, CO, NO_X, PM10, and PM2.5 emissions under CEQA and NEPA. Alternative 3 after mitigation would result in significant and unavoidable impacts for VOC, CO, NO_X, PM10, and PM2.5 emissions under CEQA, and for VOC, CO, NO_X, and PM2.5 emissions under NEPA. Alternative 5 would result in significant and unavoidable impacts for VOC, CO, NO_X, PM10, and PM2.5 after mitigation under CEQA (no NEPA impacts would occur).

Construction of the proposed Project and Alternatives 1 through 5 construction would exceed the SCAQMD 1-hour NO_2 and 24-hour PM10 ambient thresholds. Therefore, construction emissions would result in significant and unavoidable impacts due to increased NO_2, PM10, and PM2.5 levels under CEQA and NEPA.

Peak daily emissions from the proposed Project and Alternatives 1 through 5 would increase relative to CEQA baseline emissions for VOC, CO, NO_X, SO_X, PM10, and PM2.5 during one or more project analysis years. The proposed Project and Alternatives 1 through 5 would result in significant and unavoidable impacts for VOC, NO_X, SO_X, and PM10 emissions under CEQA. Alternative 6 would increase relative to CEQA baseline emissions for VOC, NO_X, SO_X, PM10, and PM2.5 during one or more project analysis years. The proposed Project and Alternatives 1 and 2 would increase relative to NEPA baseline emissions for all project analysis years for all analyzed pollutants. Alternative 3 (mitigated) would decrease relative to NEPA baseline emissions for all project analysis years for VOC, CO and PM10. Alternative 4 (mitigated) would decrease relative to NEPA baseline emissions for all project analysis years for CO, SO_X, PM10, and PM2.5. Therefore, emissions from the proposed Project and Alternatives 1 through 4 would result in significant and unavoidable impacts for NO_X under NEPA. No NEPA Impacts would occur for Alternative 5.

Impacts from operation of the proposed Project and Alternatives 1 through 6 would result in significant and unavoidable impacts from exceeding SCAQMD ambient thresholds for NO_2, PM10, and PM2.5 levels under CEQA, and the proposed Project and Alternatives 1 through 5 would result in significant and unavoidable impacts under NEPA, with the exception of PM2.5 for Alternative 4.

Construction and operational emissions of TACs under the proposed Project and Alternatives 1 through 5 would not increase cancer risks from CEQA Baseline levels to above the significance criterion of 10 in a million (10×10^{-6}) risk to offsite residential, occupational, sensitive, and recreational receptors. The construction and operational emissions of TACs under the proposed Project and Alternatives 1, 2, and 3 would increase cancer risks from NEPA Baseline levels to above the significance criterion to offsite residential, occupational, and recreational receptors. Impacts would be significant and unavoidable under NEPA.

Construction and operational emissions of TACs from the proposed Project and Alternatives 1 through 3 would increase acute noncancer effects from CEQA Baseline levels to above the 1.0 hazard index significance criterion at occupational and recreational receptors in proximity to the Project terminal. The proposed project would not increase acute non-cancer effects from NEPA Baseline levels to above the significance criterion at the analyzed receptors.

The proposed Project and Alternatives 1 through 5 would contribute to significant and unavoidable impacts to global climate change under CEQA. No significance determination has been made for NEPA.