3.2

AIR QUALITY AND METEOROLOGY

3.2.1 Introduction

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

3.2.1.1 Relationship to 1992 Deep Draft Final EIS/EIR

The 1992 Deep Draft Final Environmental Impact Statement/Environmental Impact Report (FEIS/FEIR) identified significant, unavoidable impacts that would occur in association with both development and operation of Pier 400 (USACE and LAHD 1992). Construction sources were shown to generate emissions that would exceed State and Federal nitrogen dioxide (NO_2) standards, the 8-hour carbon monoxide (CO) standards, and the 10 micron particulate matter (PM_{10}) standards. Construction emissions were also expected to exceed the State 24-hour sulfur dioxide (SO_2) standard. Emissions from operation of new terminals would, in combination with high background levels, contribute to long-term exceedences of air quality standards for all of the criteria pollutants. However, it was noted in the Deep Draft FEIS/FEIR that the No Action Plan would have also resulted in significant, unavoidable long-term exceedences (refer to section 4G.2.2 of the the Deep Draft FEIS/FEIR). The air quality analysis in the Deep Draft FEIS/FEIR demonstrated that the long-term air quality impacts of the Proposed Action would be less than the impacts of the No Action Plan and could therefore reduce the overall long-term air quality impacts in the region.

Mitigation measures (MMs) were developed and adopted in the Deep Draft FEIS/FEIR to reduce air quality impacts. Some of these mitigation measures remain applicable, while others have already been implemented. Applicable MMs from the Deep Draft FEIS/FEIR are listed and discussed below and have been included in the project MMRP.

Mitigation Measures from the 1992 Deep Draft Final EIS/EIR that are Applicable to the Proposed Project

The following MMs developed in the Deep Draft FEIS/FEIR to reduce the significant impacts on air quality during construction remain applicable to the current proposed Project:

MM 4G-3: Properly tune and maintain all construction equipment.

MM 4G-4: Encourage construction workers to carpool.

MM 4G-5: Discontinue construction activities during a Stage II Smog Alert.

MM 4G-11: Water sites morning and evening to reduce fugitive dust emissions.

MM 4G-12: Operate street sweepers on paved roads adjacent to the site to reduce fugitive dust emissions.

MM 4G-13: Spread soil binders on site, unpaved roads, and parking areas.

The following MMs were developed to reduce the long-term significant impacts on air quality during terminal operation:

MM 4G-7: Establish education program on "clean ships" and clean fuel on-dock operating equipment for tenants.

MM 4G-8: Require new facilities to use clean fuel on-dock operating equipment if available.

MM 4G-14: Configure parking (during both construction and operation) to minimize traffic interference.

Mitigation Measures from the 1992 Deep Draft Final EIS/EIR that are No Longer Applicable or are Not Applicable to the Proposed Project

The following MMs were developed in the Deep Draft FEIS/FEIR to reduce the significant impacts on air quality, but are either no longer applicable or are not applicable to the proposed Project:

MM 4G-1: Use electric dredges inside the breakwater.

Reason not applicable: *The proposed Project does not involve dredging activities; therefore MM 4G-1 does not apply.*

MM 4G-2: Use clean fuel dredges and/or catalytic converters outside of the breakwater.

Reason not applicable: *The proposed Project does not include dredging activities; therefore MM 4G-2 does not apply.*

MM 4G-6: Ports were to pursue the implementation of the Alameda Corridor.

Reason no longer applicable: *The Alameda Corridor project has been completed.*

MM 4G-9: Establish a Port Transportation Management Association for the Harbor Area or contribute to an existing Los Angeles or Long Beach city-wide program.

Reason not applicable: *This measure is not applicable to the proposed Project. This is a general measure that applied to general Port of Los Angeles (Port) operations. By definition, a transportation management association (TMA) is an organization of private corporations, employers, developers and property managers dedicated to addressing transportation issues, mitigating traffic and improving mobility within the port area. The organization would work in conjunction with the Port's transportation master plan to address present and future traffic improvement needs based on existing and projected traffic volumes. Because of the scope and purpose of the organization, a TMA is a management tool for the overall operation of the Port. As such, it is not appropriately applied as a mitigation measure for an individual project.*

MM 4G-10: Encourage tenants to schedule goods movement for off-peak traffic hours when feasible.

Reason not applicable: *This measure is not applicable to the proposed Project. This measure applies to container terminal operations where cargo movement is achieved using trucks and other mobile sources. The proposed Project does not involve containerized goods movement.*

3.2.2 Environmental Setting

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

3.2.2.1 Regional Climate and Meteorology

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

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

Marine air trapped below the base of the subsidence inversion is often condensed into fog and stratus clouds by the cool Pacific Ocean. This is a typical weather condition in the San Pedro Bay region during the warmer months of the year. Stratus clouds usually form offshore and move into the coastal plains and valleys during the evening hours. When the land heats-up the following morning, the clouds burn-off to the immediate coastline, but often reform again the following evening.

As winter approaches, the Eastern Pacific High begins to weaken and shift to the south, allowing storm systems to pass through the region. The number of days with precipitation varies substantially from year to year, which produces a wide range of variability in annual precipitation totals. The annual precipitation for the Long Beach Airport, approximately 9 miles (14.5 km) northeast of the Project site, has ranged from 2.6 to 27.7 inches (6.6 to 70.4 cm) from 1958 through 2004, with an average of 11.9 inches (30.2 cm) (Western Region Climate Center 2004). About 94 percent of the annual rainfall occurs during the months of November through April, with a monthly average maximum of 2.9 inches (7.4 cm) in February. This wet-dry seasonal pattern is characteristic of most of California. Infrequent precipitation during the summer months usually occurs from tropical air masses that originate from continental Mexico or tropical storms off the West Coast of Mexico.

The average high and low temperatures at the Long Beach Airport in August are 83°F (28°C) and 64°F (18°C), respectively. January average high and low temperatures are 67°F (19°C) and 46°F (8°C). Extreme high and low temperatures recorded from 1958 through 2004 were 111°F (44°C) and 25°F (-4°C), respectively (Western Region Climate Center 2004). Temperatures in the San Pedro Bay area are generally less extreme than inland regions, due to the moderating effect of the ocean.

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

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

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

3.2.2.2 Air Pollutants and Air Monitoring

Criteria Pollutants

Air quality at a given location can be characterized by the concentration of various pollutants in the air. Units of concentration are generally expressed as 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.

The USEPA establishes the National Ambient Air Quality Standards (NAAQS). For most pollutants, maximum concentrations shall not exceed an NAAQS more than once per year; and they shall 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. Maximum pollutant concentrations shall not equal or exceed the CAAQS.

Pollutants that have corresponding national or state ambient air quality standards are known as criteria pollutants. The criteria pollutants of primary concern in this air quality assessment are ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), sulfates, particulate matter (PM), and Lead (Pb). PM is regulated as both PM_{10} and $PM_{2.5}$. PM_{10} consists of particles with an aerodynamic diameter of 10 microns or less, while $PM_{2.5}$ consists of particles that are less than or equal to 2.5 microns in size. $PM_{2.5}$ is a subset of PM_{10}, and both are subsets of PM. The known adverse effects associated with these criteria pollutants are shown in Table 3.2-1.

Of the criteria pollutants of concern, ozone is unique because it is not directly emitted from project-related sources. Rather, ozone is a secondary pollutant, formed from the precursor pollutants volatile organic compounds (VOC) and nitrogen oxides (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 by comparing project-generated emissions of VOC and NO_x to daily emission thresholds set by the South Coast Air Quality Management District (SCAQMD).

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

Notes:

a. More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: OEHHA, Particulate Matter Health Effects and Standard Recommendations (www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may), May 9, 2002 (OEHHA 2002); and U.S. EPA, Air Quality Criteria for Particulate Matter, October 2004 (USEPA 2004).

b. Lead emissions were evaluated in the health risk assessment of this study. Screening calculations have shown that lead emissions would be well below the SCAQMD emission thresholds for all project 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 (LSTs) (personal communication, S. Smith, 2006).

d. CAAQS 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.

Sources: SCAQMD 2006c; USEPA 2004; OEHHA 2002.

Because most of the project-related emission sources would be diesel-powered, diesel particulate matter (DPM) is a key pollutant evaluated in this study. DPM is one of the components of ambient PM_{10} and $PM_{2.5}$. DPM is also classified as a toxic air contaminant (TAC) by CARB. As a result, DPM is evaluated in this study both as a criteria pollutant (as a component of PM_{10} and $PM_{2.5}$) and as a TAC.

Local Air Monitoring Levels

USEPA designates all areas of the United States according to whether they meet the NAAQS. A nonattainment designation means that a primary NAAQS has been exceeded more than once per year in a given area. USEPA currently designates the SCAB as an "extreme" nonattainment area for 1-hour ozone, a "severe-17"[1] nonattainment area for 8-hour ozone, a "serious" nonattainment area for both CO[2] and PM_{10}, and a nonattainment area for $PM_{2.5}$. The SCAB is in attainment of the NAAQS for SO_2, NO_2, and lead (USEPA 2006). States with nonattainment areas must prepare a State Implementation Plan (SIP) that demonstrates how those areas will come into attainment.

The CARB also designates areas of the state according to whether they meet the CAAQS. A nonattainment designation means that a CAAQS has been exceeded more than once in 3 years. The CARB currently designates the SCAB as an "extreme" nonattainment area for ozone, and a nonattainment area for both PM_{10}, and $PM_{2.5}$. The air basin is in attainment of the CAAQS for CO, SO_2, NO_2, sulfates, and lead, and is unclassified for hydrogen sulfide and visibility reducing particles.

The Port has been conducting its own air quality monitoring program since February 2005. The main objective of the program is to estimate ambient levels of DPM near the Port. The secondary objective of the program is to estimate ambient particulate matter levels within adjacent communities due to Port emissions. To achieve these objectives, the program measures ambient concentrations of PM_{10}, $PM_{2.5}$, and elemental carbon $PM_{2.5}$ (which indicates fossil fuel combustion sources) at four locations in the Port vicinity (LAHD 2006a). 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 Port Outer Harbor. This station measures aged urban and Port emissions and marine aerosols during onshore flows and aged urban emissions and fresh Port emissions during offshore flows. Meteorological data from this site was used in this air quality

[1] Severe-17 = design value of 0.190 up to 0.280 ppm and has 17 years to reach attainment.

[2] The SCAB has been achieving the Federal 1-hour CO air quality standard since 1990, and the Federal 8-hour CO standard since 2002. However, the SCAB is still considered a nonattainment area until a petition for redesignation is submitted by the State and is approved by USEPA. A redesignation to attainment has already been made for the State CO standards.

modeling to analyze human health risks and criteria pollutant impacts associated with the proposed Project.

- *Source-Dominated Station* – Located at the Terminal Island Treatment Plant. This site is surrounded by three terminals and has a potential to receive emissions from off-road equipment, on-road trucks, and rail. During onshore flows, this station measures marine aerosols and fresh emissions from several nearby diesel-fired sources (trucks, trains, and ships). During offshore flows, this station measures aged urban emissions and Port emissions.
- *San Pedro Station* – Located at the Liberty Hill Plaza Building, adjacent to the Port administrative property on Palos Verdes Street. This location was near the western edge of Port operational emission sources and adjacent to residential areas in San Pedro. During onshore flows, aged urban emissions, marine aerosols, and fresh Port emissions have the potential to affect this site. During nighttime offshore flows, this site measures aged urban emissions and Port emissions.

As discussed below, the Port has collected PM_{10} data at its Wilmington station and $PM_{2.5}$ data at all four Port stations for more than 1 year. In order to show trends in pollutant concentrations over periods longer than 1 year and for criteria pollutants other than PM_{10} and $PM_{2.5}$, this analysis utilized data from the network of monitoring stations operated by the SCAQMD.

Of the SCAQMD monitoring stations, the most representative station for the Project vicinity is the North Long Beach station which is located adjacent to the San Pedro Bay Ports. Table 3.2-2 shows the highest pollutant concentrations recorded at the North Long Beach station for 2002 to 2006, the most recent complete 5-year period of data available. As shown in the table, the following standards were exceeded at the North Long Beach station over the 5-year period: ozone (state 1-hour standards), PM_{10} (state 24-hour and annual standards), and $PM_{2.5}$ (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 are not available for SO_2, lead, and sulfates in 2003, 2004 and 2006. In addition, the highest monitored concentration for CO (1-hour), SO_2 (1-hour), and $PM_{2.5}$ (annual) in 2006 are not available.

Pollutant sampling data for February 2005 through January 2006 from the Port monitoring program are available. Samples are 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 monitoring station are also presented for comparison. The table shows that for PM_{10}, concentrations at the Wilmington station are comparable to the North Long Beach station. For $PM_{2.5}$, concentrations at the Wilmington and Source-Dominated stations are greater than the Coastal Boundary and San Pedro stations, less than the North Long Beach station for maximum 24-hour averages, and comparable to the North Long Beach station for period averages. For elemental carbon $PM_{2.5}$, the Source-Dominated station has the highest concentrations, and the Coastal Boundary station has the lowest concentrations. Elemental carbon $PM_{2.5}$ was not measured at the North Long Beach station. The Coastal Boundary site, adjacent to the Berth 408 project site, recorded the lowest PM levels of the four Port monitoring sites.

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*				
				2002	2003	2004	2005	2006
Ozone (ppm)	1 hour	0.12	0.09	0.084	**0.099** [a]	0.090	**0.091**	0.081
	8 hours	0.08	0.070	0.064	0.068	**0.074**	0.068	0.058
CO (ppm)	1 hour	35	20	5.8	5.5	4.2	5.0	not avail.
	8 hours	9	9	4.6	4.7	3.4	3.7	3.4
NO_2 (ppm)	1 hour	n/a	0.18	0.13	0.14	0.12	0.12	0.102
	Annual	0.053	0.030	0.029	0.029	0.028	0.024	0.020
SO_2 (ppm)	1 hour	n/a	0.25	0.03	not avail.	not avail.	0.04	not avail.
	24 hours	0.14	0.04	0.008	0.008	0.013	0.010	0.010
	Annual	0.03	n/a	0.002	0.002	0.005	0.002	0.001
PM_{10} (µg/m^3)	24 hours	150	50	**74** [b]	**63** [b]	**72** [b]	**66** [b]	**51** [b]
	Annual	n/a	20	**35.9**	**32.8**	**33.1**	**29.7**	**30.6**
$PM_{2.5}$ (µg/m^3)	24 hours	35	n/a	**62.7** [c]	**115.2** [c]	**66.6** [c]	**53.8** [c]	**58.5** [c]
	Annual	15	12	**19.5**	**18.0**	**17.8**	**16.0**	not avail.
Lead (µg/m^3)	30 days	n/a	1.5	0.03	not avail.	not avail.	not avail.	not avail.
	Calendar quarter	1.5	n/a	0.02	not avail.	not avail.	not avail.	not avail.
Sulfates (µg/m^3)	24 hours	n/a	25	17.8	not avail.	not avail.	not avail.	not avail.

Notes:

µg/m3 = micrograms per cubic meter

ppm = parts per million

Exceedences of the standards are highlighted in bold. Although the NAAQS were not exceeded at the North Long Beach Monitoring Station for carbon monoxide and PM_{10} from 2002 to 2006, the SCAB is classified by USEPA as nonattainment for these pollutants because violations have occurred at other monitoring stations in the Basin.

a. The state 1-hour ozone standard was exceeded on 0 days in 2002, 1 day in 2003, 0 days in 2004, 0 days in 2005, and 0 days in 2006. The national 1-hour ozone standard was not exceeded.

b. The state 24-hour PM_{10} standard was exceeded on 5 days in 2002, 4 days in 2003, and 4 days in 2004. The number of 24-hour PM_{10} exceedences in 2005 and 2006 is not available. The national 24-hour PM_{10} standard was not exceeded.

c. The national 24-hour $PM_{2.5}$ standard was exceeded on 3 days in 2003. The number of days above the national 24-hour $PM_{2.5}$ standard is not available in 2002, 2004, 2005 and 2006.

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

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

Pollutant	*Averaging Period*	*Port Monitoring Sites*				*SCAQMD Monitoring Site*
		Wilmington Community Site	*Coastal Boundary Site*	*San Pedro Community Site*	*Source-Dominated Site*	*North Long Beach*
PM_{10} (µg/m^3)	24 hours	**63.3**	--	--	--	**66.0**
	Period Average	27.6	--	--	--	30.0
$PM_{2.5}$ (µg/m^3)	24 hours	32.7	25.3	25.7	31.4	**48.0**
	Period Average	13.0	10.4	10.9	14.5	14.9
Elemental Carbon $PM_{2.5}$ (µg/m^3)	24 hours	5.2	4.6	6.7	9.3	--
	Period Average	1.5	1.1	1.5	2.5	--

Notes:

Exceedences of the standards are highlighted in bold.

1. For PM_{10}, the SCAQMD North Long Beach monitoring site measures a 24-hour sample every 6 days, compared to every 3 days for the Port monitoring sites. Therefore, only one-half of the Port monitoring site samples (every other sample) has a corresponding sample from the North Long Beach site. For $PM_{2.5}$, all monitoring sites measure a 24-hour sample every 3 days.
2. The data were collected from February 2005 through January 2006, with the following exceptions: the Source-Dominated site collected data from May 2005 through January 2006, and data from the SCAQMD North Long Beach monitoring sites were available from February 2005 through December 2005.
3. PM_{10} is not measured at the Coastal Boundary site, San Pedro Community site, or Source-Dominated site.
4. Elemental Carbon $PM_{2.5}$ is not measured at the SCAQMD North Long Beach site.

Source: LAHD 2006a.

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

Toxic Air Contaminants

TACs are identified by the CARB based on exposure assessments conducted by the Board and health effects assessments conducted by the Office of Environmental Health Hazard Assessment (OEHHA). Some TACs are cancer-causing chemicals. Others have noncancer health effects from short-term isolated exposure or longer term continuous exposure for a significant fraction of a lifetime. Some chemicals are both cancer-causing agents and have noncancer health effects as well. OEHHA develops noncancer and cancer health values from information available from published animal and human studies. TACs are emitted from many industrial processes, stationary sources such as dry cleaners, gasoline stations, paint and solvent operations, and notably fossil fuel combustion sources. 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 off-road motor vehicles (SCAQMD 2000). The higher risk levels were found in the urban core areas in south central Los Angeles County, in Wilmington adjacent to the Port, and near freeways.

In January 2008, the SCAQMD released the draft MATES III study (SCAQMD 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, a recently released CARB report titled *Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach* indicates that the Ports contributed approximately 21 percent of the total diesel PM emissions in the air basin during 2002 (CARB 2006b). 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, the Port, in conjunction with the Port of Long Beach, has developed the San Pedro Bay Ports Clean Air Action Plan (CAAP) that targets all emissions, but is focused primarily on TACs. Additionally, all major development projects will include a Health Risk Assessment (HRA) to further assess TAC emissions and to target mitigation to reduce the impact on public health.

Secondary $PM_{2.5}$ Formation

Within the SCAB, $PM_{2.5}$ particles are both directly emitted into the atmosphere (e.g., primary particles) and are formed through atmospheric chemical reactions from precursor gases (e.g., secondary particles). Primary $PM_{2.5}$ includes diesel soot, combustion products, road dust, and other fine particles. Secondary $PM_{2.5}$ – which includes products such as sulfates, nitrates, and complex carbon compounds – are formed from reactions with directly emitted NO_x, sulfur oxides (SO_x), VOCs, and ammonia (SCAQMD 2007b).

Project-generated emissions of NO_x, SO_x, and VOCs would contribute toward secondary $PM_{2.5}$ formation some distance downwind of the emission sources. However, there is currently no simple procedure to predict how much particle formation there would be, and how far downwind the formation would occur. The reactions that form secondary $PM_{2.5}$ depend on the presence of other chemicals which are in turn part of a complex chemical process occurring in the atmosphere. Given the current lack of a reliable scientific method of calculating secondary $PM_{2.5}$ conversion, this report presents the best estimate of direct $PM_{2.5}$ emissions only. This approach is consistent with the SCAQMD's recommendation for calculating $PM_{2.5}$, which focuses only on directly emitted $PM_{2.5}$ (SCAQMD 2006a).

Ultrafine Particles

The USEPA and State of California currently monitor and regulate PM_{10} and $PM_{2.5}$. PM_{10} is defined as particulate matter 10 µm or less in diameter. Similarly, $PM_{2.5}$ is defined as particulate matter 2.5 µm or less in diameter. Ultrafine particles (UFP) are generally defined as particles less than or equal to 0.1 µm in diameter. The epidemiological studies determining the health impacts of PM_{10} and $PM_{2.5}$ estimated exposure using PM_{10} and $PM_{2.5}$ ambient monitoring. These PM fractions include the ultrafine fraction as well as larger particles. Thus, ultrafine particle fraction is included in both monitoring and regulation by USEPA and the State of California. As the science progresses new approaches may be needed, and it may be possible to eventually set separate ultrafine standards.

UFPs are mainly formed by fossil-fuel combustion. With diesel fuel, UFPs can be formed directly from the fuel during combustion. With gasoline and natural gases (LNG/CNG), the UFPs are coming largely from the lubricant oil. UFPs are emitted directly from the tailpipe as solid particles (soot--elemental carbon and metal oxides) and semi-volatile particles (sulfates and hydrocarbons) that coagulate to form particles.

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

Current UFP research primarily involves roadway exposure. Preliminary studies suggest that over 50 percent of a person's daily exposure is from driving on highways. Levels appear to drop off rapidly as one moves away from major roadways.

Sampling of airborne UFPs is a challenging task for two reasons. First, because of their small mass, separation of fine particles from UFPs by inertial impaction can only be achieved at a relatively high pressure drop; and second, the extremely low concentration of UFPs in ambient air makes collection of filter samples for gravimetric analysis and chemical characterization only feasible with novel high volume sampling techniques (Sarnat et al. 2003).

Because the methods for sampling UFPs are relatively new and still evolving, little research has been done regarding UFP exposure associated with ships and off-road vehicles. A number of studies are referenced in Appendix H. CARB began a study in the summer of 2007 at the San Pedro Bay Ports to measure airborne pollutants including UFPs. To reduce emissions, work is being done on filter technology, which appears promising, including filters for ships. The Port is actively participating in the CARB testing at the Port and will comply with all future regulations regarding UFPs. In addition, measures included in the CAAP aims to reduce all air pollutant emissions from the Port, including UFP.

Atmospheric Deposition

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

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

3.2.2.3 Greenhouse Gases

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

Potential adverse effects associated with Climate Change are presented in Table 3.2-4.

Table 3.2-4. Potential Climate Change Impacts on Temperature, Sea Level and Precipitation

Impact	*Description of Impacts*
Health	Weather-related mortality Infectious diseases Air quality Respiratory illness
Agriculture	Crop yields Irrigation demands
Forest	Forest composition Geographic range of forest Forest health and productivity
Water Resources	Water supply Water quality Competition for water
Coastal Areas	Erosion of beaches Inundation of coastal lands Additional cost to protect coastal communities
Species and Natural Resources	Loss of habitat and species Cryosphere: diminishing glaciers
Source: USEPA 2007.	

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) (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 carbon dioxide emissions increased by 20 percent from 1990-2004, while methane and nitrous oxide emissions decreased by 10 percent and 2 percent, respectively. There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures. For example, the California Climate Change Center reports that by the end of this century, temperatures are expected to rise by 4.7 to 10.5°F due to increased GHG emissions. Scientific evidence indicates a trend of increasing global temperatures near the earth's surface over the past century due to increased human induced levels of GHGs.

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees (IPCC 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 30-90% reduction in snowpack in the Sierra Mountains). Current data suggest that in the next 25 years, in every season of the year, California will 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 (2006) predicted that California could witness the following events:

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

Currently, there are no federal standards for GHG emissions. Recently, the U.S. Supreme Court ruled that the harms associated with climate change are serious and well recognized, that the USEPA must regulate GHGs as pollutants, and unless the agency determines that GHGs do not contribute to climate change, it must promulgate regulations for GHG emissions from new motor vehicles (Massachusetts et al. Environmental Protection Agency [case No. 05-1120] 2007). 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 GHG 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):

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

These are the same six GHGs that are identified in California Assembly Bill (AB) 32 and by the USEPA. Appendix H contains detailed information about the natural and man-made sources of emissions for each of these GHGs.

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

The Project air quality analysis includes estimates of GHG emissions generated by the Project and its alternatives for existing and future conditions. To be consistent with international convention, the GHG emissions in this report are expressed in metric units (metric tons, in this case).

Sustainability and Port Climate Action Plan

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

In accordance with this directive, the Port’s Sustainability and Climate Action Plan will cover all currently listed GHG emissions related to the Port’s activities (such as Port buildings, and Port workforce operations). The Port will complete annual GHG inventories of the Port and its customers and report these to the Climate Action Registry. The first of these inventories will be reported in 2008 for the year 2006.

The Port, 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. The Port is also a signatory to the State’s Sustainable Goods Movement Program, and is participating in the University of Southern California Sustainable Cities Program, which is looking at GHGs associated with international goods movement.

3.2.2.4 Sensitive Receptors

The impact of air emissions on sensitive members of the population is a special concern. Sensitive receptor groups include children, the elderly, and the acutely and chronically ill. The locations of these groups include residences, schools (grammar schools and high schools), playgrounds, daycare centers, convalescent homes, and hospitals. SCAQMD guidance suggests that CEQA Lead Agencies should identify and consider sensitive receptors which would be located within one-quarter (0.25) mile of land uses emitting air toxics (SCAQMD 1993, Ch. 4). This analysis identified sensitive receptors within one mile of the proposed project sites.

The nearest sensitive receptors to the Project site are residents at the Department of Justice Federal Correctional Institution on Terminal Island at Reservation Point, approximately 0.5 miles (0.8 km) northwest of Berth 408. There are also nearby residential receptors located at the Cabrillo Marina. The nearest sensitive receptors to the tank farm areas and pipeline routes include the World Tots LA daycare center/preschool which is located approximately 1.2 miles (1.9 km) west of Berth 408 and private residences in San Pedro, located approximately 1.2 miles (1.9 km) away in the west direction. No other schools, daycare centers, or hospitals are located within 1 mile of the proposed Project areas.

3.2.2.5 Existing Emissions at the Berth 408 Terminal and associated Project Sites

The sites included in the proposed Project have been either vacant or inactive since before June 2004. This includes the Berth 408 terminal and Tank Farm Site 1 and Tank Farm Site 2. As such the existing emissions for the Berth 408 terminal and associated Tank Farm sites are considered equal to zero for all air pollutants. The disclosure and analysis of the impacts of the projected air emissions relative to this zero baseline are provided in the CEQA impact determinations for the proposed Project and its alternatives.

3.2.2.6 Existing Emissions at other Crude Oil Marine Terminals within the San Pedro Bay Ports

As explained in Section 2.5.2.1, there are presently five marine terminals in the Los Angeles area that regularly offload crude oil: ExxonMobil (Los Angeles Harbor Department [LAHD] Berths 238-240), BP (Port of Long Beach Berths 76-78 and Port of Long Beach Berth 121), Tesoro (formerly Shell) (Port of Long Beach Berths 84-87), and Chevron (offshore mooring west of El Segundo). Based on research conducted by PLAMT and reviewed by the U.S. Army Corps of Engineers (USACE) and LAHD, it was determined that only the terminals at Port of Los Angeles Berths 238-240, located on the west side of Pier 300, and Port of Long Beach Berths 76-78 and 84-87, had capacity to increase their crude oil throughput as of early 2007.

The potential for increased emissions from increased crude oil throughput at those terminals was considered under this analysis. This analysis did not require a determination of the existing mass emissions or GHG emissions from those other terminals because they are not part of the proposed Project and any air quality impacts due to existing mass emissions and GHG emissions from the operation of those facilities is reflected in the baseline ambient air quality measurements for the project area. The NEPA Baseline, or the anticipated environmental conditions if the USACE does not approve development of the PLAMT Crude Oil Marine Terminal and associated facilities, incudes the anticipated increases in air emissions at the nearby marine terminals. Because these emissions would be expected to increase over time, the NEPA Baseline would change correspondingly. The NEPA impact determinations for the proposed Project and each alternative analyze the air impacts of the projected emissions relative to this dynamic baseline.

3.2.3 Applicable Regulations

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

3.2.3.1 Federal Regulations

The Federal Clean Air Act (CAA) and its subsequent amendments form the basis for the national air pollution control effort. USEPA is responsible for implementing most aspects of the CAA. Basic elements of the act include the NAAQS for major air pollutants, hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The CAA delegates the enforcement of the federal standards to the states. In California, the CARB is responsible for enforcing air pollution regulations. The CARB has in turn delegated to local air agencies the responsibility of regulating stationary emission sources. In the SCAB, the SCAQMD has this responsibility.

State Implementation Plan

In areas that do not attain a NAAQS, the CAA requires preparation of a State Implementation Plan (SIP), detailing how the State will attain the NAAQS within mandated timeframes. In 2003, the SCAQMD and SCAG developed the *2003 Air Quality Management Plan* (*2003 AQMP*). The focus of the *2003 AQMP* was to demonstrate attainment of the federal PM_{10} standard by 2006 and the federal 1-hour ozone standard by 2010, while making expeditious progress toward attainment of state standards. Since the SCAB was on the verge of attaining the federal CO standard, the *2003 AQMP* also replaced the 1997 attainment demonstration for the federal CO standard and provided a basis for a future maintenance plan for CO (SCAQMD 2003). More recently the SCAQMD and SCAG, in cooperation with the CARB and USEPA, developed the *2007 AQMP* for purposes of demonstrating compliance with the new NAAQS for $PM_{2.5}$ and 8-hour ozone (O_3) and other planning requirements, including compliance with the NAAQS for PM_{10} (SCAQMD et al 2007). Since it will be more difficult to achieve the 8-hour O_3 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 Final *Program Environmental Impact Report for the 2007 AQMP* in June 2007 (SCAQMD 2007a).

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 (<130 revolutions-per-minute [rpm] engine speed), the NO_x limits are about 6 percent lower than the average emissions from pre-Annex VI ships used in the *Port-Wide Baseline Air Emissions Inventory* (Starcrest 2007).

Emission Standards for Nonroad Diesel Engines

To reduce emissions from off-road diesel equipment, USEPA established a series of increasingly strict emission standards for new off-road diesel engines. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards are 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 would only apply to proposed construction equipment, as marine vessels are exempt (DieselNet 2006).

Emission Standards for Marine Diesel Engines

To reduce emissions from Category 1 (at least 50 horsepower [hp] but < 5 liters per cylinder displacement) and Category 2 (5 to 30 liters per cylinder displacement) marine diesel engines, USEPA established emission standards for new engines, referred to as Tier 2 marine engine standards. The Tier 2 standards will be phased in from 2004 to 2007 (year of manufacture), depending on the engine size (USEPA 1999). For the proposed Project, this rule is assumed to affect harbor craft but not oceangoing vessel auxiliary engines because the latter would likely be manufactured overseas and, therefore, would not be subject to the rule.

Emission Standards for On-Road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, USEPA established a series of cleaner emission standards for new engines, starting in 1988. The USEPA promulgated the final and cleanest standards with the 2007 Heavy Duty Highway Rule (USEPA 2000). The PM emission standard of 0.01 G/Hp-Hr is required for new vehicles beginning with the model year 2007. Also, the NO_x and Non-methane Hydrocarbon (NMHC) standards of 0.20 G/Hp-Hr and 0.14 G/Hp-Hr, respectively, would be phased in together between 2007 and 2010 on a percent-of-sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010.

Nonroad Diesel Fuel Rule

With this rule, USEPA set sulfur limitations for non-road diesel fuel, including locomotives and marine vessels (excluding residual fuel used by oceangoing vessels). This rule affects Project line-haul locomotives. The California Diesel Fuel Regulations (described below) generally pre-empt this rule for other proposed Project sources, such as switch yard locomotives, construction equipment, terminal equipment, and harbor craft. Under this rule, diesel fuel used by line-haul locomotives will be limited to 500 ppm starting June 1, 2007 and 15 ppm starting January 1, 2012 (USEPA 2000).

Highway Diesel Fuel Rule

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

General Conformity Rule

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

Based on the present attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$, 70 tons of PM_{10}, or 25 tons of NO_x or VOCs. However, the United States Court of Appeals ruled in December 2006 that areas in nonattainment of the 1-hour O_3 NAAQS that were superseded by the 8-hour nonattainment classifications must also consider the 1-hour requirements in conformity analyses (South Coast Air Quality Management Dist. v. EPA, 472 F.3d 882 [D.C.Cir. 2006]). Hence, 10 tons per year of NO_x or VOCs also are applicable conformity de minimis thresholds for the SCAB. These de minimis thresholds apply to both proposed construction and operational activities. (For proposed Project operations, the thresholds are compared to the net change in emissions relative to the NEPA Baseline.) If the proposed action exceeds one or more of the de minimis thresholds, a more rigorous conformity determination is the next step in the conformity evaluation process. SCAQMD Rule 1901 adopts the guidelines of the General Conformity Rule.

Conformity Statement

The Southern California Association of Governments (SCAG) serves the project area as the Metropolitan Planning Organization (MPO) for Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial Counties. As the designated MPO, SCAG is mandated by the federal government to research and draw up plans for transportation and mobility portions of the SCAQMD air plan. SCAG performs the transportation conformity analysis as part of its approval of the Regional Transportation Plan (RTP). The last RTP was approved in 2004 and amended in 2006.

The Port regularly provides SCAG with its Portwide cargo forecasts for development of the AQMP. Cargo projections from Port activities have been included in the RTP of the MPO and thus were included in the most recent USEPA-approved 1997/1999 SIP and the 2003 SIP, should USEPA approve it. These same projections have also been included in the more recent 2007 RTP and SIP, which would also be submitted for USEPA approval. This has been acknowledged by the SCAG, which is the region's MPO. Additionally, an analysis has been done pursuant to 40 CFR 93 Section 153 which determined that the proposed project criteria emissions are de minimis, as they are less than 10 percent of both the 1997 and 2007 RTP. As such, a General Conformity Determination is not required for the proposed project.

3.2.3.2 State Regulations and Agreements

California Clean Air Act

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

California Diesel Fuel Regulations

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

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 2006d). The Goods Movement Plan proposes measures that would reduce emissions from the main sources associated with ships, harbor craft, terminal equipment, trucks and locomotives. This Plan is currently under public review.

A recently approved regulation requires ship auxiliary engines operating in California waters beginning on January 1, 2007 to use marine diesel oil (MDO) with a maximum 0.5 percent sulfur by weight or use marine gas oil (MGO). Then, starting on January 1, 2010, auxiliary engines operating in California waters must meet a second set of emission limits; one way to do this would be to use MGO with 0.1 percent sulfur by weight. This regulation is presently being challenged in the federal courts.

Due to the uncertainty regarding the implementation of these regulations and the fact that most have not become law, they were not incorporated into the unmitigated emission estimates for the Project and its alternatives for future conditions. If their implementations become certain prior to completion of this Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR), their effects will be simulated as such in this analysis.

Statewide Portable Equipment Registration Program (PERP)

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

AB 1493 - Vehicular Emissions of Greenhouse Gases

California Assembly Bill 1493 (Pavley), enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB 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 an estimated 18% in 2020 and by 27% in 2030 (CARB 2004).

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 percent below 1990 levels. Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020.

AB 32 – California Global Warming Solutions Act of 2006

The purpose of AB 32 is to reduce statewide GHG emissions to 1990 levels by 2020. This enactment instructs the CARB to adopt regulations that reduce emissions from significant sources of GHGs and establish a mandatory GHG reporting and verification program by January 1, 2008. AB 32 requires the CARB to adopt GHG emission limits and emission reduction measures, as well as a market-based cap and trade system, by January 1, 2011, both of which are to become effective on January 1, 2012. AB32 does not identify a significance level of GHG for CEQA/NEPA purposes, nor has the CARB adopted such a significance threshold.

Executive Order S-01-07

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

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 (IOUs). 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 will adopt similar regulations in June 2007.

California Climate Action Registry

Established by the California Legislature in 2000, the California Climate Action Registry (CCAR or Registry) is a non-profit public-private partnership that maintains a voluntary registry for GHG emissions. The purpose of the Registry is to help companies, organizations, and local agencies establish GHG emission baselines for purposes of complying with future GHG emission reduction requirements. The Port is a voluntary member of the Registry and they have 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 Registry's General Reporting Protocol (Version 2.1, June 2006).
- Report final GHG emissions estimates on the Registry website.

LAHD has been a member of CCAR since March 29, 2006 and has recently submitted an emissions inventory for LAHD operations and is currently working on an emissions inventory for Port operations (including Port tenants). Organizations that join the CCAR are specifically recognized by AB 32. As a result, the Port is assured that CARB will incorporate emissions reporting protocols developed by CCAR into the California new mandatory GHG emissions reporting program to the maximum extent feasible.

3.2.3.3 Local Regulations and Agreements

Through the attainment planning process, the SCAQMD develops the *SCAQMD Rules and Regulations* to regulate sources of air pollution in the SCAB. The most pertinent SCAQMD rules to the proposed Project are listed below.

Rule 201 – Permit to Construct. This rule requires anyone that installs or modifies equipment that will emit air contaminants to first obtain a Permit to Construct (PTC). For example, tank modifications would require a PTC.

Rule 203 – Permit to Operate. This rule specifies that equipment which may cause the issuance of air contaminants, or which may reduce or control the issuance of air contaminants, may not operate without first obtaining a written Permit to Operate (PTO).

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

Rule 403 – Fugitive Dust. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, such that the dust remains visible beyond the emission source property line. A person conducting active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type. Operators of large operations (in excess of 50 acres (20 hectares) of disturbed surface area or any earth-moving operation that exceed a daily throughput of 5,000 cubic yards (cy) (3,825 cubic meters [m^3]) or more three times during the most recent 365-day period. shall either implement control measures identified in the rule or obtain an approved fugitive dust emissions plan from the SCAQMD. Since the proposed improvements would not qualify as a large operation, the Project construction manager would only have to implement best available control measures identified in the rule to minimize fugitive dust emissions from proposed earth-moving and grading activities.

Rule 463 – **Organic Liquid Storage.** This rule sets the requirements to control VOC emissions from any aboveground stationary tank with capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline.

Rule 466 – Pumps and Compressors. This rule sets the requirements for operation of any pump or compressor that would handle ROCs. The requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping.

Rule 466.1 – Valves and Flanges. This rule sets the operating requirements for valves and flanges that would handle ROCs. The requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping.

Rule 466.1 – Pressure Relief Devices. This rule specifies that the operator of a refinery shall not use any pressure relief device on any equipment handling VOC unless the pressure relief device is vented to a vapor recovery or disposal system or inspected and maintained in accordance with the inspection, maintenance, recordkeeping and testing requirements of the rule.

Regulation IX, Subparts K, Ka, and Kb. Regulation IX, Subparts K, Ka, and Kb adopts the federal Standards of Performance for Storage Vessels for Petroleum Liquids (as contained in Part 60, Chapter I, Title 40, of the Code of Federal Regulations) into the SCAQMD Rules and Regulations.

Rule 1142 – Marine Tank Vessel Operations. This rule limits the marine tank vessel operation emissions of VOC during a loading, lightering, ballasting, or housekeeping event to 5.7 grams per cubic meter (2 lbs per 1,000 barrels) of liquid loaded into a marine tank vessel or requires reduction of at least 95 percent by weight of uncontrolled VOC emissions.

Rule 1173 – Control of VOC Leaks and Releases from Components at Petroleum Facilities and Chemical Plants. This rule establishes leak thresholds, and sets requirements for identification, inspection, maintenance, recordkeeping, and testing of facility components and pressure relief devices. The intent of the rule is to control VOC leaks.

Rule 1178 – Further Reduction of VOC Emissions from Storage Tanks at Petroleum Facilities. This rule requires installation of a dome roof for external floating roof tanks containing products with a true vapor pressure greater than 3 pounds per square inch at atmospheric pressure (psia). In addition, at least 95 percent emission control is required for fixed roof tanks containing products with a true vapor pressure greater than 0.1 psia.

Regulation XIII – New Source Review. This rule requires new sources of any nonattainment air contaminant, ozone depleting compound, or ammonia to employ Best Available Control Technology (BACT). This rule further requires that any new source of a nonattainment air contaminant (1) demonstrate with modeling that the new facility will not cause a violation of a state or national ambient air quality standard, or make substantially worse an existing violation and (2) offset its emissions of VOC, NO_x, SO_x, and PM_{10} by a ratio of 1.2 to 1.0.

Subject to New Source Review, the Project would obtain a permit to construct and operate for some of its land based equipment, such as off-loading arms, tanks, and vapor destruction units (VDUs). Additionally, Rule 1306 (g) requires that Project (1) vessel emissions that occur at berth (during hoteling and unloading cargo) and (2) non-propulsion ship emissions that occur within SCAQMD Coastal Waters (transiting emissions – boiler warm-up) must be accumulated as part of the permitted source. As a result, these Project vessel emissions and stationary sources have to be "offset" in accordance with Rule 1303(b)(2).

In general, offset credits, also known as Emissions Reduction Credits (ERCs), must be obtained from other permitted sources in the SCAB that have decreased emissions or ceased operations. The SCAQMD certifies that proposed ERCs are real, quantifiable, permanent, enforceable and not greater than what the sources would emit if operated with current BACT (SCAQMD Rule 1309). When an ERC certificate is issued, it is identified as either "coastal" or "inland" depending on the location where the emissions reduction took place. As a coastal project, the Berth 408 project would be required to use coastal ERCs to offset the project's regulated emissions (SCAQMD Rule 1303 (b)(3)). PLAMT has obtained ERCs in the amount of 581 pounds per day of NO_x, 181 pounds per day of SO_x, and 352 pounds per day of VOC to fully offset proposed emissions.

Rule 1401 – New Source Review of Toxic Air Contaminants. This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI) from new permit units which emit TACs. The rule establishes allowable risks for permit units requiring new permits pursuant to Rules 201 and 203.

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

Rule 1901 – General Conformity - Rule 1901 states that a federal agency cannot support an activity unless the agency determines that the activity will conform to the most recent USEPA-approved SIP within the region of the proposed project. This means that federally supported or funded activities will not (1) cause or contribute to any new air quality standard violation, (2) increase the frequency or severity of any existing standard violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. Any project in-water construction components would require approval from the USACE. Therefore, based on the present attainment status of the SCAB, these project components would conform to the SIP if its annual construction emissions remain below 100 tons of CO, 70 tons of PM_{10}, or 10 tons of NO_x or VOCs. If the proposed federal action exceeds one of these *de minimis* thresholds, performance of a formal conformity analysis is the next step in the conformity determination process.

Vessel Speed Reduction (VSR) Program. The Ports of Los Angeles and Long Beach began this voluntary program in May 2001 for ships that call at the Ports to reduce their speed to 12 knots (kts) or less within 20 nm of the Point Fermin Lighthouse. A reduction in vessel speed in the offshore shipping lanes (up to 13 kts for the largest container ships) can substantially reduce emissions from the main propulsion engines of the ships. The CAAP adopted the VSR Program 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

The Port 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 (AEI) process, the Port has been able to identify emission sources and relative contributions in order to develop effective emissions reduction strategies. The Port's Clean Air Program has included progressive programs such as Alternative Marine Power (AMP), use of emulsified fuel and diesel oxidation catalysts (DOCs) in yard equipment, alternative fuel testing, and the VSR Program.

In late 2004, the Port 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. Because the NNI measures could still apply as mitigation measures for this Project, Appendix B contains a document that identifies and analyzes all of NNI measures in terms of applicability to the proposed Project.

As discussed in Section 1.6.2 and Section 3.2.2.3, the Port, in conjunction with the Port of Long Beach and with guidance from AQMD, CARB and USEPA, adopted the CAAP to expand upon existing and develop new emission-reduction strategies. The CAAP was released as a draft Plan for public review on June 28, 2006. The CAAP focuses primarily on reducing DPM, along with NO_x and SO_x, with two main goals: (1) to reduce Port-related air emissions in the interest of public health, and (2) to disconnect cargo growth with emissions increases. The Plan includes near-term measures implemented largely through the CEQA/NEPA process and included in new leases at both Ports. Portwide measures at both Ports are also part of the Plan. The final CAAP was approved by the Boards of Harbor Commissioners for the San Pedro Bay Ports in November 2006.

This Draft SEIS/SEIR analysis assumes conformance with the CAAP. Mitigation measures applied to reduce air emissions and public health impacts are consistent with, and in some cases exceed, the emission-reduction strategies of the CAAP. Table 3.2-21 lists the CAAP control measures along with the corresponding mitigation measures which are applied to this project.

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.

This section also discusses the relationship of the 1992 Deep Draft FEIS/FEIR to the proposed Project and alternatives. The 1992 Deep Draft FEIS/FEIR is generally applicable to development and operation of Pier 400, which includes certain sites covered by the proposed Project.

3.2.4.1 Methodology

Air pollutant emissions from the proposed construction and operational activities were calculated using the most current emission factors and methods, then compared to the significance thresholds identified in Section 3.2.4.2 to determine their significance. For proposed Project and alternatives impacts that exceeded a significance threshold, measures were evaluated to mitigate such potentially significant impacts to a less than significant level.

The following analysis considers the air quality impacts that would occur from the proposed Project and alternatives. Section 4.2 of this document evaluates the potential cumulative impacts on air quality that could occur from construction and operation of the proposed Project in combination with existing or reasonably foreseeable future projects. The analysis assumes that only the proposed Project elements as described in Section 2 at the Berth 408 and associated project sites would be implemented over the proposed 30 year lease. If the tenant requested to modify the proposed Project at any time over the lease period, such modifications would require further CEQA and possibly NEPA analysis and lease amendments. Any future projects at the PLAMT crude oil terminal subject to CEQA and/or NEPA review would be required to conform with future applicable measures from the CAAP.

3.2.4.1.1 CEQA Baseline

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of a project 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 SEIS/SEIR, the CEQA Baseline for determining the significance of potential impacts under CEQA is June 2004. CEQA Baseline conditions are described in Section 2.6.2.

The CEQA Baseline represents the setting at a fixed point in time, with no project growth over time, and differs from the “No Federal Action/No Project” Alternative (discussed in Section 2.5.2.1) in that the No Federal Action/No Project Alternative addresses what is likely to happen at the site over time, starting from the baseline conditions. The No Federal Action/No Project Alternative allows for growth at the proposed Project site that would occur without any required additional approvals.

3.2.4.1.2 NEPA Baseline

For purposes of this Draft SEIS/SEIR, the evaluation of significance under NEPA is defined by comparing the proposed Project or other alternative to the No Federal Action scenario (i.e., the NEPA Baseline and No Federal Action Alternative are equivalent for this project). Unlike the CEQA Baseline, which is defined by conditions at a point in time, the NEPA Baseline/No Federal Action is not bound by statute to a "flat" or "no growth" scenario; therefore, the USACE may project increases in operations over the life of a project to properly analyze the NEPA Baseline/No Federal Action condition.

The NEPA Baseline condition for determining significance of impacts is defined by examining the full range of construction and operational activities that are likely to occur without a permit from the USACE. As documented in Section 2.6.1, the USACE, the LAHD, and the applicant have concluded that no part of the proposed Project would be built absent a USACE permit. Thus, for the case of this project, the NEPA Baseline is identical to the No Federal Action/No Project Alternative (see Section 2.6.1). Elements of the NEPA Baseline include:

- Paving, lighting, fencing, and construction of an access road at Tank Farm Site 1 to allow intermittent temporary storage of chassis-mounted containers on the site by APM;
- Paving, fencing, and lighting at Tank Farm Site 2 to allow intermittent temporary wheeled container storage by APL or Evergreen; and
- Additional crude oil deliveries at existing crude oil terminals in the San Pedro Bay Ports.

Significance of the proposed Project or alternative is defined by comparing the proposed Project or alternative to the NEPA Baseline (i.e., the increment). The NEPA Baseline conditions are described in Section 2.6.1 and 2.5.2.1.

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. They were primarily based on standards established by the City of Los Angeles in the *L.A. CEQA Thresholds Guid*e (City of Los Angeles 2006).

Construction Thresholds

The *L.A. CEQA Thresholds Guid*e (City of Los Angeles 2006) references the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993) and USEPA *AP-42* for calculating and determining the significance of construction emissions. Each lead city department has the responsibility to determine the appropriate standards. Proposed Project-related factors to be used in a case-by-case evaluation of significance include the following:

- Combustion emissions from construction equipment:
  - Type, number of pieces, and usage for each type of construction equipment
  - Estimated fuel usage and type of fuel (diesel, gasoline, natural gas) for each type of equipment
  - Emission factors for each type of equipment

- Fugitive Dust
    - Grading, excavation, and hauling
    - Amount of soil to be disturbed onsite or moved offsite
    - Emission factors for disturbed soil
    - Duration of grading, excavation, and hauling activities
    - Type and number of pieces of equipment to be used
- Other mobile source emissions
    - Number and average length of construction worker trips to the proposed Project site, per day
    - Duration of construction activities

For the purposes of this study, the air quality thresholds of significance for construction activities are based on emissions and concentration thresholds established by the SCAQMD (2006b). Construction-related air emissions would be considered significant if:

AQ-1: The Project would result in construction-related emissions that exceed any of the SCAQMD thresholds of significance in Table 3.2-5.

Table 3.2-5. SCAQMD Thresholds for Construction Emissions

Air Pollutant	*Emission Threshold (pounds/day)*
Volatile organic compounds (VOC)	75
Carbon monoxide (CO)	550
Nitrogen oxides (NO_X)	100
Sulfur oxides (SO_X)	150
Particulates (PM_{10})	150
Particulates ($PM_{2.5}$)	55
Source: SCAQMD 2006b.	

AQ-2: Proposed Project construction would result in offsite ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance in Table 3.2-6.[3] However, to evaluate Project impacts to ambient NO_2 levels, the analysis replaced the use of the current SCAQMD NO_2 thresholds with the revised 1-hour and annual CAAQS of 338 and 56 $\mu g/m^3$, respectively.

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

Table 3.2-6. SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Construction

Air Pollutant	*Ambient Concentration Threshold*
Nitrogen Dioxide (NO_2) 1-hour average Annual average	0.18 ppm (338 $\mu g/m^3$) 0.030 ppm (56 $\mu g/m^3$)
Particulates (PM_{10}) 24-hour average Annual arithmetic mean	10.4 $\mu g/m^3$ 20 $\mu g/m^3$
Particulates ($PM_{2.5}$) 24-hour average	10.4 $\mu g/m^3$
Carbon Monoxide (CO) 1-hour average 8-hour average	20 ppm (23,000 $\mu g/m^3$) 9.0 ppm (10,000 $\mu g/m^3$)

Notes:
1. 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.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.
3. The SCAQMD has also established a threshold for sulfates and for annual PM_{10}, but is currently not requiring a quantitative comparison to these thresholds.
4. To evaluate Project impacts to ambient NO_2 levels, the analysis replaced the use of the current SCAQMD NO_2 thresholds with the revised 1-hour and annual CAAQS of 338 and 56 $\mu g/m^3$, respectively.

Source: SCAQMD 2006b.

Operation Thresholds

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

AQ-3: Operational emissions that would exceed 10 tons per year of VOCs or any of the SCAQMD thresholds of significance in Table 3.2-7. For determining CEQA significance, these thresholds are compared to the net change in project emissions relative to baseline conditions. For determining NEPA significance, these thresholds are compared to the net change in project emissions relative to NEPA Baseline emissions. For the purposes of significance determination, emissions that would occur within the SCAB were compared to these thresholds.

Table 3.2-7. SCAQMD Thresholds for Operational Emissions

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

Source: SCAQMD 1993, 2006b; City of Los Angeles 2006.

AQ-4: Proposed Project operations would result in offsite ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance in Table 3.2-8. 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 California ambient air quality standards of 338 and 56 μg/m3, respectively.

Table 3.2-8. SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Operations

Air Pollutant	*Ambient Concentration Threshold*
Nitrogen Dioxide (NO_2) 1-hour average Annual average	0.18 ppm (338 $\mu g/m^3$) 0.030 ppm (56 $\mu g/m^3$)
Particulates (PM_{10}) 24-hour average Annual arithmetic mean	2.5 $\mu g/m^3$ 20 $\mu g/m^3$
Particulates ($PM_{2.5}$) 24-hour average	2.5 $\mu g/m^3$
Carbon Monoxide (CO) 1-hour average 8-hour average	20 ppm (23,000 $\mu g/m^3$) 9.0 ppm (10,000 $\mu g/m^3$)

Notes:
1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from proposed Project operations is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold. For CEQA significance, the maximum increase in concentration relative to baseline (i.e., Project impact minus baseline impact) is compared to the threshold. For NEPA significance, the maximum increase in concentration relative to No Federal Action (i.e., Project impact minus No Federal Action impact) is compared to the threshold.
3. The SCAQMD has also established thresholds for sulfates and annual PM_{10}, but is currently not requiring a quantitative comparison to these thresholds (personal communication, J. Koizumi, 2005).
4. To evaluate Project impacts to ambient NO_2 levels, the analysis replaced the use of the current SCAQMD NO_2 thresholds with the revised 1-hour and annual CAAQS of 338 and 56 $\mu g/m^3$, respectively.

Source: SCAQMD 2006b.

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

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

- Maximum Incremental Cancer Risk > 10 in 1 million (10 × 10-6)
- Noncancer Hazard Index > 1.0 (project increment).

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

AQ-8: The proposed Project would produce GHG emissions that exceed the following CEQA thresholds:

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 of Los Angeles has not established such a threshold. Therefore, the Port of Los Angeles, for purposes of this project only, is utilizing the following as its CEQA threshold of significance:

- The proposed Project would result in a significant CEQA impact if CO2e emissions exceed CEQA Baseline emissions.

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

NEPA Impacts

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 regulation. In the absence of an adopted or science-based GHG standard, the USACE will not utilize the Port of Los Angeles' proposed AQ-8 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 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 Emissions for the Proposed Project

3.2.4.3.1 Construction

Project construction activities would require the use of off-road construction equipment, on-road trucks, tugboats, and general cargo ships. Because these sources would primarily use diesel fuel, they would generate combustive emissions in the form of VOC, CO, NO_x, SO_x, and PM. In addition, off-road construction equipment traveling over unpaved surfaces and performing earthmoving activities such as site clearing or grading would generate fugitive dust emissions in the form of PM_{10}.

Construction of the proposed Project would generate pollutant emissions due to exhaust from construction equipment, on-road vehicles, and fugitive dust. The primary construction activities would include the following:

- Construction associated with the laying of pipelines;
- Construction associated with the Marine Terminal and berth; and
- Construction associated with the tank farms.

The following data and methodologies were used to estimate construction emissions for the proposed Project:

- Construction of the Marine Terminal would start approximately 3 months after Project approval and last for a period of approximately 16 months (Section 2.4.3.1; Figure 2-11). Pipeline construction would start approximately three months after project approval and take approximately 15 months. The Marine Terminal, Tank Farm Site 1, the pipelines, and eight tanks on Tank Farm Site 2 would be completed within about 20 months from approval of the proposed Project, and the proposed Project would be ready to receive tanker vessels. Construction of the remaining six tanks on Tank Farm Site 2 would be completed about approximately ten months later. Thus, construction and operation would occur simultaneously for a period of approximately ten months.
- Fugitive emissions were calculated using AP-42 emission factors.
- Emissions from construction equipment were calculated using the composite off-road emission factors developed for the SCAQMD by CARB from its OFFROAD Model [Off-road Mobile Source Emission Factors (Scenario Years 2005 – 2020)].
- The composite off-road emission factors were derived based on the equipment category, average fleet make-up for each year through 2020, and vehicle population in each equipment category by horsepower rating and load factor.
- Fugitive dust emissions estimated for earth-moving activities would be reduced by 75 percent from uncontrolled levels to account for twice per day watering and use of other best available control measures in compliance with SCAQMD Rule 403.
- Emissions related to the import of construction materials were estimated based on a worst case assumption that all such materials would be delivered by truck. Some of these materials may be delivered to the project sites by barge or ship, which would reduce construction phase emissions. One such construction material that will be delivered by ship is stone columns. The stone columns will be delivered by four Panamax size vessels, which can carry about 60,000 tons each to Pier 400. The stone columns will then be loaded onto trucks and delivered to Tank Farm Site 1 and Tank Farm Site 2.
- Emissions from worker trips during proposed Project construction were calculated using the land use emissions model URBEMIS 2007. This program calculates emissions from vehicle exhaust, tire wear, brake wear, and paved road dust using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds.

The specific approaches to calculating emissions for the various emission sources during construction of the proposed Project are discussed below. Table 3.2-9 includes a synopsis of the regulations and agreements that were assumed as part of the Project in the construction calculations. The construction emission calculations are presented in Appendix H.

Table 3.2-9. Regulations and Agreements Assumed in the Construction Emissions

Off-Road Construction Equipment	*On-Road Trucks*	*Tugboats*	*General Cargo Ships*	*Fugitive Dust*
Emission Standards for Nonroad Diesel Engines – Gradual annual phase-in of Tier 1, 2, 3, and 4 standards due to normal construction equipment fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006.	**Emission Standards for On-road Trucks** – Gradual annual phase-in of tiered standards due to normal truck fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006. **Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling** – Diesel trucks are subject to idling limits starting 2/1/05.	**California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006.	No regulations or agreements are assumed to affect unmitigated emissions from cargo ships that deliver cranes during Project construction.	**SCAQMD Rule 403 Compliance** – 75 percent reduction in fugitive dust emissions to simulate Rule compliance.

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

3.2.4.3.2 Operations

The PLAMT facility is designed to accommodate cargos of crude oil from around the world. The nature and extent of crude oil tanker traffic during facility operation would be highly variable based upon crude oil demand, availability, price, tanker availability, shipping costs and many other factors. The terminal operator would not own the crude oil nor participate in the chartering of vessels to deliver the cargo. To estimate air quality impacts for the proposed Project, a reasonable worst-case facility utilization scenario has been developed. Actual operation could vary from this scenario, but emissions are not expected to be greater than the chosen scenario.

Table 3.2-10 includes a synopsis of the regulations that were assumed in the emission calculations for Project operations. Regulations are not treated as mitigation measures, but rather as part of the Project because they represent enforceable rules with or without Project approval. Only currently adopted regulations and agreements were assumed in the Project emission calculations.

Vessel size, offloading speed, and the number of vessels offloading in a given period all play a direct role in air emissions for a facility of this type. The proposed Project is designed to accommodate Very Large Crude Carriers (VLCCs) with a total cargo of up to 2.5 million barrels (bbl). However, it is expected that smaller types of crude oil tanker vessels would also call at Berth 408, including Suezmax vessels (average capacity of 1.0 million bbl), Aframax vessels (average capacity of 700,000 bbl), and Panamax vessels (average capacity of 300,000 bbl). These vessel types normally supply crude from Mexico, Canada, West Africa, Alaskan North Slope (ANS), and South America. Based on the projected increase in demand for imported crude oil from the Middle East (Baker & O'Brien 2007) and the inherent economy of scale in large-scale crude oil transport over long distances, it is expected that the number of VLCCs would increase during the life of the Project and the number of smaller vessels coming into the berth would decrease. Emissions per barrel of oil delivered are lower for VLCCs than from smaller tankers.

Table 3.2-10. Regulations and Agreements Assumed as Part of the Proposed Project Operational Emissions

Ships	*Tugboats*	*Tanks*	*Trucks*	*Valves, Flanges and Pumps*
Vessel Speed Reduction Program – Ships coming into the Port would reduce their speed to 12 knots or less within 20 nm of Point Fermin.	**California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006. **Engine Standards for Marine Diesel Engines** – Gradual annual phase-in of Tier 2 standards due to normal tugboat fleet turnover.	**Marine Tank Vessel Operations** – Emission limits for the marine tank vessel operation of VOC during a loading, lighting, ballasting, or housekeeping event **Further Reduction of VOC emissions from Storage Tanks at Petroleum Facilities –** Installation of a dome roof for external floating roof tanks containing products with a true vapor pressure greater than 3 pounds per square inch at atmospheric pressure	**Emission Standards for Onroad Trucks** – Gradual annual phase-in of tiered standards due to normal truck fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006.	**Valves and Flanges** – Operating requirements for valves and flanges that would handle Reactive Organic Gases (ROGs). Requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping. **Pumps and Compressors** – Requirements for operation of any pump or compressor that would handle ROGs. Requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping.

The proposed Project's throughput is based on a forecast under which crude oil in southern California would increase over time. The Project's air quality impacts were estimated based on throughput at Berth 408 increasing from 350,000 barrels per day (bpd) in 2010 to 677,000 bpd in 2040. Table 2-9 presents the crude oil throughput and vessel mix projections for the proposed Project over time.

As part of the SCAQMD New Source Review process, Project emissions subject to Regulation XIII (NO_x, SO_x, CO, ROG, and PM_{10}) would be regulated via a monthly emissions cap, based on the planned operational scenarios. This cap would limit air emissions at the same level regardless of the size and frequency of vessels that offload at Berth 408. Therefore, the maximum amount of annual emissions that could be generated from the proposed Project would be limited to the same quantity regardless of the vessel mix. Operational impacts are based on the throughput and vessel mix estimates contained in the Project Description. The SCAQMD has not yet issued a permit for the Proposed Project. Limits which may contained on that permit, including the referenced emissions cap, were not considered in this analysis.

Voluntary Vessel Speed Reduction (VSR). All vessels that utilize the Berth 408 facilities would comply with the Port's current voluntary vessel speed reduction program. This program requires vessels to slow to 12 knots at a distance of 20 nautical miles (nm) from Point Fermin. This measure establishes a wider VSR zone with an over-water boundary of 40 nm from Point Fermin.

The following describes the specific approaches used to calculate emissions for the various operational emission sources associated with the Project Alternatives.

Tanker Cruising and Maneuvering

Tankers come in varying sizes, designs, and types. However, most all of today's fleet is powered by very large two-stroke diesel engines that use HFO. A small number of vessels are still propelled by steam-driven engines using steam created in on-board boilers combusting HFO. For purposes of the air quality analysis, vessel transit emissions are separated into two modes of operation. Cruising mode into the Port includes vessel propulsion emissions while in coastal waters until the vessel enters into the Precautionary Zone and picks up the pilot, and on departure from the pilot drop-off point out to the coastal waters. Maneuvering mode while entering the Port occurs from the pilot pickup point in to the berth and on departure from the berth to the pilot drop-off point. Cruising and maneuvering emissions are formed by the combustion of HFO in the propulsion engines and auxiliary generators that are used during the entire voyage until the time the vessel is tied up at the dock. During maneuvering, propulsion engines operate intermittently to enable the vessel to move at low speeds.

Auxiliary generators accommodate the vessel's electrical load during both cruising and maneuvering operations. Crude oil tankers use auxiliary generators (also known as ship's service diesel generators) during propulsion operations to operate navigational equipment, communications, equipment controls, and for all other on-board electrical loads.

Emissions from cruising and maneuvering were estimated by using vessel emission factors (Starcrest 2007; Entec 2002). The emissions calculation methodology for cruising and maneuvering is a power-based methodology that relies on engine rating and speed. Typical port shipping lane patterns and speeds were used to estimate cruising and maneuvering times. Energy consumption for each operating mode was used in conjunction with the cruising/maneuvering times and vessel emission factors to estimate vessel emissions from cruising and maneuvering for each vessel call.

Tanker Hoteling

The hoteling load on a vessel is the load associated with electrical generation and comfort heating while at berth. Auxiliary generators usually accommodate this type of load, utilizing HFO or distillate fuel as their fuel source. The proposed Project would utilize MDO in the generators during the entire time at berth. These generators are used in a manner similar to when the vessel is at sea, in addition to increased demands to support offloading operations.

The number of auxiliary generators in use at any time is dependent upon the mode of operation. A single auxiliary generator is always active in cruising mode. A second auxiliary generator is brought online and left in idle mode when a vessel prepares to enter port in order to backup the primary generator as more sensitive docking operations are underway, and in preparation to support offloading operations.

Tanker Offloading

A crude oil tanker must provide the energy and equipment to offload its cargo. Approximately 99 percent of the vessels in the world fleet today utilize steam-turbine-driven pumps to discharge the cargo to the onshore receiving facilities. Onboard boilers, typically utilizing HFO, provide the steam needed for this operation. These onboard HFO boilers are also normally used to push the oil through pipelines to inland tank locations.

The proposed Project is designed to include a shore-side system that would include nearby crude oil tanks and on-shore electric pumps. The use of this shore-side pumping system would reduce (not eliminate) the need for the tanker to operate its onboard boilers to transport its cargo to inland tank locations. Instead, the shore-side system would support the transport of crude oil by minimizing demand on the vessel's steam-turbine-driven pumps, thereby minimizing emissions from vessel offloading operations. Full replacement of the ships pumps with shore-side pumps is not feasible due to the need for hydraulic lift that would be required to pull the crude oil from the holds of the vessels. This initial lift over the side of the vessel must still be provided by ship pumps.

Boiler fuel consumption during offloading operations was estimated using engineering models of the vessels' offloading systems consisting of boilers, steam turbines, pumps and piping. The model was configured to address the decreased pressure that the vessel pumps must provide at Berth 408 given the short distance to tankage. This "hydraulic" model was run for both HFO and MDO/MGO fuels and for two representative crude oils with different viscosities. The proposed Project would use MDO.

In estimating offloading emissions, boiler emissions estimates were adjusted to reflect a safety provision to vent inert gases into the crude oil storage tanks on the vessel. For safety purposes, approximately 35 percent of the boiler flue gases are re-circulated to the vessel tank headspace via a duct header system (inert gas system). These inert gases are contained in the tank headspace and are not released to atmosphere until the vessel is loaded at its next port call. Since the proposed facility would be used for offloading only, inert gases would not be discharged at this facility. This practice, while required as a safety measure, reduces the emissions of boiler exhaust gases at Berth 408.

Transiting Operations

Vessel boilers are heated to operational conditions during the last part of transit to the berth prior to commencing offloading operations. After offloading operations are complete, the boilers are naturally cooled to a warmed state. The boilers are maintained in this warmed state between offloading events.

Tug Assistance in the Port

Two or three tugboats would be used to assist a vessel to the dock and back out to beyond the breakwater. The tugboats would utilize a grade of fuel known as MGO in onboard diesel engines. Tug emissions were estimated using time in service as well as typical emission factors for tugboat operations and MGO emission factors published in the Port-wide air emissions inventory (Starcrest 2007).

Tanks

Crude oil offloaded from a vessel would be pumped to aboveground, internal floating roof storage/transfer tanks. The tanks would be filled while the vessel is offloading, would store the crude oil until the customer who owns the material needs it, and would then be emptied when the customer requests the crude oil. VOC vapor emissions would be released from the tanks during filling operations.

The Project proposes a total of 16 internal floating roof tanks located at Tank Farm Site 1 and 2. Additionally, Tank Farm Site 1 would include a 50,000 bbl crude oil surge tank to facilitate vessel offloading, and a 15,000 bbl fueling tank (dock-side fueling system) for MGO storage. The 16 floating roof tanks would be enclosed and the roof would float on the crude oil stored in the tank thereby minimizing the formation of crude oil vapors in the tank headspace. As a further control, the floating roofs would be equipped with a system of seals to close the gap between the floating roof and the wall of the tank. This would prevent vapors from entering the space above the floating roof. Such seals would meet performance standards set by the SCAQMD in Rule 463 and federal New Source Performance Standards (NSPS) (40 CFR Part 60). In addition, the tanks would be connected to VDUs to control emissions during tank filling while the tank's floating roof is on its legs and not actually floating. This combination of measures constitutes Best Available Control Technology (BACT) for crude oil storage tanks. All tanks for the proposed Project would comply with SCAQMD BACT requirements.

VOC emissions from storage tanks and loading operations were estimated using USEPA's publication known as AP-42 (USEPA 1997) and the accompanying Tanks, version 4.09, emissions modeling software program.

Vapor Destruction Units

In order to minimize tank emissions, each tank would be connected to a tank vapor recovery and incineration system used to destroy vapors that would otherwise be released during times when the tank roof is on the tank legs (e.g., the roof is not floating) and the tank is being refilled. This "landing" of the tank roof would only occur during events when the tank is being completely drained for maintenance or to move a customer's crude oil out of a tank. VDUs are proposed for the Project, located at Tank Farm Sites 1 and 2.

Fugitive Emissions from Valves, Flanges, and Pumps

Movement of crude oil through piping and pumps results in small, unintentional VOC vapor leaks. The project would have various piping, pumps, and other components both at the Marine Terminal and at the tank farms that are sources of fugitive emissions and as such are expected to result in fugitive VOC emissions from valves and flanges.

The fugitive emissions for each equipment component were estimated using SCAQMD's emission factors, as published in their Annual Emissions Reporting (AER) Program and *Guidelines for Fugitive Emission Calculations* (SCAQMD

2003). The Project would be constructed using components that are considered BACT by the SCAQMD, and would comply with SCAQMD rules regulating fugitive emissions from such equipment, thereby minimizing emissions from these sources.

Building Emissions

Operational emissions of the new building from the proposed project were calculated using the land use emissions model URBEMIS 2007. This includes emissions from worker commuter trips, lighting, and natural gas fuel consumption.

Vehicle Emissions

Project operation would generate very little vehicular traffic from Personally Owned Vehicle (POV) commuter trips and company-owned vehicles. Emissions from POV commuter trips were calculated using URBEMIS 2007. This program calculates emissions from vehicle exhaust, tire wear, brake wear, and paved road dust using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds. Minimal truck traffic would occur to bring vessel or workplace supplies and provisions by company-owned vehicles. All crude oil would leave the PLAMT facility via pipeline with no over land trucking required. The applicant has committed to using propane or LPG as fuel for company-owned vehicles. Emissions from company-owned vehicles were also calculated using URBEMIS 2007.

Barge Fuel Deliveries

In addition to tanker calls at Berth 408, there will also be barges arriving at the terminal to deliver MGO for use in refueling the crude oil tankers. This fuel will be stored and dispensed from a 15,000 bbl MGO tank located at Tank Farm Site 1. The fuel delivery barges will originate from other liquid bulk terminals within the Port or Port of Long Beach. In order to calculate emissions, it was assumed that these deliveries will come from LAHD Berths 187-191.

3.2.4.3.3 Greenhouse Gases

GHG emissions associated with the proposed Project and alternatives were calculated based on methodologies provided in the California Climate Action Registry's *General Reporting Protocol*, version 2.2 (CCAR 2007). The General Reporting Protocol is the guidance document that the Port and other CCAR members must use to prepare annual port-wide GHG inventories for the Registry. Therefore, for consistency, the General Reporting Protocol was also 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, as discussed later in this section.

Construction

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

- Off-road diesel construction equipment
- On-road trucks
- Marine cargo vessels used to deliver equipment to the site
- Worker commute vehicles

Operations

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

- Ships
- Tugboats
- Tanks
- Vapor Destruction Units
- Valves, Flanges, and Pumps
- AMP electricity consumption (for the mitigated project)
- On-terminal electricity consumption

The adaptation of the General Reporting Protocol methodologies to these project-specific emission sources is described in Appendix H.

GHG Operational and Geographical Boundaries

Under CCAR's General Reporting Protocol, emissions associated with the Port and LAHD would be divided into 3 categories:

Scope 1: Direct emissions from sources owned or operated by the Port and LAHD

Scope 2: Indirect emissions from purchased and consumed electricity

Scope 3: Indirect emissions from sources not owned or operated by the Port and LAHD

Examples of Scope 1 sources would be Port-controlled tugboats, tanks, VDUs, valves, flanges and pumps. Scope 2 emissions would be indirect GHG emissions from electricity consumption on the terminal. Because the proposed Project tenant and/or the Port generally do not own ships, trucks, and construction equipment, these mobile sources would be considered Scope 3 emissions. CCAR has not yet developed a protocol for determining the operational or geographical boundaries for some Scope 3 emissions sources.

CCAR does not require Scope 3 emissions to be reported because they are considered to belong to another reporting entity (i.e., whomever owns, leases, or operates the sources), and that entity would report these emissions as Scope 1 emissions in its own 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. Therefore, the operational and geographical boundaries were determined differently from the General Reporting Protocol to make the GHG analysis more consistent with CEQA and to avoid the omission of a significant number of mobile sources.

For the purposes of this NEPA/CEQA document, GHG emissions were calculated for all project-related sources (Scope 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 emission sources, such as ships. Therefore, for those sources that travel out of California (ships and trucks), the GHG emissions were based upon the following route lengths:

- On-road trucks: On-road trucks associated with the proposed Project would mostly be used during the construction phase. As such, transit was assumed between the proposed Project sites and the known or reasonably anticipated local origins for construction material delivery trips. Truck trips during the operational phase will be limited to maintenance vehicles, also of known local origin.
- Tankers: Ocean transit was assumed along the shipping routes between the Port and the State Water’s three-mile jurisdictional boundary west of Point Conception. The analysis assumed that all Project ships would follow either the northern or southern route, depending upon the point of origin.

In the case of electricity consumption, all GHG emissions were included regardless of whether they are generated by in-state or out-of-state power plants.

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

This document acknowledges that GHG emissions do extend beyond state borders. However, origin and destination data for out-of-state emissions over the life of the project do not exist and would be speculative on a project-specific level. Emissions outside of state boundaries are discussed in the Cumulative Analysis.

The Port is a landlord Port and the proposed Project involves granting a lease to PLAMT. Port leases do not regulate demand and supply patterns or dictate business partnerships in leases. For example, while vessel calls to Berth 408 will originate from locations such as South America and the Middle East, the Port does not know or regulate what percentage of ships originate from individual Ports. Through market studies, the Port has estimates of how much cargo will arrive, but does not track ultimate destinations and this data is considered proprietary by the private companies involved.

This methodology is also consistent with other types of air quality analyses, which addresses emissions within an 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.

3.2.4.4 Emissions for the No Federal Action/No Project Alternative

Under the No Federal Action/No Project Alternative, proposed Project facilities would not be constructed or operated. As described in Section 2.5.2.1, the No Federal Action/No Project Alternative considers the only remaining allowable and reasonably foreseeable use of the proposed Project site: Use of the site for temporary storage of wheeled containers on the site of Tank Farm 1 and on Tank Farm Site 2. This use would require paving, construction of access roads, and installation of lighting and perimeter fencing.

In addition, for analysis purposes, under the No Federal Action/No Project Alternative a portion of the increasing demand for crude oil imports is assumed to be accommodated at existing liquid bulk terminals in the San Pedro Bay Ports, to the extent of their remaining capacities. Although additional demand, in excess of the capacity of existing marine terminals to receive it, may come in by rail, barge, or other means, rather than speculate about the specific method by which more crude oil or refined products would enter southern California, for analysis purposes, the impact assessment for the No Federal Action/No Project Alternative in this SEIS/SEIR is based on marine deliveries only up to the available capacity of existing crude oil berths. As described in Section 2.5.2.1, the impact assessment for the No Federal Action/No Project Alternative also assumes existing terminals would eventually comply with the California State Lands Commission (CSLC) Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS), that LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with Clean Air Action Plan (CAAP) measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78). Applicable CAAP measures were applied to the emission estimates for activity associated with those berths under the No Federal Action/No Project Alternative consistent with known lease renewal schedules and other information received from the Port, as well as the Port of Long Beach.

The NEPA Baseline condition coincides with the No Federal Action/No Project Alternative for this project because the USACE, the LAHD, and the applicant have concluded that, absent a USACE permit, no part of the proposed Project would be built (Section 2.6.1). All elements of the No Federal Action/No Project Alternative are identical to the elements of the NEPA Baseline. Therefore, under a NEPA determination there would be no impact associated with the No Federal Action/No Project Alternative.

As such, the air quality impacts of the No Federal Action/No Project Alternative were calculated assuming that Project's Tank Farm Sites 1 and 2 would be used for container storage. However, because throughput would not increase at the affected container terminals, post-construction use of these sites would not result in an emissions increase.

The methodologies, assumptions and emission factors for estimating air quality impacts under the No Federal Action/No Project Alternative are otherwise identical to the proposed Project.

3.2.4.5 Emissions for the Reduced Project Alternative

Under the Reduced Project Alternative, the PLAMT terminal, tankage, and pipeline requirements would be identical to the proposed Project. As such, the construction activities and associated impacts would be identical to the proposed Project.

Under the Reduced Project Alternative, as described in Section 2.5.2.2, construction and operation at Berth 408 would be identical to the proposed Project with the exception of the lease cap limiting throughput in certain years. However, as explained in Section 2.5.2.2, the lease cap would not change the amount of crude oil demanded in southern California, and therefore the analysis of the Reduced Project Alternative also includes the impacts of marine delivery of incremental crude oil deliveries to existing liquid bulk terminals in the San Pedro Bay Ports in years where demand exceeds the capacity of the lease-limited Berth 408. As described in Section 2.5.2.2, the impact assessment for the Reduced Project Alternative also assumes existing terminals would eventually comply with the MOTEMS, that the LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with CAAP measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78).

For this reason, the analysis for the Reduced Project Alternative also examines air quality impacts from crude oil throughput increases at LAHD Berths 238-240, Port of Long Beach Berths 76-78, and Port of Long Beach Berths 84-87. As explained in Section 2.5.2.2, those increases were assumed to begin after Berth 408 hits the assumed throughput lease cap (i.e., 2015 and beyond).

The methodologies, assumptions, and emission factors for estimating air quality impacts under the Reduced Project Alternative are otherwise to the proposed Project and No Federal Action/No Project Alternative.

3.2.4.6 Proposed Project and Alternatives: Impacts and Mitigation

3.2.4.6.1 Proposed Project

Proposed Project – Impact AQ-1: The proposed Project would result in construction-related emissions that exceed a SCAQMD threshold of significance in Table 3.2-5.

Although there is no formal construction phasing for the proposed Project, for the emissions analysis it is useful to divide the construction activities into the following two phases:

- **Construction Phase I** – Construction of the Marine Terminal, Tank Farm Site 1, and pipelines, and beginning of construction of Tank Farm Site 2. Construction Phase I ends when the Marine Terminal, Tank Farm Site 1, pipelines, and eight tanks on Tank Farm Site 2 are complete (approximately 20 months after Project approval; see Section 2.4.3.1).
- **Construction Phase II** – Completion of the remaining tanks at Tank Farm Site 2. Construction Phase II would end approximately 30 months after Project approval. Construction Phase II will be concurrent with initial operations of the Berth 408 terminal.

The maximum daily emissions for Construction Phase I and Construction Phase II are shown below in Tables 3.2-11 and 3.2-12. The significance of Construction Phase I activities is considered under **Impact AQ-1**. Because Construction Phase II activities will be concurrent with the initial operation of the proposed Project, the significance of Construction Phase II is considered in the impact discussions for the Operations phase of the project (i.e., **Impact AQ-3**).

Table 3.2-11. Peak Daily Emissions for Proposed Project Construction Phase I Activities without Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Pier 400 Marine Terminal and Wharf Construction						
Mobilization of Landside and Marine Equipment	47	197	592	0.50	21	20
Demobilization of Landside and Marine Equipment	47	197	592	0.50	21	20
Unloading Platform	100	424	1,403	1.12	42	39
Breasting Dolphin Platforms	100	424	1,403	1.12	42	39
Mooring Dolphin Platforms	100	424	1,403	1.12	42	39
Trestle Abutments	8	29	70	0.08	4	4
Main Trestle	21	86	306	0.32	10	9
Single Lane Trestle to Breasting Dolphin	20	83	289	0.29	9	9
Emergency Spill Boom Platforms	17	72	244	0.22	8	7
Pipeline Construction						
42” Pipeline	46	293	726	0.76	50	39
36” Pipeline	66	454	1,027	1.04	68	57
24” Pipeline	35	223	566	0.59	34	29
Tank Farm Site 1	69	433	1,149	1.25	102	62
Tank Farm Site 2	127	828	2,094	2.20	141	108
Stone Delivery	104	262	3,130	168	58	49
Worker Commuter Vehicles	45	622	401	1	21	17
Peak Daily Emissions	**384**	**2,195**	**7,110**	**172**	**291**	**224**
CEQA Baseline Emissions	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**384**	**2,195**	**7,110**	**172**	**291**	**224**
CEQA Significance Thresholds	75	550	100	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	0	0	0	0	0	0
Net Change Versus NEPA Baseline	**384**	**2,195**	**7,110**	**172**	**291**	**224**
NEPA Significance Thresholds	75	550	100	150	150	55
Significance under NEPA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

1. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Stone Delivery, and (e) Worker Commuter Vehicles.
2. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.

Table 3.2-12. Peak Daily Emissions for Proposed Project Construction Phase II Activities without Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Tank Farm Site 2	38	262	630	1	66	39
Worker Commuter Vehicle	41	584	367	1	20	16
Peak Daily Emissions	**80**	**846**	**997**	**2**	**86**	**55**

Notes:

1. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.
2. Peak daily construction emissions would occur from the concurrent activities: (a) Tank Farm Site 2, and (b) Worker Commuter Vehicles.

MM AQ-1: Ridesharing or Shuttle Service

Ridesharing or shuttle service programs shall be provided for construction workers. Ridesharing or shuttle service programs would provide emissions benefit by reducing vehicle traffic related to the construction workforce. It is not known how much participation can be achieved for this measure. For this reason, the emissions benefit has not been quantified in this study.

This measure incorporates the requirements of **MM 4G-4** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-2: Staging Areas and Parking Lots

On-site construction equipment staging areas and construction worker parking lots shall be located on either paved surfaces, or unpaved surfaces covered by gravel or subjected to soil stabilization treatments. The staging areas and worker parking lots shall be located as close as possible to public access routes. Access to public roadways from the staging areas and parking lots shall be controlled in order to minimize idling of Project construction equipment.

It is not known how much effectiveness can be achieved for this measure. For this reason, the emissions benefit has not been quantified in this study.

This measure incorporates the requirements of **MM 4G-11, 4G-13** and **4G-14** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-3: Construction Equipment Standards

All on-site mobile diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels shall meet the Tier 2 emission standards as defined in the USEPA Non-Road Diesel Engine Rule (USEPA 1998). In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-certified Level 3 diesel emissions control device. This mitigation 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, or within the required Tier level, 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 project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-4: Electricity Use

Electricity supplied by a public utility shall be used where available on the tank farm and pier construction sites in lieu of temporary diesel or gasoline-powered generators. The use of utility power would have a beneficial impact on local air quality as compared to temporary diesel or gasoline-powered generators. However, the level of feasibility for this measure cannot be predicted at this time. For this reason, the potential emission benefits of this measure have not been quantified in this study.

MM AQ-5: Best Management Practices (BMPs)

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

1. Use of 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.

This measure incorporates the requirements of **MM 4G-3** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-6: Additional Fugitive Dust Controls

The construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels.[4] The Project construction contractor shall specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan. Their duties shall include holiday and weekend periods when work may not be in progress.

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

- Active grading sites shall be watered one additional time per day beyond that required by Rule 403.
- Contractors shall apply approved non-toxic 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.

MM AQ-7: Expanded VSR Program

All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall comply with the expanded Vessel Speed Reduction (VSR) program of 12 knots from 40 nautical miles (nm) from Point Fermin to the Precautionary Area.

MM AQ-8: Low-Sulfur Fuel for Construction Delivery Vessels

All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin.

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[4] The unmitigated emissions calculations assume that fugitive dust emissions would be reduced 75 percent from uncontrolled levels as required by applicable rules and regulations. The above mitigation measures are expected to further control fugitive dust emissions an additional 60 percent, resulting in a total of 90% control from uncontrolled levels.

MM AQ-9: Engine Standards for Harbor Craft Used in Construction

Prior to December 31, 2010, all harbor craft with C1 or C2 marine engines must achieve a minimum emission reduction equivalent to a U.S. Environmental Protection Agency (USEPA) Tier-2 2004 level off-road marine engine. From January 1, 2011 on, all harbor craft with C1 or C2 marine engines must utilize a U.S. USEPA Tier-3 engine, or cleaner.

This mitigation 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, or within the required Tier level, 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 project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-10: Fleet Modernization for On-Road Trucks

All on-road 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 USEPA 2004 on road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr PM_{10} and 2.0 g/bhp-hr $NO_{x.}$ Trucks hauling materials such as debris or fill shall be fully covered while in operation off Port property.

In addition, all on-road heavy heavy-duty trucks with a GVWR of 19,500 pounds or greater used at the Port of Los Angeles shall be equipped with a CARB verified Level 3 device.

This mitigation 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, or within the required Tier level, 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 project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.

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

The effectiveness of this measure was determined by assuming that the mitigated construction truck fleet was 50 percent 2007 SCAB average fleet and 50 percent compliant with the year 2007 standards. Use of the EMFAC2007 emission factor model determined that the emission reductions associated with this mitigation measure would range from 9 to 15 percent, depending upon the pollutant.

MM AQ-11: Special Precautions near Sensitive Sites

For construction activities that occur within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals), the Port shall notify each of these sites in writing at least 30 days before construction activities begin.

MM AQ-12: General Mitigation Measure

For any of the above mitigation measures (MM AQ-1 through AQ-11), 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 Port.

It is not known how much participation can be achieved for this measure. For this reason, the emissions benefit has not been quantified in this study.

In addition, the following mitigation measure from the Deep Draft FEIS/FEIR would also apply:

MM 4G-5: Discontinue construction activities during a Stage II Smog Alert.

Residual Impacts

Tables 3.2-13 and 3.2-14 presents the maximum daily criteria pollutant emissions associated with construction of the proposed Project, after the application of the proposed Mitigation Measures. The emission reductions that would be realized from the application of several measures are uncertain and would vary due to the transient nature of the construction activities. The emissions reductions from these measures would not be sufficient to reduce the total construction emissions to below the significance criteria thresholds. Emissions of VOC, CO, NO_X, PM_{10}, and $PM_{2.5}$ during Phase I construction would remain significant under CEQA. As noted above, the impact for Construction Phase II is addressed under **Impact AQ-3**.

Table 3.2-13. Peak Daily Emissions for Proposed Project Construction Phase I Activities with Mitigation [1,2]

Construction Activity	Daily Emissions [1,2] (Pounds)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Pier 400 Marine Terminal and Wharf Construction						
Mobilization of Landside and Marine Equipment	26	273	443	0.50	17	15
Demobilization of Landside and Marine Equipment	26	273	443	0.50	17	15
Unloading Platform	56	605	1,006	1.12	35	32
Breasting Dolphin Platforms	56	605	1,006	1.12	35	32
Mooring Dolphin Platforms	56	605	1,006	1.12	35	32
Trestle Abutments	17	33	47	0.08	2	2
Main Trestle	15	117	176	0.32	6	6
Single Lane Trestle to Breasting Dolphin	14	113	173	0.29	6	6
Emergency Spill Boom Platforms	11	103	166	0.22	6	5
Pipeline Construction						
42” Pipeline	46	372	558	0.76	28	23
36” Pipeline	66	564	781	1.04	39	33
24” Pipeline	35	290	436	0.59	20	17
Tank Farm Site 1	69	574	932	1	100	48
Tank Farm Site 2	127	1,095	1,645	2	112	72
Stone Delivery	71	176	2,056	106	38	32
Worker Commuter Vehicles	45	622	401	1	21	17
Peak Daily Emissions	**307**	**2,541**	**5,176**	**110**	**233**	**162**
CEQA Baseline Emissions	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**307**	**2,541**	**5,176**	**110**	**233**	**162**
CEQA Significance Thresholds	75	550	100	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Baseline Emissions	0	0	0	0	0	0
Net Change Versus NEPA Baseline	**307**	**2,541**	**5,176**	**110**	**233**	**162**
NEPA Significance Thresholds	75	550	100	150	150	55
Significance under NEPA?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

1. Implementation of **MM AQ-1** through **MM AQ-2** and **MM AQ-4** through **MM AQ-6** would result in a reduction in combustion emissions and fugitive dust emissions. However, the amounts of emission reductions are quantifiable only for fugitive dust emissions.
2. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Stone Delivery, (e) Worker Commuter Vehicles.

Table 3.2-14. Peak Daily Emissions for Proposed Project Construction Phase II Activities with Mitigation

Construction Activity	Daily Emissions (Pounds)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Tank Farm Site 2	36	346	494	1	64	28
Worker Commuter Vehicle	28	387	244	1	13	11
Peak Daily Emissions	**64**	**733**	**739**	**2**	**77**	**39**

Notes:

1. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.
2. Peak daily construction emissions would occur from the concurrent activities: (a) Tank Farm Site 2, and (b) Worker Commuter Vehicles.

NEPA Impact Determination

The proposed Project would exceed the daily construction emission thresholds for VOC, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ during Construction Phase I. Therefore, significant impacts would occur under NEPA. As noted above, Construction Phase II emissions are considered under **Impact AQ-3**.

Mitigation Measures

MM AQ-1 through **AQ-12** and **MM 4G-5** would be applied to the proposed Project.

Residual Impacts

Tables 3.2-13 and 3.2-14 (above) present the maximum daily criteria pollutant emissions associated with construction of the proposed Project, after the application of the proposed mitigation measures. The emissions reductions from the mitigation measures would not be sufficient to reduce the construction emissions to a less than significant level. Emissions of VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ during Construction Phase I would remain significant under NEPA. As noted above, Construction Phase II emissions are considered under **Impact AQ-3**.

Impact AQ-2: Project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-6.

Dispersion modeling of project construction emissions was performed to assess the impacts of the proposed Project on local ambient concentrations. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-15 presents the maximum unmitigated project-related impacts from Phase I construction activities. The significance of Construction Phase I activities is considered under **Impact AQ-2**. Because Construction Phase II activities would be concurrent with the initial operation of the proposed Project, Construction Phase II impacts are considered under the Operations phase (i.e., **Impact AQ-4**).

Table 3.2-15. Maximum Offsite Ambient Concentrations – Proposed Project Construction without Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
Phase I						
NO_2	1-hour	20,064.8	263.2	20,328.0	338	Y
	Annual	212.1	54.5	266.6	56	Y
CO	1-hour	8,891.5	6,670	15,561.5	23,000	N
	8-hour	1,711.6	5,405	7,116.6	10,000	N
PM_{10}	24-hour	118.4	74	- - -	10.4	Y
	Annual	13.7	35.9	- - -	20	N
$PM_{2.5}$	24-hour	103.4	115.2	- - -	10.4	Y

Notes:

1. 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.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

The Phase I maximum offsite 1-hour and annual NO_2 concentrations, the 24-hour PM_{10} concentrations and the 24-hour $PM_{2.5}$ concentrations would exceed the applicable SCAQMD significance thresholds. Therefore, significant impacts under CEQA would occur. As noted above, the impact for Construction Phase II is addressed under **Impact AQ-4**.

Mitigation Measures

To reduce the level of impact, **MM AQ-1** through **AQ-12** and **MM 4G-5** would apply to the proposed Project.

Residual Impacts

Table 3.2-16 presents the maximum mitigated project-related impacts from Phase I construction activities. The Phase I maximum offsite 1-hour and annual NO_2 concentrations, the 24-hour PM_{10} concentrations and the 24-hour $PM_{2.5}$ concentrations would exceed the applicable SCAQMD significance thresholds. Significant impacts would occur despite the application of all reasonably applicable mitigation measures under CEQA.

Table 3.2-16. Maximum Offsite Ambient Concentrations – Proposed Project Construction with Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact (µg/m³)*	*Background Concentration (µg/m³)*	*Total Impact (µg/m³)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
Phase I						
NO_2	1-hour	14,735.0	263.2	14,998.2	338	Y
	Annual	156.2	54.5	210.7	56	Y
CO	1-hour	11,021.4	6,670	17,691.4	23,000	N
	8-hour	2,121.2	5,405	7,526.2	10,000	N
PM_{10}	24-hour	64.5	74	- - -	10.4	Y
	Annual	7.6	35.9	- - -	20	N
$PM_{2.5}$	24-hour	57	115.2	- - -	10.4	Y

Notes:

1. 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.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

NEPA Impact Determination

The maximum offsite ambient pollutant concentrations associated with the proposed Project Phase I construction would be significant for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$. Therefore, significant impacts under NEPA would occur. As noted above, the impact for Construction Phase II is addressed under **Impact AQ-4**.

Mitigation Measures

To reduce the level of impact, **MM AQ-1** through **AQ-12** and **MM 4G-5** would apply to the proposed Project.

Residual Impacts

Maximum offsite ambient pollutant concentrations associated with the proposed Project Phase I construction would be significant under NEPA for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$, despite the application of all reasonably applicable mitigation measures.

Impact AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance in Table 3.2-7.

The average daily emissions associated with the operation of Project emission sources are shown in Table 3.2-17. 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 Project study years: 2010, 2015, 2025, and 2040. Comparsions to the CEQA and NEPA Baseline emissions are presented to determine CEQA and NEPA significance, respectively. Assumptions and details of the calculations used to estimate emissions for all operational sources are presented in Appendix H. Calculation methodologies and inputs are consistent with recent emission estimation efforts performed by the Port (Starcrest 2007) and the CARB (CARB 2005b).

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 are based upon a lesser known and therefore more theoretical set of conservative assumptions. Comparisons to the CEQA and NEPA Baseline emissions are presented to determine CEQA and NEPA significance, respectively.

For determining CEQA significance, these AQ-3 significance thresholds are compared to the net change in peak daily project emissions relative to the CEQA Baseline. For determining NEPA significance, these thresholds are compared to the net change in project emissions relative to NEPA Baseline emissions.

Since VLCC vessels require more fuel in the main engines and auxiliary generators for cruising and maneuvering than smaller vessels (e.g., Suezmax, Panamax, Aframax), VLCC vessels calling on the Port will have higher daily emissions than other types of vessels calling at Berth 408. VLCC deliveries will reduce the terminal's annual emissions as compared to smaller tankers because emissions from VLCCs are lower on a per barrel of oil delivered basis.

The proposed Project would have four distinct modes of operation:

- Vessel Arrival – Emissions from tanker cruising and maneuvering, transiting operations, tanks, VDUs, valves, flanges and pumps
- Vessel at Berth and Offloading – Emissions from tanker hoteling, offloading, tanks, VDUs, valves, flanges and pumps
- Vessel Departure – Emissions from tanker cruising and maneuvering, transiting operations, tanks, VDUs, valves, flanges and pumps
- No Vessel/Empty Berth – Emissions from tanks, VDUs, valves, flanges and pumps.

Table 3.2-17. Average Daily Emissions for Proposed Project Operations without Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2010							
Tanker Cruising and Maneuvering [1]	46	93	1,160	697	104	103	93
Tanker Hoteling [2]	14	38	482	116	14	14	11
Offloading Emissions [3]	28	18	87	351	15	11	7
Transiting Operations [4]	0	1	15	117	5	4	2
Tug Assistance	5	23	144	0	--	6	6
Tanks	14	--	--	--	--	--	--
Vapor Destruction Units	2	9	32	6	- - -	2	- - -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.3	0.7	8	0.5	0.4	0.4	0.4
Average Daily Operational Emissions without Mitigation	**112**	**183**	**1,928**	**1,288**	**138**	**140**	**119**
Project Year 2015							
Tanker Cruising and Maneuvering [1]	62	122	1,505	896	135	134	121
Tanker Hoteling [2]	17	47	602	141	18	17	13
Offloading Emissions [3]	4	26	123	482	22	16	11
Transiting Operations [4]	0	2	18	152	7	6	2
Tug Assistance	5	28	151	0	--	7	6
Tanks	20	--	--	--	--	--	--
Vapor Destruction Units	2	10	38	7	--	2	- -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Average Daily Operational Emissions without Mitigation	**113**	**236**	**2,448**	**1,679**	**183**	**183**	**154**
Project Year 2025							
Tanker Cruising and Maneuvering [1]	85	166	2,044	1,217	183	182	165
Tanker Hoteling [2]	23	65	820	192	24	23	18
Offloading Emissions [3]	5	35	166	653	30	22	15
Transiting Operations [4]	1	2	25	206	9	8	3
Tug Assistance	7	38	171	0	--	7	7
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.9
Average Daily Operational Emissions without Mitigation	**154**	**318**	**3,283**	**2,276**	**247**	**245**	**209**
Project Year 2040							
Tanker Cruising and Maneuvering [1]	85	166	2,044	1,217	183	182	165
Tanker Hoteling [2]	23	65	820	192	24	23	18
Offloading Emissions [3]	5	35	166	653	30	22	15
Transiting Operations [4]	1	2	25	206	9	8	3
Tug Assistance	7	38	154	0	--	7	6
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.8
Average Daily Operational Emissions without Mitigation	**154**	**318**	**3,266**	**2,276**	**247**	**245**	**208**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

Five 24-hour scenarios involving the above modes were considered to identify peak daily emissions:

1. A vessel could arrive at an empty berth (5 hrs) and offload (19 hrs).
2. A vessel could offload (19 hrs) and then depart (5 hrs).
3. A vessel could depart (5 hrs), a second vessel could arrive (5 hrs) and offload for as much as 14 hrs.
4. A vessel could offload for a full 24-hour period.
5. The berth could be empty for a full 24-hour period.

The emissions associated with scenario one and two above would definitely be less than scenario three. The emissions associated with scenario three, four, and five are presented in Tables 3.2-18, 3.2-19, and 3.2-20.

Table 3.2-18. Daily Emissions Scenario for Proposed Project Operations Without Mitigation (Scenario 3)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Departure							
Tanker Cruising and Maneuvering [1]	124	218	2,594	1,499	234	233	212
Transiting Operations [4]	1	5	51	463	32	28	18
Tug Assistance	16	82	514	0	--	21	20
Vessel Arrival							
Tanker Cruising and Maneuvering [1]	124	218	2,594	1,499	234	233	212
Transiting Operations [4]	1	5	51	463	32	28	18
Tug Assistance	16	82	514	0	--	21	20
Vessel Offloading							
Tanker Hoteling [2, 5]	32	88	1,113	245	31	30	24
Offloading Emissions [3, 5]	12	56	282	1,011	51	38	26
Tanks	86	- - -	--	--	--	--	--
Vapor Destruction Units	3	17	63	19	--	4	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Daily Emissions for Scenario 3	**418**	**771**	**7,776**	**5,199**	**614**	**636**	**550**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-19. Daily Emissions Scenario for Proposed Project Operations Without Mitigation (Scenario 4)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Offloading							
Tanker Hoteling [1,3]	32	88	1,113	245	31	30	24
Offloading Emissions [2,3]	12	56	282	1,011	51	38	26
Tanks	86	- - -	--	--	--	--	--
Vapor Destruction Units	3	17	63	19	--	4	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Daily Emissions for Scenario 4	**136**	**161**	**1,458**	**1,275**	**82**	**72**	**50**

Notes:

1. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
2. Offloading emissions include emissions from the boiler during offloading.
3. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-20. Daily Emissions Scenario for Proposed Project Operations Without Mitigation (Scenario 5)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
No Vessel/empty berth							
Tanks	86	- - -	--	--	--	--	--
Vapor Destruction Units	3	17	63	19	--	4	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Daily Emissions for Scenario 5	**92**	**17**	**63**	**19**	**0**	**4**	**0**

Scenario 3 has the highest daily emissions. Thus, the peak daily emissions will occur during this scenario when a vessel departs, another vessel arrives, and would offload for the remainder of the day. Since Phase II Construction emissions will coincide with the first 10 months of operations, they are included in the peak daily emissions.

Peak daily emissions are presented in Table 3.2-21.

Table 3.2-21. Peak Daily Emissions for Proposed Project Operations Without Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Peak Daily Emissions (from Table 3.2-18)	418	771	7,776	5,199	614	636	550
Construction Phase II Totals (from Table 3.2-12)	80	846	997	2	86	86	55
Sum of Peak Daily Emissions including Construction Phase II	**498**	**1,617**	**8,773**	**5,201**	**700**	**722**	**605**
CEQA Baseline Emissions	0	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**498**	**1,617**	**8,773**	**5,201**	**700**	**722**	**605**
CEQA Significance Thresholds	55	550	55	150	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	923	853	8,744	4,980	533	549	427
Net Change Versus NEPA Baseline	**-425**	**764**	**29**	**221**	**167**	**173**	**178**
NEPA Significance Thresholds	55	550	55	150	150	150	55
Significance under NEPA?	**No**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Proposed Project emissions would exceed the CEQA significance thresholds for daily emissions of all criteria pollutants. Therefore, the unmitigated air quality impacts associated with proposed Project operations would be significant for NO_x, SO_x, PM, PM_{10}, $PM_{2.5}$, VOC, and CO under CEQA.

Mitigation Measures

Mitigation measures for project operations were developed based on review of a variety of measures, including: (1) measures contained in the proposed San Pedro Bay Ports CAAP (LAHD and Port of Long Beach 2006), which includes measures that were proposed under the Port *No Net Increase Plan Report* (LAHD 2005), (2) measures practiced and recognized by the petroleum and tankering industries, and (3) measures contained in PLAMT environmental policies.

The following mitigation measures would reduce criteria pollutant emissions associated with proposed Project operations.

MM AQ-13: Expanded Vessel Speed Reduction (VSR) Program

All ships calling (100%) at Berth 408 shall comply with the expanded VSR Program of 12 knots between 40 nm from Point Fermin and the Precautionary Area from Year 1 of operation.

MM AQ-14: Low Sulfur Fuel Use in Main Engines, Auxiliary Engines and Boilers

Ships calling at Berth 408 shall use low-sulfur fuel in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) in the annual percentages in fuel requirements as specified below:

PLAMT Fuel Switch for Main Engines, Auxiliary Engines, and Boilers

	Main Engines/Auxiliary Engines/Boilers					
	Inbound			*Hoteling and Outbound*		
Year	**HFO**	**0.50%**	**0.20%**	**HFO**	**0.50%**	**0.20%**
1	0	100	0	0	0	100
2	0	100	0	0	0	100
3	0	100	0	0	0	100
4	0	80	20	0	0	100
5	0	50	50	0	0	100
6	0	50	50	0	0	100
7-30	0	10	90	0	0	100

In addition, all callers carrying 0.2% low sulfur shall use 0.2% low sulfur fuel within 40 nm of Point Fermin both on the inbound and outbound leg.

Six months prior to operation of Berth 408 the applicant shall lead the effort, with Port support, in notifying all fuel suppliers/shippers of the low sulfur fuel requirements. This notification shall be achieved through publication of a notice in

Bunker World (or other similar fuel supply trade publication) and by notification to all Berth 408 customers.

This measure effectively incorporates the objectives of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

MM-AQ 15: Alternative Maritime Power (AMP)

Ships calling at Berth 408 facility shall use AMP while hoteling at the Port in the following at minimum percentages:

- By end of year 2 of operation – 6 (4%) vessel calls
- By end of year 3 of operation – 10% of annual vessel calls
- By end of year 5 of operation – 15% of annual vessel calls
- By end of year 10 of operation – 40% of annual vessel calls
- By end of year 16 of operation – 70% of annual vessel calls.

Use of AMP would enable ships to turn off their auxiliary engines 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 the emission from ship boilers, a ship hoteling with AMP reduces its criteria pollutant emissions 88 to 98 percent, depending on the pollutant, when compared to a ship hoteling without AMP and burning residual fuel in the boilers.

AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam power. The steam production capability cannot be replaced without complete vessel reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps.

The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities.

This measure incorporates the requirements of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-16: Slide Valves

Ships calling at Berth 408 shall be equipped with slide valves or a slide valve equivalent (an engine retrofit device designed to reduce the sac volume in fuel valves of main engines in Category 3 marine engines) to the maximum extent possible.

MM AQ-17: Parking Configuration

Configure parking during operation to minimize traffic interference. Because the effectiveness of this measure cannot be predicted, it is not quantified in this study. This measure incorporates the requirements of MM 4G-14 from the 1992 Deep Draft FEIS/FEIR.

MM AQ-18: 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, O_3, and CFCs). 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. Common Rail
6. Low NO_x Burners for Boilers
7. Implement fuel economy standards by vessel class and engine
8. Diesel-electric pod propulsion systems

New/Alternative Technology

The following measures are lease measures that will be included in the lease for Berth 400 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 Project approvals.

MM AQ-19: Equivalent Measures

General Mitigation Measure. For any of the above mitigation measures (**MM AQ-13** through **AQ-18**), if any kind of technology becomes available and is shown to be as good or better in terms of emissions reduction performance than the existing measure, the technology could replace the existing measure pending approval by the Port of Los Angeles. The technology's emissions reductions must be verifiable through USEPA, CARB, or other reputable certification and/or demonstration studies to the Port's satisfaction.

This measure is intended to provide PLAMT the flexibility to achieve required emissions mitigation using alternative methods that may not be apparent at present.

The applicant may use an AMP alternative emission reduction technology so long as the alternative technology will achieve emission reductions equivalent to the emission reductions that would have been achieved through the use of AMP.

MM AQ-20: Periodic Review of New Technology and Regulations

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

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 the Port shall work together to identify potential new technology. Such technology shall be studied for feasibility, in terms of cost, technical and operational feasibility. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies. 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.

As partial consideration for the Port's agreement to issue the permit to the tenant, 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 the parties' mutual agreement on operational feasibility and cost sharing which shall not be unreasonably withheld.

MM AQ-21: Throughput Tracking

If the project exceeds project throughput assumptions/projections anticipated through the years 2015, 2025, or 2040, staff shall evaluate the effects of this on the emission sources (ship calls, crude oil throughput) relative to the SEIS/SEIR. If it is determined that these emission sources exceed SEIS/SEIR assumptions, staff would evaluate actual air emissions for comparison with the SEIS/SEIR and if the criteria pollutant emissions exceed those in the SEIS/SEIR, then new or additional mitigations would be applied through MM AQ-20.

Emission Control Measures for Permitted Stationary Source Operations

The proposed Project would incorporate BACT for stationary sources, an overall facility emissions cap, and customer incentives to reduce vessel emissions. In addition, all emissions increases from permitted stationary equipment, as well as the emissions from vessels while at berth and during non-propulsion operations, would be fully offset at a ratio of 1.2 to 1.0 to satisfy SCAQMD permitting requirements. Since BACT is defined as the most stringent level of emission limitation or control technique that has been achieved in practice without consideration of cost, the analysis did not consider any mitigation measures for stationary sources.

Use of All Applicable CAAP Measures

Table 3.2-22 details how the proposed Project mitigation measures compare to the Control Measures identified in the San Pedro Bay Ports CAAP.

Residual Impacts under CEQA

Table 3.2-23 presents the average daily emissions for the Project with mitigation.

As discussed above, unmitigated peak daily emissions were determined by considering five 24-hour scenarios. After analysis, Scenario 3 had the highest daily emissions. The mitigated peak daily emissions will be analyzed in the same manner. Thus, the peak daily emissions will occur when a vessel departs, another vessel arrives, and would offload for the remainder of the day. Table 3.2-24 presents the peak daily emissions for the proposed Project with mitigation. Table 3.2-24 has emissions broken out by Project Year as a result of phase-in of **MM AQ-13** through **MM AQ-21**.

Table 3.2-25 compares the mitigated peak daily emissions to CEQA and NEPA significance thresholds.

The maximum mitigated Project operations would exceed the significant thresholds for all pollutants. No other feasible mitigation measures are known that could achieve further reductions in these pollutants. Significant impacts would occur despite the application of all reasonably applicable mitigation measures.

NEPA Impact Determination

Proposed Project emissions would exceed the NEPA significance thresholds for CO, SO_x, PM, PM_{10}, and $PM_{2.5}$. Therefore, the unmitigated air quality impacts associated with proposed Project operations would be significant for these pollutants under NEPA.

Mitigation Measures

Specific mitigation measures identified above under **MM AQ-13** through **MM AQ-21** would be incorporated into the proposed Project.

Residual Impacts

As shown in Table 3.2-25, significant impacts would occur for CO despite the application of all reasonably applicable mitigation measures.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
HDV-1	Performance Standards for On-Road Heavy-Duty Vehicles (HDVs)	All frequent caller trucks and semi-frequent caller container trucks model year (MY) 1992 and older will meet or be cleaner than the USEPA 2007 on-road emissions standard (0.015 g/bhp-hr for PM) and the cleanest available NO_x at time of replacement. Semi-frequent caller container trucks MY1993-2003 will be equipped with the maximum CARB verified emissions reduction technologies currently available.	No mitigation assumed.	The proposed Project operations do not involve the use of any on-road heavy-duty vehicles. Therefore, this mitigation measure is not applicable to the Project.
HDV-2	Alternative Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	Construct LNG or compressed natural gas (CNG) refueling stations.	No applicable measure.	This measure will be implemented directly by the Ports. The Port of Long Beach, in conjunction with the Port, recently released a RFP seeking proposals to design, construct and operate a public LNG fueling and maintenance facility on Port property.
OGV-1	OGV Vessel Speed Reduction (VSR)	OGVs that call at the SPB Ports shall not exceed 12 knots (kts) within 20 nautical miles (nm) of Point Fermin (extending to 40 nm in future).	**MM AQ-13:** Expanded Vessel Speed Reduction Program. From the beginning of operation, all inbound and outbound vessels calling at Berth 408 shall travel at a maximum speed of 12 knots within 40 nautical miles of Point Fermin.	**MM AQ-13** fully complies with **OGV-1**. The CAAP targets a 95% compliance rate through lease provisions.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
OGV-2	Reduction of At-Berth OGV Emissions	Each Port will 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, will be evaluated for the application of shore-power.	**MM AQ-15:** Alternative Maritime Power (AMP). Vessels calling at Berth 408 shall utilize emissions reduction methods to reduce auxiliary engine emissions by 90% during hoteling in the following numbers and percentages: By end of year 2 – 6 vessel calls, by end of year 3 – 10% of annual vessel calls vessels, by end of year 5 – 15% of annual vessel calls vessels, by end of year 10 – 40% of annual vessel calls vessels, by end of year 16 – 70% of annual vessel calls vessels.	**MM AQ-15** fully complies with **OGV-2**.
OGV-3	OGV Auxiliary Engine Fuel Standards	Require ship's auxiliary engines to operate using MGO fuels with sulfur content ≤0.2% S in their auxiliary engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin.	**MM AQ-14:** Vessels calling at Berth 408 shall use low sulfur fuel in main engines, auxiliary engines, and boilers within 40nm of Point Fermin in percentages determined on an annual basis (see the text under MM AQ-14). From the beginning of operation, all inbound vessels shall utilize MDO or MGO with an average sulfur content equal to or less than 0.2% determined on an annual basis in auxiliary engines and boilers when within 40 nm of Point Fermin	**MM AQ-14** fully complies with **OGV-3** and **OGV-4.** The CAAP assumes full compliance of OGV-3 and OGV-4 pending technical feasibility and fuel availability. The phase-in schedule for **MM AQ-14** allows time for technical equipment upgrades, including installing new tanks and piping on ships. These measures go beyond the pending CARB regulation by requiring ≤ 0.2% S MGO (prior to 2010) in both auxiliary and main engines, instead of requiring ≤0.5% S MDO or MGO for only OGV auxiliary engines.
OGV-4	OGV Main Engine Fuel Standards	Require ship's main engines to operate using MGO fuels with sulfur content ≤0.2% S in their main engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin		

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
OGV-5	OGV Main & Auxiliary Engine Emissions Improvements	Focus on reducing DPM, NO_x, and SO_x emissions from OGV main engines and auxiliary engines. The goal of this measure is to reduce main and auxiliary engine DPM, NO_x, and SO_x emissions by 90%. The first engine emissions reduction technology for this measure will be the use of MAN B&W slide valves for main engines.	**MM AQ-18: New Vessel Builds.** All new vessels ordered by applicant shall incorporate NO_x and PM control devices on auxiliary and main engines. NO_x and SO_x control devices include the following technology where appropriate: Slide Valves, Selective Catalytic Reduction (SCR) technology, exhaust gas recirculation, in line fuel emulsification technology, Diesel Particulate Filters (DPFs), and common rail.	**MM AQ-18** fully comply with **OGV-5**.
CHE-1	Performance Standards for CHE	Sets fuel neutral purchase requirements for CHE, starting in 2007. Requires by 2010, all yard tractors operating at the ports will have the cleanest engines meeting USEPA on-road 2007 or Tier IV engine standards for PM and NO_x. All remaining CHE less than 750 hp will meet at a minimum the 2007 or Tier IV standards for PM and NO_x by 2012. Requires that all remaining CHE greater than 750 hp to meet Tier IV standards for PM and NO_x by 2014 and prior to that, be equipped with the cleanest available VDEC.	No mitigation assumed.	The proposed Project operations do not involve the use of any CHE. Therefore, this mitigation measure is not applicable to the Project.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
HC-1	Performance Standards for Harbor Craft	This measure will focus on harbor craft that have not already been repowered/retrofitted (including construction related harbor craft like dredges and support vessels). When candidate vessels are identified, the Ports will assist/require the owner/operator to repower or retrofit propulsion and auxiliary engines. For non-construction related candidates, Ports staff will 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 noted, that several tugs operating at the Port of Long Beach are home-ported on private property (not Port property) and therefore will not be affected by this measure.	No mitigation assumed.	This measure is a Portwide measure. Terminal operators and shipping lines do not have a direct contractual relationship with tugboat operators and may be limited in providing the infrastructure necessary to implement **HC-1**. The Ports of Los Angeles and Long Beach shall implement **HC-1** through a Port-wide Program as described in the CAAP. The Project air quality analysis assumes that a portion of the Port tugboat fleet will be re-powered through the CARB Carl Moyer Program.
RL-1	PHL Rail Switch Engine Modernization	A voluntary program initiated by the Ports in conjunction with PHL to modernize switcher locomotives used in Port service to meet Tier 2 locomotive engine standards and initiate the use of fuel emulsion in those engines. Also includes evaluation of alternative-powered switch engines including LNG and hybrid locomotives. In addition, a locomotive DOC and DPF will be evaluated and based on a successful demonstration, will be applied to all Tier 2 switcher locomotives. Also restricts future purchases to the cleanest locomotives available.	No mitigation assumed.	The proposed Project operations do not involve the use of any locomotives. Therefore, this mitigation measure is not applicable to the Project.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
RL-2	Existing Class 1 Railroad Operations	Effects only existing Class 1 railroad operations on Port property. Lays out stringent goals for switcher, helper, and long haul locomotives operating on Port properties. By 2011, all diesel-powered Class 1 switcher and helper locomotives entering Port facilities will be 90% controlled for PM and NO_x, will use 15-minute idle restrictors, and after January 1, 2007, the use of ULSD fuels. Starting in 2012 and fully implemented by 2014, the fleet average for Class 1 long haul locomotives calling at Port properties will be Tier III equivalent (Tier 2 equipped with DPF and SCR or new locomotives meeting Tier 3) PM and NO_x and will use 15-minute idle restrictors. Class 1 long haul locomotives will operate on USLD while on Port properties by the end of 2007. Technologies to get to these levels of reductions will be validated through the Technology Advancement Program.	No mitigation assumed.	The proposed Project operations do not involve the use of any railroad operations. Therefore, this mitigation measure is not applicable to the Project.
RL-3	New and Redeveloped Rail Yards	New rail facilities, or modifications to existing rail facilities located on Port property, will incorporate the cleanest locomotive technologies, meet the requirements specified in SPBP-RL2, utilize "clean" CHE and HDV, and utilize available "green-container" transport systems.	No mitigation assumed.	The proposed Project operations do not involve the use of any rail facilities. Therefore, this mitigation measure is not applicable to the Project.

Table 3.2-23. Average Daily Emissions for Proposed Project Operation with Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2010							
Tanker Cruising and Maneuvering [1]	47	81	896	75	19	19	17
Tanker Hoteling [2]	14	38	479	35	10	10	8
Offloading Emissions [3]	2	19	80	115	12	9	6
Transiting Operations [4]	0	1	6	21	1	1	1
Tug Assistance	5	23	144	0	--	6	6
Tanks	14	--	--	--	--	--	--
Vapor Destruction Units	32	9	2	6	- - -	2	- - -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.3	0.7	8	0.5	0.4	0.4	0.4
Emissions from AMPed off-site electricity generation	0	0	0	0	0	0	0
Average Daily Operational Emissions with Mitigation	**117**	**172**	**1,615**	**253**	**42**	**47**	**38**
Project Year 2015							
Tanker Cruising and Maneuvering [1]	52	98	1,127	75	22	22	20
Tanker Hoteling [2]	15	40	508	35	11	11	8
Offloading Emissions [3]	4	26	114	153	17	12	8
Transiting Operations [4]	0	2	8	18	1	1	1
Tug Assistance	5	28	151	0	--	7	6
Tanks	20	--	--	--	--	--	--
Vapor Destruction Units	2	10	38	7	--	2	- -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Emissions from AMPed off-site electricity generation	0	3	20	2	1	1	1
Average Daily Operational Emissions with Mitigation	**101**	**208**	**1,977**	**291**	**53**	**57**	**45**
Project Year 2025							
Tanker Cruising and Maneuvering [1]	71	133	1,531	78	28	28	25
Tanker Hoteling [2]	14	39	489	32	11	10	8
Offloading Emissions [3]	5	35	155	199	23	16	11
Transiting Operations [4]	0	2	10	16	2	1	1
Tug Assistance	7	38	171	0	--	7	7
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.9
Emissions from AMPed off-site electricity generation	0	3	19	2	1	1	1
Average Daily Operational Emissions with Mitigation	**130**	**261**	**2,432**	**335**	**66**	**66**	**54**
Project Year 2040							
Tanker Cruising and Maneuvering [1]	71	133	1,531	78	28	28	25
Tanker Hoteling [2]	7	19	245	16	5	5	4
Offloading Emissions [3]	5	35	155	199	23	16	11
Transiting Operations [4]	0	2	10	16	2	1	1
Tug Assistance	7	38	154	0	--	7	6
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.8
Emissions from AMPed off-site electricity generation	0	2	9	1	0	0	0
Average Daily Operational Emissions with Mitigation	**123**	**241**	**2,161**	**318**	**59**	**60**	**48**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-24. Peak Daily Emissions for Proposed Project Operation with Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2010 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	159	41	41	37
Transiting Operations [4]	1	6	28	84	4	3	2
Tug Assistance	16	82	514	0	- -	21	20
Project Year 2010 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	159	41	41	37
Transiting Operations [4]	1	6	28	84	4	3	2
Tug Assistance	16	82	514	0	- -	21	20
Project Year 2010 - Vessel Offloading							
Tanker Hoteling [2]	32	88	1,108	78	24	23	19
Offloading Emissions [3]	12	56	271	343	38	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	3	17	63	19	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	0	0	0	0	0	0
Maximum Daily Emissions, Year 2010	**382**	**687**	**6,376**	**926**	**152**	**183**	**154**
Project Year 2015 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	123	38	38	34
Transiting Operations [4]	1	6	28	58	4	3	2
Tug Assistance	16	82	442	0	- -	19	18
Project Year 2015 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	123	38	38	34
Transiting Operations [4]	1	6	28	58	4	3	2
Tug Assistance	16	82	442	0	- -	19	18
Project Year 2015 - Vessel Offloading							
Tanker Hoteling [2]	27	75	943	64	20	20	16
Offloading Emissions [3]	12	56	269	327	37	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	4	18	67	20	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0.53**	**11**	**61**	**6**	**2**	**2**	**2**
Maximum Daily Emissions, Year 2015	**379**	**686**	**6,130**	**779**	**143**	**172**	**143**
Project Year 2025 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	367	0	- -	16	15
Project Year 2025 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	367	0	- -	16	15
Project Year 2025 - Vessel Offloading							
Tanker Hoteling [2]	19	53	665	44	15	14	11
Offloading Emissions [3]	12	56	271	321	38	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	4	18	66	20	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0.37**	**7**	**43**	**4**	**2**	**2**	**2**
Maximum Daily Emissions, Year 2025	**368**	**660**	**5,685**	**655**	**135**	**156**	**128**

Table 3.2-24. Peak Daily Emissions for Proposed Project Operation with Mitigation (continued)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2040 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	330	0	- -	14	13
Project Year 2040 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	330	0	- -	14	13
Project Year 2040 - Vessel Offloading							
Tanker Hoteling [2]	9	26	332	22	7	7	6
Offloading Emissions [3]	12	56	271	321	38	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	4	18	66	20	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0.19**	**4**	**22**	**2**	**0.75**	**0.75**	**0.75**
Maximum Daily Emissions, Year 2040	**358**	**630**	**5,257**	**631**	**126**	**144**	**118**
Maximum Daily Emissions	**382**	**687**	**6,376**	**926**	**152**	**183**	**154**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-25. Peak Daily Emissions for Proposed Project Operation With Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Peak Daily Operation Emissions (From Table 3.2-24)	**382**	**687**	**6,376**	**926**	**152**	**183**	**154**
Construction Phase II Emissions (From Table 3.2-14)	64	733	739	1	77	77	39
Sum of Peak Daily Emissions including Construction Phase II	**446**	**1,420**	**7,115**	**927**	**229**	**260**	**193**
CEQA Baseline Emissions	0	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**446**	**1,420**	**7,115**	**927**	**229**	**260**	**193**
CEQA Significance Thresholds	55	550	55	150	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	923	853	8,744	4,980	533	549	427
Net Change Versus NEPA Baseline	**-477**	**567**	**-1,629**	**-4,053**	**-304**	**-289**	**-234**
NEPA Significance Thresholds	55	550	55	150	150	150	55
Significance under NEPA?	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**

Impact AQ-4: Proposed Project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.

A dispersion modeling analysis of project operational emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. The analysis focused on Project Year 1 as Project sources would produce the highest amount of daily and annual emissions during this year. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-26 presents the maximum project-related impacts of NO_2, CO, PM_{10} and $PM_{2.5}$ from operational activities without mitigation.

Table 3.2-26. Offsite Ambient Air Pollutant Concentrations Associated with Operation of the Proposed Project without Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	83.25	263.2	346.45	338	Y
	Annual	3.38	54.5	57.88	56	Y
CO	1-hour	7.76	6,670	6,677.76	23,000	N
	8-hour	2.66	5,405	5,407.66	10,000	N
PM_{10}	24-hour	0.52	51.0	- - -	2.5	N
	Annual	0.18	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.42	58.5	- - -	2.5	N

Notes:

1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

The maximum 1-hour NO_2 and annual NO_2 concentrations would exceed the SCAQMD thresholds of 338 $\mu g/m^3$ and 56 $\mu g/m^3$, respectively. Therefore, these impacts would be significant under CEQA.

Mitigation Measures

Specific mitigation measures identified above under **Impact AQ-3** (**MM AQ-13** through **MM AQ-21**) would be incorporated into the proposed Project.

Residual Impacts

Table 3.2-27 presents the maximum mitigated project-related impacts of NO_2, CO, PM_{10} and $PM_{2.5}$ from operational activities. The maximum annual NO_2 concentration would exceed the SCAQMD thresholds.

Maximum offsite ambient pollutant concentrations associated with the proposed Project are expected to result in air pollutant concentration in excess of the applicable significance thresholds for NO_2. This would occur despite the application of all reasonably applicable mitigation measures. Therefore, significant impacts would occur under CEQA.

Table 3.2-27. Offsite Ambient Air Pollutant Concentrations Associated with Operation of the Proposed Project with Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	20.37	263.2	283.57	338	N
	Annual	3.44	54.5	57.94	56	Y
CO	1-hour	3.32	6,670	6,673.32	23,000	N
	8-hour	2.32	5,405	5407.32	10,000	N
PM_{10}	24-hour	0.35	51.0	- - -	2.5	N
	Annual	0.17	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.20	58.5	- - -	2.5	N

Notes:

1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the proposed Project are expected to result air pollutant concentration in excess of the applicable significance thresholds for 1-hour and annual NO_2. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

To reduce the level of impact during proposed Project operation, the MMs described above for **Impact AQ-3** would be applied to the proposed Project.

Residual Impacts

Maximum offsite ambient pollutant concentrations associated with the proposed Project are expected to result in air pollutant concentration in excess of the applicable significance thresholds for annual NO_2. This would occur despite the application of all reasonably applicable mitigation measures. Therefore, significant impacts would occur under NEPA.

Impact AQ-5: 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 may sense that emissions from the combustion of diesel fuel have an objectionable odor, although it is difficult to quantify the odorous impacts of these emissions to the public. The mobile nature of the Project vessel emission sources would help to disperse the emissions. Additionally, the distance between Project emission sources and the nearest residents in Wilmington and San Pedro should be far enough to allow for adequate dispersion of these emissions to less than significant odor levels. Emissions of crude oil vapors from offloading and storage activities would be minimal, due to the installation of BACT on these sources. As a result, the potential is low for the project to produce objectionable odors and for such odors to affect a substantial number of people.

CEQA Impact Determination

As noted above, the proposed Project is not expected to produce objectionable odors that would affect a substantial number of people or a sensitive receptor. As such, the odor impacts associated with the Project would be less than significant under CEQA.

Mitigation Measures

Mitigation is not required.

Residual Impacts

Impacts would be less than significant under CEQA.

NEPA Impact Determination

As noted above, the proposed Project is not expected to produce objectionable odors that would affect a substantial number of people or a sensitive receptor. As such, the odor impacts associated with the Project would be less than significant under NEPA.

Mitigation Measures

Mitigation is not required.

Residual Impacts

Impacts would be less than significant under NEPA.

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

Project construction and operations would emit TACs that could impact public health. An HRA was conducted for the proposed Project pursuant to a Protocol reviewed and approved by both CARB and SCAQMD (LAHD 2006b). The HRA evaluated potential public health impacts based on the estimated TAC emissions from the construction and operation of the proposed Project. Appendix H contains documentation of the Project HRA.

The primary constituent of concern from the proposed Project would be particulate matter emissions from the combustion of diesel fuel and other distillates in internal combustion engines. DPM would primarily be emitted from the ocean-going vessels which employ large horsepower internal combustion engines for propulsion and auxiliary internal combustion engines for various on-board power needs.

While diesel engine exhaust includes many compounds considered to be TACs, the State of California (i.e., CARB OEHHA) generally uses DPM as the surrogate for the aggregate health risk associated with the combustion of diesel fuel. As such, DPM was treated as a surrogate for the cancer and chronic non-cancer risk analysis. Since the State of California has not adopted an acute non-cancer Reference Exposure Level (REL) for DPM, the acute non-cancer analysis was performed using a multi-pollutant speciation of the TACs known to be in diesel internal combustion engine exhaust.

In addition to DPM, the HRA also considered other TAC emissions which would result from the construction and operation of the proposed Project. These would include diesel and distillate fuel combustion from external combustion sources such as boilers, fugitive organic compound emissions from the handling of crude oil, emissions for TACs from the thermal destruction of crude oil vapors in the VDUs, as well as natural gas combustion in the VDUs.

CEQA Impact Determination

As explained in Section 3.2.4.2, the applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0 x 10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-cancer impacts were compared to the predicted impacts under the CEQA Baseline on a location-specific basis.

Figure 3.2-1 presents the maximum incremental cancer risk results for the proposed Project without mitigation under CEQA. The maximum impacted residential receptor location for cancer risk was predicted to be located at the Cabrillo Marina. While not zoned for residential use, the Cabrillo Marina does have some long-term residents living aboard small boats. Although it is not clear whether these residents could permanently reside in this area (i.e., 70 years), this was assumed to be the case for the HRA. This is a conservative assumption. All other residential receptors in the local communities and vicinity would experience lower impacts than what is identified for the maximum impact location. DPM is the primary driver for cancer health risks predicted by the HRA.

Table 3.2-28 presents the maximum predicted cancer and non-cancer health risk impacts for the proposed Project without Mitigation. As shown therein, the cancer impacts from the proposed Project without mitigation would be significant when compared to the SCAQMD’s significance threshold. The maximum chronic and acute non-cancer Hazard Indices would be below the applicable significance threshold for all receptor types.

Mitigation Measures

The mitigation measures described above for **Impact AQ-1** and **Impact AQ-3** (**MM AQ-1** through **MM AQ-21** and **MM 4G-5**) would also serve the benefit of reducing TAC emissions from the proposed Project.

Residual Impacts

Figure 3.2-2 and Table 3.2-29 present the maximum incremental cancer risk results for the proposed Project with mitigation under CEQA. As shown therein, the cancer impacts from the proposed Project after mitigation would be less than significant when compared to the SCAQMD’s significance threshold. The maximum chronic and acute non-cancer Hazard Indices would also be below the applicable significance thresholds for all receptor types.

Table 3.2-28. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project without Mitigation under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1, 2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	12×10^{-6} (12 in a million)	10.0×10^{-6} (10 in a million)	Yes
	Occupational Area	9.7×10^{-6} (9.7 in a million)		No
	Sensitive Receptor	12×10^{-6} (12 in a million)		Yes
	Student	6.9×10^{-6} (6.9 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.017	1.0	No
	Occupational Area	0.073		No
	Sensitive Receptor	0.017		No
	Student	0.012		No
Non-Cancer Acute Hazard Index	Residential	0.040	1.0	No
	Occupational Area	0.043		No
	Sensitive Receptor	0.040		No
	Student	0.028		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

NEPA Impact Determination

The applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0×10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-cancer impacts were compared to the predicted impacts under the NEPA Baseline on a location-specific basis. The NEPA Baseline is equivalent to the No Federal Action/No Project Alternative.

Figure 3.2-3 presents the maximum incremental cancer risk results for the proposed Project without mitigation as compared to the NEPA Baseline. Table 3.2-30 shows that the maximum residential NEPA cancer risk increment associated with the unmitigated proposed Project is predicted to be less than significant. Both the maximum chronic hazard index increment and the maximum acute hazard index increment associated with the unmitigated Project are predicted to be less than significant for all receptors.

Mitigation Measures

While not required for this impact, the mitigation measures described above for **Impact AQ-1** and **Impact AQ-3** (**MM AQ-1** through **MM AQ-21** and **MM 4G-5**) would also serve the benefit of reducing TAC emissions from the proposed Project.

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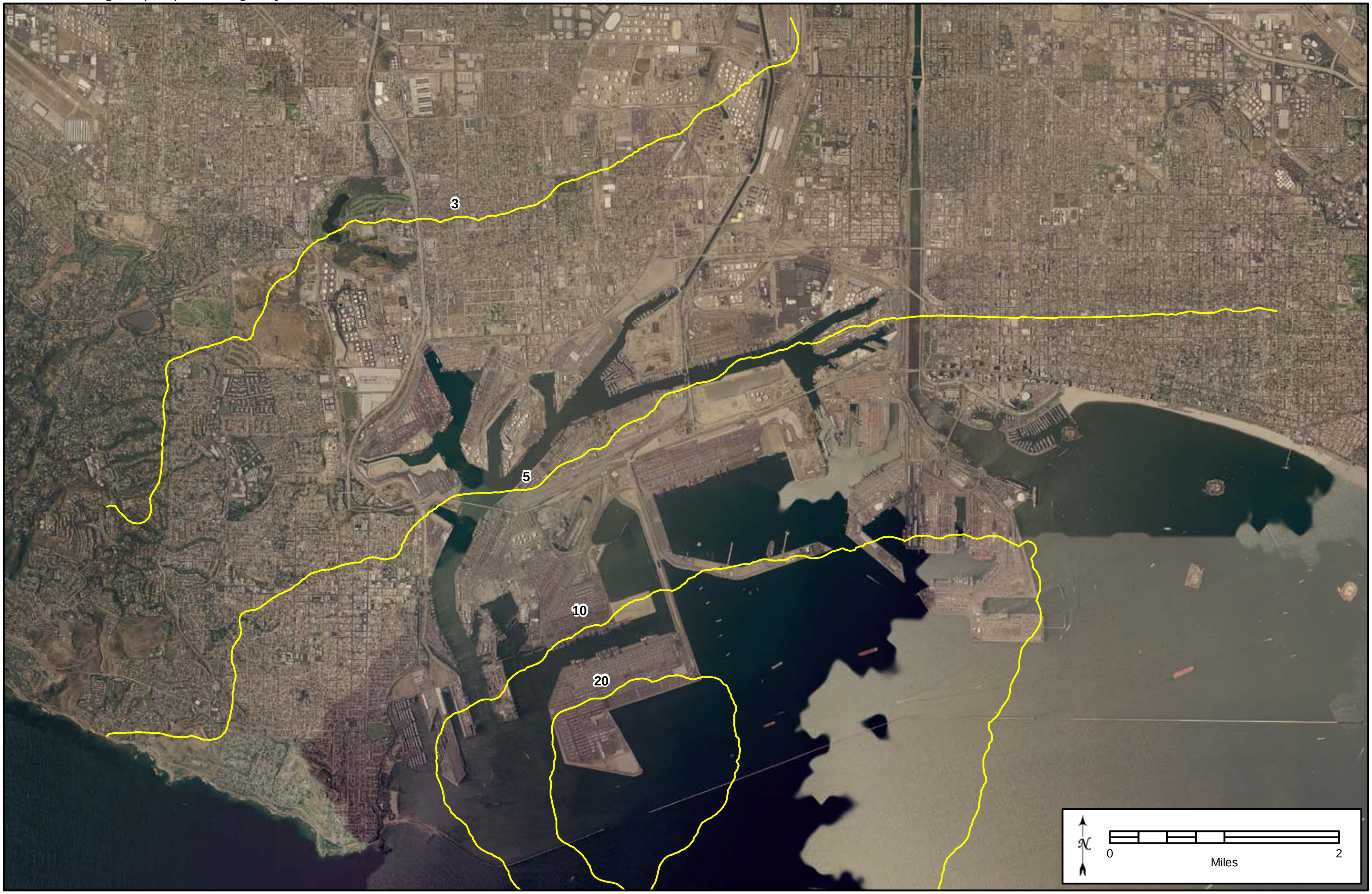

Figure 3.2-1. Proposed Project without Mitigation: Residential Cancer Risk under CEQA

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Figure 3.2-2. Proposed Project with Mitigation: Residential Cancer Risk under CEQA

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Figure 3.2-3. Proposed Project without Mitigation: Residential Cancer Risk under NEPA

Table 3.2-29. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project with Mitigation under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	5.3×10^{-6} (5.3 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	4.8×10^{-6} (4.8 in a million)		No
	Sensitive Receptor	5.3×10^{-6} (5.3 in a million)		No
	Student	2.4×10^{-6} (2.4 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.0095	1.0	No
	Occupational Area	0.044		No
	Sensitive Receptor	0.0095		No
	Student	0.0064		No
Non-Cancer Acute Hazard Index	Residential	0.019	1.0	No
	Occupational Area	0.026		No
	Sensitive Receptor	0.019		No
	Student	0.013		No

Notes:
1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

Table 3.2-30. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project without Mitigation under NEPA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	5.5×10^{-6} (5.5 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	5.1×10^{-6} (5.1 in a million)		No
	Sensitive Receptor	5.5×10^{-6} (5.5 in a million)		No
	Student	2.8×10^{-6} (2.8 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.0047	1.0	No
	Occupational Area	0.043		No
	Sensitive Receptor	0.0047		No
	Student	0.0047		No
Non-Cancer Acute Hazard Index	Residential	-0.095	1.0	No
	Occupational Area	-0.10		No
	Sensitive Receptor	-0.052		No
	Student	-0.052		No

Notes:
1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

Residual Impacts

Figure 3.2-4 presents the maximum incremental cancer risk results for the proposed Project with mitigation as compared to the NEPA Baseline. Table 3.2-31 presents the maximum predicted cancer and non-cancer health risk impacts for the proposed Project with mitigation. As shown therein, the potential health risk impacts from the proposed Project with mitigation would be less than significant. Thus, the proposed Project is considered less than significant under NEPA.

Table 3.2-31. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project with Mitigation under NEPA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	-2.1×10^{-6} (-2.1 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	0.24×10^{-6} (0.24 in a million)		No
	Sensitive Receptor	-0.83×10^{-6} (-0.83 in a million)		No
	Student	-0.83×10^{-6} (-0.83 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	-0.0068	1.0	No
	Occupational Area	0.014		No
	Sensitive Receptor	0.00051		No
	Student	0.00051		No
Non-Cancer Acute Hazard Index	Residential	-0.11	1.0	No
	Occupational Area	-0.13		No
	Sensitive Receptor	-0.057		No
	Student	-0.057		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Cabrillo Marina; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Signal Hill Head Start; student receptor, Signal Hill Head Start.

Particulate Matter Morbidity & Mortality

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

The proposed Project would emit DPM during project construction and operation. This discussion addresses potential health effects caused by DPM emissions and discusses existing standards and thresholds developed by regulatory agencies to address health impacts.

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Figure 3.2-4. Proposed Project with Mitigation: Residential Cancer Risk under NEPA

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Health Effects of DPM Emissions

Epidemiological studies substantiate the correlation between the inhalation of ambient PM and increased mortality and morbidity (CARB 2002a and CARB 2007). Recently, CARB conducted a study to assess the potential health effects associated with exposure to air pollutants arising from ports and goods movement in the State (CARB 2006a and CARB 2006b). CARB's assessment evaluated numerous studies and research efforts, and focused on PM and ozone as they represent a large portion of known risk associated with exposure to outdoor air pollution. CARB's analysis of various studies allowed large-scale quantification of the health effects associated with emission sources. CARB's assessment quantified premature deaths and increased cases of disease linked to exposure to PM and ozone from ports and goods movement. Table 3.2-32 presents the statewide PM and ozone health effects identified by CARB (CARB 2006b).

Table 3.2-32: Annual 2005 Statewide PM and Ozone Health Effects Associated with Ports and Goods Movement in California[1]

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

Notes:

1. Does not include the contributions from particle sulfate formed from SO_x emissions, which is being addressed with several ongoing emissions, measurement, and modeling studies.
2. Range reflects uncertainty in health concentration-response functions, but not in emissions or exposure estimates. A negative value as a lower bound of the uncertainty range is not meant to imply that exposure to pollutants is beneficial; rather, it is a reflection of the adequacy of the data used to develop these uncertainty range estimates.

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

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

It should be noted that PM in ambient air is a complex mixture that varies in size and chemical composition, as well as varying spatially and temporally. Different types of particles may cause different effects with different time courses, and perhaps only in susceptible individuals. The interaction between PM and gaseous co-pollutants adds additional complexity because in ambient air pollution, a number of pollutants tend to co-occur and have strong inter-relationships with each other (e.g., PM, SO_2, NO_2, CO, and O_3) (AQMD 2007, CARB 2006a, and CARB 2006b).

Nevertheless, various studies have been published over the past ten 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 and studies that have followed since serve as the fundamental basis for PM air quality standards promulgated by AQMD, CARB, USEPA, and the World Health Organization.

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 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 OEHHA. Standards are set to ensure that sensitive population sub-groups are protected from exposure to levels of pollutants that may cause adverse health effects. In the case of PM, CAAQS are peer reviewed by the Air Quality Advisory Committee (AQAC), an external scientific peer review committee, comprised of world-class scientists in the PM field.

Within the SCAB, the SCAQMD furthermore identifies localized ambient significance thresholds. These ambient concentration thresholds target those pollutants the SCAQMD has determined are most likely to cause or contribute to an exceedence of the NAAQS or CAAQS. SCAQMD’s localized significance threshold for PM_{10} and $PM_{2.5}$ is 10.4 $\mu g/m^3$ and 2.5 $\mu g/m^3$ for construction and operation, respectively. These values were developed based on CARB guidance and epidemiological studies showing significant toxicity (resulting in mortality and morbidity) related to exposure to fine particles. The proposed Project conducted dispersion analysis to determine ambient air concentrations and determined localized significance.

Emission Thresholds

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

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

Health Risk Assessment Thresholds

SCAQMD specifies thresholds for cancer risk and noncancer chronic and acute hazard impacts. The cancer risk calculation methodology accounts for the cancer potency of a pollutant and the expected dose for exposure pathways. For chronic 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 are based on the most sensitive relevant adverse health effect reported in the medical and toxicological literature. RELs are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety.

Risk assessment and health impact determination methodologies rely on risk assessment health values published by OEHHA, which in turn are based on results of numerous toxicology and epidemiology studies. For DPM, OEHHA has established health values for cancer and 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, the Port has adopted SCAQMD's CEQA threshold of 10 in a million excess cancer risk and a 1.0 Hazard Index in evaluating new projects. The thresholds set by USEPA, CARB, and SCAQMD for localized, regional and toxic impacts are designed to account for health impacts, such as premature deaths, cardiac and respiratory hospitalizations, asthma, lost work/school days. The proposed Project has quantified localized, regional and toxic impacts of DPM.

Quantifying Morbidity and Mortality

CARB's recent study (CARB 2006a and CARB 2006b) used a health effects model, based on multiple epidemiological studies, which quantified expected non-cancer impacts of mortality and morbidity from ambient PM exposure (for example 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 $PM_{2.5}$, the impacts of goods movement emissions on a statewide and broad regional level, and the impacts from combined operations at the Ports of Los Angeles and Long Beach (CARB 2006a and CARB 2006b).

CARB staff have stated that it would be neither appropriate nor meaningful to apply the health effects model used in the CARB study to quantify the mortality and morbidity impacts of PM on a project of the proposed Project's size because values quantified for a specific location would fall within the margin of error for their methodology (CARB 2007). Because CARB's methodology was designed for larger-scaled projects affecting a much larger population, the methodology may not be sensitive enough to provide accurate results for projects affecting much smaller populations. The proposed Project is located adjacent to the San Pedro and Wilmington communities and, based on the HRA completed for this Project, the potential health impacts of PM emissions will largely be restricted to an area 4 miles east-west by 6 miles north-south around the terminal area (about 20,000 people). In contrast, CARB's study looked at a 40 mile by 50 mile area with a population of over 400,000 people.

Due to potential scale issues, Port staff also contacted OEHHA to discuss an appropriate methodology to assess the potential morbidity and mortality impacts from the Project. OEHHA is in the process of developing further guidance on health impacts from PM exposure. This guidance will be released later this summer for public comment and peer review. In the absence of further guidance, staff was directed to the "Public Hearing to Consider Amendments to Ambient Air Quality Standards for Particulate Matter and Sulfates" (CARB 2002b). This document pools together different research papers and epidemiological studies and describes how different impacts of morbidity and mortality (for example, long-term mortality, chronic bronchitis, and hospital admissions for asthma) were quantified in considering AAQS revisions for PM. The document used concentration-response (C-R) functions to determine morbidity and 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 (PM_{10}: 0.00231285); this coefficient is based on the relative risk that is associated with a particular concentration and varies from one study to another.

ΔPM = change in PM concentration

Using the guidance presented in the document, and using a coefficient based on a 1.12 relative risk that is associated with a mean change of 24.5 $\mu g/m^3$ (CARB 2002b and OEHHA 2002), the following represents the result of a sample calculation for long-term mortality due to PM_{10} for the proposed Project (without mitigation). The calculation is dependent on the following:

Location: Lat 33.755368, Long –118.277490

Population (>25 years of age): 3,347 within a 1-mile radius

Change in annual PM_{10} concentration: 13.7 $\mu g/m^3$ (unmitigated peak Project minus CEQA Baseline 15.0 $\mu g/m^3$).

The increase in incidence of long-term mortality corresponding to this change in PM_{10} concentration was calculated to be: 0.0073 cases per year.

However, as shown in Section 3.2.4.3, proposed **MMs AQ-13** through **AQ-21** are expected to reduce DPM emissions relative to baseline DPM emissions, thereby reducing potential impacts on morbidity and mortality.

According to CARB (2002b), the standard error of the ß coefficient is 0.0006023 for PM_{10}.

It is important to note that the parameters in the 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 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 as or as close as possible to those used in the study that estimated the C-R function. The sample analysis presented here attempted to use parameters as closely related to the chosen C-R function as possible.

Among the uncertainties in the risk estimates is the degree of transferability of the concentration-response functions to California. Many of the epidemiologic studies used by CARB/OEHHA do include several California cities, but not all. For example, the C-R function for long-term mortality (Krewski et al. 2000) included eight California cities out of a total of 63 cities. 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 use limitation 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 PM concentrations that are far below the ambient concentration. For example, the CARB/OEHHA analysis applied a threshold of 18 $\mu g/m^3$ 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 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 project.

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

The Port regularly provides SCAG with its Portwide cargo forecasts for development of the AQMP. Therefore, the attainment demonstrations included in the 2003 AQMP account for the emissions generated by projected future growth at the Port.

The 2003 AQMP contains emission reduction measures intended to bring the SCAB into attainment with the NAAQS and CAAQS. Project operation activities would comply with all applicable attainment strategies identified in the AQMP and state and federal requirements, such as mobile source control measures and clean fuel programs. These types of measures are enforced at the state and federal levels on engine manufacturers and fuel producers. Mobile source emissions from Project operations are included in the growth factors used to demonstrate progress towards attainment in the 2003 AQMP. Project operations would comply with all SCAQMD Rules and those stationary source emissions subject to SCAQMD Regulation 13 would be offset with the use of Emission Reduction Credits (ERCs) at a ratio of 1.2 to 1.0. Compliance with these requirements would ensure that the Project would not conflict with or obstruct implementation of the applicable air quality plans.

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

Impacts would be less than significant; therefore, mitigation is not required.

Residual Impacts

Impacts would be less than significant under CEQA.

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

Impacts would be less than significant; therefore, mitigation is not required.

Residual Impacts

Impacts would be less than significant under NEPA.

Impact AQ-8: 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 does not generate enough GHG emissions to significantly influence global climate change by itself (AEP 2007). The issue of global climate change is, therefore, a cumulative impact. Nevertheless, for the purposes of this Draft SEIS/SEIR, the LAHD has opted to address GHG emissions as a project-level impact and a cumulative impact. In actuality, an appreciable impact on global climate change would only occur when the project's GHG emissions combine with GHG emissions from other man-made activities on a global scale.

GHG emissions associated with the proposed Project and alternatives were calculated based on methodologies provided in the California Climate Action Registry's *General Reporting Protocol*, version 2.2 (CCAR 2007). The General Reporting Protocol is the guidance document that the Port and other CCAR members use to prepare annual port-wide GHG inventories for the Registry. Therefore, for consistency, the General Reporting Protocol was also used in this study. However, to adapt the Protocol for NEPA/CEQA purposes, a modification to the Protocol's operational and geographical boundaries was made, as discussed later in this section.

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

- Ships
- Tugboats
- Tanks
- Vapor Destruction Units
- Valves, Flanges, and Pumps
- AMP electricity consumption (for the mitigated project)
- On-terminal electricity consumption

The adaptation of the General Reporting Protocol methodologies to these project-specific emission sources is described in Appendix H.

Under CCAR's General Reporting Protocol, emissions associated with the Port and LAHD would be divided into 3 categories:

- Scope 1: Direct emissions from sources owned or operated by the Port and LAHD

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

Examples of Scope 1 sources would be ships, tugboats, tanks, VDUs, valves, flanges and pumps. Scope 2 emissions would be indirect GHG emissions from electricity consumption on the terminal. CCAR has not yet developed a protocol for determining the operational or geographical boundaries for some Scope 3 emissions sources.

CCAR does not require Scope 3 emissions to be reported because they are considered to belong to another reporting entity (i.e., whomever owns, leases, or operates the sources). For the purposes of this NEPA/CEQA document, however, GHG emissions were calculated for all project-related sources (Scope 1, 2, and 3). For those sources that travel out of California, the GHG emissions were based on that portion of their travel that is within California borders. In the case of electricity consumption, all GHG emissions were included regardless of whether they are generated by in-state or out-of-state power plants.

This approach is consistent with CCAR's goal of reporting all GHG emissions within the State of California.

Table 3.2-33 presents the annual GHG emissions associated with the construction of the proposed Project without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-33. Average Annual GHG Emissions for Proposed Project Construction without Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-34 presents the annual GHG emissions associated with the construction of the proposed Project with mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-34. Average Annual GHG Emissions for Proposed Project Construction with Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-35 presents the annual GHG emissions associated with the operation of the proposed Project without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-35. Average Annual GHG Emissions for Proposed Project Operation without Mitigation

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.05	5,347	0.71	5,376
Tanker Hoteling [2]	0.06	6,523	0.86	6,559
Offloading Emissions [3]	0.16	16,093	2.22	16,188
Transiting Operations [4]	0.03	2592	0.36	2,608
Tug Assistance	0.0045	453	0.0625	456
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Average Annual Operational Emissions	**0.3134**	**41,572**	**5.39**	**41,782**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.06	7,622	1.01	7,662
Tanker Hoteling [2]	0.08	9,302	1,23	9,353
Offloading Emissions [3]	0.23	22,947	3.16	23,084
Transiting Operations [4]	0.04	3,697	0.51	3,719
Tug Assistance	0.01	516	0.07	519
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Average Annual Operational Emissions	**0.43**	**55,580**	**7.26**	**55,867**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.08	9,352	1.23	9,404
Tanker Hoteling [2]	0.10	11,009	1.45	11,070
Offloading Emissions [3]	0.30	30,289	4.18	30,469
Transiting Operations [4]	0.04	4,559	0.63	4,586
Tug Assistance	0.01	706	0.10	710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Average Annual Operational Emissions	**0.55**	**67,411**	**8.87**	**67,769**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.08	9,352	1.23	9,404
Tanker Hoteling [2]	0.10	11,009	1.45	11,070
Offloading Emissions [3]	0.30	30,289	4.18	30,469
Transiting Operations [4]	0.04	4,559	0.63	4,586
Tug Assistance	0.01	706	0.10	710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Average Annual Operational Emissions	**0.55**	**67,411**	**8.87**	**67,769**

Notes:
1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

CEQA Impact Determination

The proposed Project would result in a significant CEQA impact if CO_2e emissions exceed the CEQA Baseline, which is equivalent to zero. As the data in Tables 3.2-34 and 3.2-35 show, annual CO_2e emissions would increase from the CEQA Baseline levels for both construction and operation. As such, the proposed Project would result in a significant impact under CEQA.

Mitigation Measures

Measures that reduce electricity consumption or fossil fuel usage from the proposed Project emission sources would reduce proposed GHG emissions. The following operational mitigation measures already developed for criteria pollutant emissions (**Impact AQ-3**) would also reduce GHG emissions:

MM AQ-13: Expanded Vessel Speed Reduction (VSR) Program

All ships calling (100%) at Berth 408 shall comply with the expanded VSR Program of 12 knots between 40 nm from Point Fermin and the Precautionary Area from Year 1 of operation.

MM AQ-15: AMP

Ships calling at the Berth 408 facility shall use AMP while hoteling at the Port in the following at minimum percentages:

- By end of year 2 of operation – 6 (4%) vessel calls
- By end of year 3 of operation – 10% of annual vessel calls
- By end of year 5 of operation – 15% of annual vessel calls
- By end of year 10 of operation – 40% of annual vessel calls
- By end of year 16 of operation – 70% of annual vessel calls

Use of AMP would enable ships to turn off their auxiliary engines 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 for Greenhouse Gas emissions. Including the emission from ship boilers and power plant emissions, a ship hoteling with AMP reduces its greenhouse gas emissions by 88 to 98 percent, depending on the GHG, when compared to a ship hoteling without AMP and burning residual fuel in the boilers.

AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam power. The steam production capability cannot be replaced without complete vessel reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps.

The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities.

This measure incorporates the requirements of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

The following additional mitigation measures specifically target the Project's 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* (CalEPA 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 3.2-36, along with an applicability determination for the proposed Project.

Table 3.2-36. 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
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-15** (AMP for ships); vessels are electrified as part of the Project; also a future regulatory measure is planned by CARB
Alternative Fuels: Biodiesel blends	Future regulatory measure planned by CARB
Alternative Fuel: Ethanol vehicles or enhanced ethanol/gasoline blends	Future regulatory measure planned by CARB
Heavy Duty Vehicle Emissions Reduction Measures	**MM AQ-13** (VSR Program for ships); Portwide CAAP measure HDV2 (trucks); also a regulatory measure implemented by CARB
Reduced Venting in Gas Systems	Not applicable to Project
Building Operations Strategy	
Recycling	**MM AQ-26;** also a regulatory measure implemented by the Integrated Waste Management Board
Building Energy Efficiency	**MM AQ-22 through MM AQ-26;** 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-25**; 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* (CalEPA 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB 2007).

MM AQ-22: Leadership in Energy and Environmental Design (LEED)

The administration 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
- Innovation and Design Process

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

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

MM AQ-23: Compact Fluorescent Light Bulbs

All interior terminal building lighting shall use compact fluorescent light bulbs and the tenant shall maintain and replace all compact fluorescent 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 Project's GHG emissions by less than 0.1 percent.

MM AQ-24: Energy Audit

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

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

MM AQ-25: Solar Panels

The applicant shall install solar panels on the administration building.

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

MM AQ-26: Recycling

The tenant shall ensure a minimum of 40 percent of all waste generated in all terminal buildings is recycled by 2012 and 60 percent of all waste generated in all terminal buildings is recycled by 2015. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and (j) all plastic bottles.

In general, products made with recycled materials require less energy and raw materials to produce than products made with 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-27: Tree Planting

The applicant shall plant shade trees around the administration building. All shade trees shall be maintained over the life of the project.

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 Project's GHG emissions by less than 0.1 percent.

Future Portwide greenhouse gas emission reductions are also anticipated through AB 32 rule promulgation. However, such reductions have not yet been quantified, as AB 32 implementation is still under development by the CARB.

Residual Impacts

Table 3.2-37 presents the annual mitigated GHG emissions associated with operation of the proposed Project. Table 3.2-34 presents the annual mitigated GHG emissions associated with construction of the proposed Project. As shown therein, the impacts for the proposed Project would remain significant under CEQA.

NEPA Impact Determination

The operational CO_2e emissions summarized in Table 3.2-37 would increase relative to the NEPA Baseline for each project year. However, because no NEPA significance threshold has been established, no determination has been made of the significance of this impact.

Table 3.2-37. Average Annual GHG Emissions for Proposed Project Operation with Mitigation

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.04	4,411	0.58	4,435
Tanker Hoteling [2]	0.06	6,233	0.86	6,270
Offloading Emissions [3]	0.16	16,032	2.21	16,127
Transiting Operations [4]	0.02	2,454	0.34	2,468
Tug Assistance	0.004	453	0.06	456
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	0	0	0
Average Annual Operational Emissions	**0.31**	**40,145**	**5.24**	**40,350**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.05	5,372	0.74	5,404
Tanker Hoteling [2]	0.06	6,866	0.91	6,904
Offloading Emissions [3]	0.22	22,266	3.07	22,398
Transiting Operations [4]	0.003	320	0.04	322
Tug Assistance	0.01	516	0.07	519
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0.03	3,825	0.02	3,836
Average Annual Operational Emissions	**0.40**	**50,661**	**6.13**	**50,913**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.07	7,298	1.01	7,342
Tanker Hoteling [2]	0.06	6,606	0.87	6,642
Offloading Emissions [3]	0.30	30,170	4.16	30,350
Transiting Operations [4]	0.004	436	0.06	438
Tug Assistance	0.01	706	0.10	710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0.03	3,680	0.02	3,690
Average Annual Operational Emissions	**0.49**	**60,392**	**7.50**	**60,702**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.07	7,298	1.01	7,342
Tanker Hoteling [2]	0.03	3,303	0.44	3,321
Offloading Emissions [3]	0.30	30,170	4.16	30,350
Transiting Operations [4]	0.004	436	0.06	438
Tug Assistance	0.01	706	0.10	710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0.02	1,840	0.01	1,845
Average Annual Operational Emissions	**0.45**	**55,249**	**7.05**	**55,535**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

3.2.4.6.2 No Federal Action/No Project Alternative

Under the No Federal Action/No Project Alternative, proposed Project facilities would not be constructed or operated. As described in Section 2.5.2.1, the No Federal Action/No Project Alternative considers the only remaining allowable and reasonably foreseeable use of the proposed Project site: Use of the site for temporary storage of wheeled containers on the site of Tank Farm 1 and on Tank Farm Site 2. This use would require paving, construction of access roads, and installation of lighting and perimeter fencing.

In addition, for analysis purposes, under the No Federal Action/No Project Alternative a portion of the increasing demand for crude oil imports is assumed to be accommodated at existing liquid bulk terminals in the San Pedro Bay Ports, to the extent of their remaining capacities. Although additional demand, in excess of the capacity of existing marine terminals to receive it, may come in by rail, barge, or other means, rather than speculate about the specific method by which more crude oil or refined products would enter southern California, for analysis purposes, the impact assessment for the No Federal Action/No Project Alternative in this SEIS/SEIR is based on marine deliveries only up to the available capacity of existing crude oil berths. As described in Section 2.5.2.1, the impact assessment for the No Federal Action/No Project Alternative also assumes existing terminals would eventually comply with the California State Lands Commission (CSLC) Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS), that LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with CAAP measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78).

The NEPA Baseline condition coincides with the No Federal Action/No Project Alternative for this project because the USACE, the LAHD, and the applicant have concluded that, absent a USACE permit, no part of the proposed Project would be built (Section 2.6.1). All elements of the No Federal Action/No Project Alternative are identical to the elements of the NEPA Baseline. Therefore, under a NEPA determination there would be no impact associated with the No Federal Action/No Project Alternative.

Impact AQ-1: The No Federal Action/No Project Alternative would not result in construction-related emissions that exceed a SCAQMD threshold of significance in Table 3.2-5.

Construction activities under the No Federal Action/No Project Alternative would be minimal consisting of paving at Tank Farm Sites 1 and 2, construction of access roads, and installation of lighting and perimeter fencing. Such work would require at most one piece of construction equipment per day and would fall within exempt activities. Therefore, the No Federal Action/No Project Alternative would produce minimal construction air quality impacts.

CEQA Impact Determination

Because the construction activities would involve minimal activity, the No Federal Action/No Project Alternative would have less than significant construction air quality impacts under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

There would be less than significant residual impacts under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-2: No Federal Action/No Project Alternative construction would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-6.

As discussed in **Impact AQ-1**, construction activities under the No Federal Action/No Project Alternative would be minimal. Therefore, the No Federal Action/No Project Alternative would produce minimal construction air quality impacts.

CEQA Impact Determination

The No Federal Action/No Project Alternative would have less than significant construction air quality impacts under CEQA.

Mitigation Measures

Mitigation is not required.

Residual Impacts

There would be less than significant residual impacts under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-3: The No Federal Action/No Project Alternative would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance in Table 3.2-7.

The unmitigated average daily operational emissions produced by the No Federal Action/No Project Alternative are presented in Table 3.2-38. The average daily emissions are based on fuel deliveries to one of three existing terminals: 1) LAHD Berths 238-240, 2) Port of Long Beach Berths 84-87, and 3) Port of Long Beach Berths 76-78. As explained in Section 2.5.2.1, it is expected that the Pier 400 Tank Farm Site 1 would be graded, paved, and used for temporary storage of containers by APM under the No Federal Action/No Project Alternative. Tank Farm Site 2 would be graded, paved, fenced, and lighted to accommodate temporary intermittent wheeled container storage by APL or Evergreen under this alternative. There would be no increase in throughput at either of these terminals since they are berth-limited (both now and in the future with planned expansion). In both scenarios, containers would be delivered by existing yard tractors and the distances traveled would be similar to the moves on the main terminals.

The fuel deliveries would be made by a mix of mainly Aframax vessels and Panamax vessels. No mitigation will be required. However, the CAAP measures will be enforced and implemented as leases are renewed. Assumptions and details of the calculations used to estimate emissions for all operational sources are presented in Appendix H. Calculation methodologies and inputs are consistent with recent emission estimation efforts performed by the Port (Starcrest, 2007) and the CARB (CARB 2005b).

The peak daily emissions associated with the operation of the No Federal Action/No Project Alternative are shown in Table 3.2-39.

For the No Federal Action/No Project Alternative, a comparison of the peak daily emissions to the CEQA significance thresholds is shown in Table 3.2-40.

Table 3.2-38. Operational Emissions (Average Daily Basis) from the No Federal Action/No Project Alternative

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2010							
Tanker Cruising and Maneuvering [1]	38	93	1,183	525	78	77	69
Tanker Hoteling [2]	20	56	730	406	53	51	41
Offloading Emissions [3]	2	11	77	470	34	29	19
Transiting Operations [4]	0	2	12	75	2	2	1
Tug Assistance	7	34	215	0	- -	9	8
Tanks	26	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	5	24	90	16	- -	5	- -
Valves, Flanges, and Pumps	10	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	0	0	0	0	0	0
Average Daily Emissions	**108**	**220**	**2,307**	**1,492**	**167**	**173**	**138**
Project Year 2015							
Tanker Cruising and Maneuvering [1]	45	108	1,336	178	37	37	33
Tanker Hoteling [2]	22	60	770	149	26	25	20
Offloading Emissions [3]	3	13	76	272	22	18	12
Transiting Operations [4]	0	2	10	38	2	1	1
Tug Assistance	8	40	216	0	- -	9	9
Tanks	30	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	5	24	91	16	- -	5	- -
Valves, Flanges, and Pumps	10	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	1	5	2	0	0	0
Average Daily Emissions	**123**	**248**	**2,504**	**655**	**87**	**95**	**75**
Project Year 2025							
Tanker Cruising and Maneuvering [1]	45	108	1,325	66	23	23	21
Tanker Hoteling [2]	16	43	546	36	11	11	8
Offloading Emissions [3]	3	14	66	78	9	6	4
Transiting Operations [4]	0	2	8	11	1	1	1
Tug Assistance	7	40	179	0	- -	8	7
Tanks	30	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	5	24	91	16	- -	5	- -
Valves, Flanges, and Pumps	10	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	1	5	2	0	0	0
Average Daily Emissions	**116**	**232**	**2,220**	**209**	**44**	**54**	**41**
Project Year 2040							
Tanker Cruising and Maneuvering [1]	45	108	1,325	66	23	23	21
Tanker Hoteling [2]	16	43	546	36	11	11	8
Offloading Emissions [3]	3	14	66	78	9	6	4
Transiting Operations [4]	0	2	8	11	1	1	1
Tug Assistance	7	40	161	0	- -	7	6
Tanks	30	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	5	24	91	16	- -	5	- -
Valves, Flanges, and Pumps	10	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	1	5	2	0	0	0
Average Daily Emissions	**116**	**232**	**2,202**	**209**	**44**	**53**	**40**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

Table 3.2-39. Peak Daily Emissions for No Federal Action/No Project Alternative

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Arrival/Departure							
Tanker Cruising and Maneuvering [1]	106	254	3,163	778	245	218	185
Transiting Operations [4]	1	10	63	342	12	10	7
Tug Assistance	36	145	1,066	24	- -	48	45
Tanks	258	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	7	32	120	22	- -	7	- -
Valves, Flanges, and Pumps	9	- -	- -	- -	- -	- -	- -
Peak Daily Emissions for Vessel Departure Scenario	**417**	**441**	**4,412**	**1,166**	**257**	**283**	**237**
Vessel Offloading Scenario							
Tanker Hoteling	102	282	3,643	1,293	188	181	144
Offloading	10	66	449	2,477	88	71	46
Tanks	258	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	7	32	120	22	- -	7	--
Valves, Flanges, and Pumps	9	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Peak Daily Emissions for Vessel Arrival	**386**	**380**	**4,212**	**3,792**	**276**	**259**	**190**
No Vessel/Empty Berth							
Tanks	258	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	7	32	120	22	- -	7	- -
Valves, Flanges, and Pumps	9	- -	- -	- -	- -	- -	- -
Peak Daily Emissions for Vessel Offloading Scenario	**120**	**32**	**120**	**22**	**0**	**7**	**0**
Peak Daily Emissions for all Scenarios	**923**	**853**	**8,744**	**4,980**	**533**	**549**	**427**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

Table 3.2-40. Comparison of Peak Daily Emissions for No Federal Action/No Project Alternative to Significance Thresholds

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Peak Daily Emissions	**923**	**853**	**8,744**	**4,980**	**533**	**549**	**427**
CEQA Baseline Emissions	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Net Change Versus CEQA Baseline	**923**	**853**	**8,744**	**4,980**	**533**	**549**	**427**
CEQA Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**150**	**55**
CEQA Impacts Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

The No Federal Action/No Project Alternative would exceed the CEQA significance thresholds for all pollutants. Therefore, the air quality impacts associated with the No Federal Action/No Project Alternative would be significant under CEQA for all pollutants.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals. In essence, the CAAP Control Measures are types of mitigation measures which would reduce air quality impacts from those terminals over time.

Residual Impacts

Impacts would be significant under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-4: The No Federal Action/No Project Alternative operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.

A dispersion modeling analysis was performed to assess the impact of the No Federal Action/No Project Alternative on local ambient air concentrations. The analysis focused on the Year 2040 as Emission sources under the alternative would produce the highest amount of daily and annual emissions during the year. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-41 presents the maximum impacts from operations under the No Federal Action/No Project Alternative.

Table 3.2-41. Offsite Ambient Air Pollutant Concentrations Associated with Operation of the No Federal Action/No Project Alternative[1,2]

Pollutant	*Averaging Period*	*Maximum Impact (µg/m³)*	*Background Concentration (µg/m³)*	*Total Impact (µg/m³)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	23.1	263.2	286.3	338	N
	Annual	1.54	54.5	56.04	56	Y
CO	1-hour	4.7	6,670	6,674.7	23,000	N
	8-hour	1.5	5,405	5406.5	10,000	N
PM_{10}	24-hour	0.2	51.0	- - -	2.5	N
	Annual	0.1	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.2	58.5	- - -	2.5	N

Notes:

1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

The maximum annual NO_2 concentrations would exceed the SCAQMD threshold of 56 µg/m³, respectively. Therefore, these impacts would be significant under CEQA.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals. In essence, the CAAP Control Measures are types of mitigation measures which would reduce air quality impacts from those terminals over time.

Residual Impacts

Maximum offsite ambient pollutant concentrations associated with the No Federal Action/No Project Alternative are expected to result in air pollutant concentration in excess of the applicable significance thresholds for annual NO_2. Therefore, significant impacts would occur under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-5: The No Federal Action/No Project Alternative would not create an objectionable odor at the nearest sensitive receptor.

Operation of the No Federal Action/No Project Alternative would increase air pollutants due to the combustion of diesel fuel. Some individuals may sense that emissions from the combustion of diesel fuel have an objectionable odor, although it is difficult to quantify the odorous impacts of these emissions to the public. The mobile nature of the Project vessel emission sources would help disperse the emissions. Additionally, the distance between the No Project emission sources and the nearest residents in Wilmington and San Pedro should be far enough to allow for adequate dispersion of these emissions to less than significant odor levels. Emissions of crude oil vapors from offloading and storage activities would be minimal. As a result, the potential is low for the project to produce objectionable odors and for such odors to affect a substantial number of people.

CEQA Impact Determination

As noted above, the No Federal Action/No Project Alternative is not expected to produce objectionable odors that would affect a substantial number of people or a sensitive receptor. As such, the odor impacts associated with the Project would be less than significant under CEQA.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals. In essence, the CAAP Control Measures are types of mitigation measures which would reduce air quality impacts from those terminals over time.

Residual Impacts

Impacts would be less than significant under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-6: The No Federal Action/No Project Alternative would expose receptors to significant levels of toxic air contaminants.

Operations under the No Federal Action/No Project Alternative would emit TACs that could impact public health. An HRA was conducted for the No Federal Action/No Project Alternative pursuant to a Protocol reviewed and approved by both CARB and SCAQMD (LAHD 2006b). The HRA evaluated potential public health impacts based on the estimated TAC emissions from the operation of the No Federal Action/No Project Alternative. Appendix H contains documentation of the Project HRA.

The primary constituent of concern under No Federal Action/No Project Alternative would be particulate matter emissions from the combustion of diesel fuel and other distillates in internal combustion engines. DPM would primarily be emitted from the ocean-going vessels which employ large horsepower internal combustion engines for propulsion and auxiliary internal combustion engines for various on-board power needs.

While diesel engine exhaust includes many compounds considered to be TACs, the State of California (i.e., CARB, OEHHA) generally uses DPM as the surrogate for the aggregate health risk associated with the combustion of diesel fuel. As such, DPM was treated as a surrogate for the cancer and chronic non-cancer risk analysis. Since the State of California has not adopted an acute non-cancer REL for DPM, the acute non-cancer analysis was performed using a multi-pollutant speciation of the TACs known to be in diesel internal combustion engine exhaust.

In addition to DPM, the HRA also considered other TAC emissions which would result from the No Federal Action/No Project Alternative. These would include diesel and distillate fuel combustion from external combustion sources such as boilers, fugitive organic compound emissions from the handling of crude oil, emissions for TACs from the thermal destruction of crude oil vapors in the VDUs, as well as natural gas combustion in the VDUs.

CEQA Impact Determination

As explained in Section 3.2.4.2, the applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0 x 10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-cancer impacts were compared to the predicted impacts under the CEQA Baseline on a location-specific basis.

Figure 3.2-5 presents the maximum incremental cancer risk results for the No Federal Action/No Project Alternative under CEQA. The maximum impacted residential receptor location for cancer risk was predicted to be located at the Cabrillo Marina. While not zoned for residential use, the Cabrillo Marina does have some long-term residents living aboard small boats. Although it is not clear whether these residents could permanently reside in this area (i.e., 70 years), this was conservatively assumed to be the case under the HRA. All other residential receptors in the local communities and vicinity would experience lower impacts than what that identified for the maximum impact location. DPM was the primary driver for cancer health risks predicted by the HRA.

Table 3.2-42 presents the maximum predicted cancer and non-cancer health risk impacts for the No Federal Action/No Project Alternative without mitigation. As shown therein, the cancer impacts from the No Federal Action/No Project Alternative without mitigation would be significant using when compared to the significance threshold. The maximum chronic and acute non-cancer Hazard Indices would be below the applicable significant threshold for all receptors types. Therefore, the impact of the No Federal Action/No Project Alternative without mitigation is considered significant under CEQA.

Table 3.2-42. Maximum Cancer and Non-Cancer Health Risk Impacts from the No Federal Action/No Project Alternative under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	26×10^{-6} (26 in a million)	10.0×10^{-6} (10 in a million)	Yes
	Occupational Area	23×10^{-6} (23 in a million)		Yes
	Sensitive Receptor	26×10^{-6} (26 in a million)		Yes
	Student	17×10^{-6} (17 in a million)		Yes
Non-Cancer Chronic Hazard Index	Residential	0.061	1.0	No
	Occupational Area	0.078		No
	Sensitive Receptor	0.073		No
	Student	0.073		No
Non-Cancer Acute Hazard Index	Residential	0.19	1.0	No
	Occupational Area	0.29		No
	Sensitive Receptor	0.23		No
	Student	0.23		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example, a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (south fenceline of Tank Farm Site 2); sensitive receptor, Reservation Point Center; student receptor, Childtime Learning Center.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals. In essence, the CAAP Control Measures are types of mitigation measures which would reduce air quality impacts from those terminals over time. Any benefits from those measures are included in the impacts presented above.

Residual Impacts

The impacts from the No Federal Action/No Project Alternative would exceed the significance threshold for cancer. Thus, the No Federal Action/No Project Alternative is considered significant under CEQA.

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Figure 3.2-5. No Federal Action/No Project Alternative: Residential Cancer Risk under CEQA

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NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-7: The No Federal Action/No Project Alternative 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 growth forecasts. Thus, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

The No Federal Action/No Project Alternative would not conflict with or obstruct implementation of the AQMP; therefore, significant impacts under CEQA are not anticipated.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals.

Residual Impacts

Air quality impacts for the No Federal Action/No Project Alternative would be less than significant under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

Impact AQ-8: The No Federal Action/No Project Alternative would produce GHG emissions that would exceed CEQA Baseline levels.

Table 3.2-43 shows the annual GHG emissions that would occur within California from the operation of the No Federal Action/No Project Alternative. The No Federal Action/No Project Alternative would result in GHG emissions that would exceed CEQA Baseline levels. Therefore, the No Federal Action/No Project Alternative would produce significant GHG emissions under CEQA.

Table 3.2-43. Average Annual GHG Emissions Associated with the No Federal Action/No Project Alternative

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.06	5,725	0.79	5,759
Tanker Hoteling [2]	0.09	9,712	1.28	9,765
Offloading Emissions [3]	0.16	15,737	2.17	15,831
Transiting Operations [4]	0	317	0.04	318
Tug Assistance	0.01	804	0.11	809
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	27,879	3.12	27,961
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0	0	0	0
Average Annual Operational Emissions	**0.37**	**60,174**	**7.51**	**60,443**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.37**	**60,174**	**7.51**	**60,443**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.07	6,674	0.92	6,714
Tanker Hoteling [2]	0.09	10,495	1.38	10,553
Offloading Emissions [3]	0.10	10,156	1.4	10,216
Transiting Operations [4]	0	369	0.05	371
Tug Assistance	0.01	937	0.13	943
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	28,337	3.17	28,421
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0.03	2,606	0.012	2,616
Average Annual Operational Emissions	**0.35**	**59,574**	**7.06**	**59,834**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.35**	**59,574**	**7.06**	**59,834**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.07	6,674	0.92	6,714
Tanker Hoteling [2]	0.07	7,469	0.98	7,510
Offloading Emissions [3]	0.18	18,329	2.53	18,438
Transiting Operations [4]	0	369	0.05	371
Tug Assistance	0.01	937	0.13	943
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	28,337	3.17	28,421

Table 3.2-43. Average Annual GHG Emissions Associated with the No Federal Action/No Project Alternative (continued)

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2025 (continued)				
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0.01	920	0.004	923
Average Annual Operational Emissions	**0.39**	**63,035**	**7.78**	**63,320**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.39**	**63,035**	**7.78**	**63,320**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.07	6,674	0.92	6,714
Tanker Hoteling [2]	0.07	7,469	0.98	7,510
Offloading Emissions [3]	0.18	18,329	2.53	18,438
Transiting Operations [4]	0	369	0.05	371
Tug Assistance	0.01	937	0.13	943
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	28,337	3.17	28,421
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0.01	920	0.004	923
Average Annual Operational Emissions	**0.39**	**63,035**	**7.78**	**63,320**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.39**	**63,035**	**7.78**	**63,320**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

CEQA Impact Determination

The data in Table 3.2-43 show that in each project year, annual CO_2e emissions would increase from CEQA Baseline levels. Therefore, the No Federal Action/No Project Alternative would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals. In essence, the CAAP Control Measures are types of mitigation measures which would reduce air quality impacts from those terminals over time including, to a certain extent, GHGs. Any benefits from those measures are included in the emissions data in Table 3.2-43.

Residual Impacts

Impacts would remain significant under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

3.2.4.6.3 Reduced Project Alternative

Under the Reduced Project Alternative, as described in Section 2.5.2.2, construction and operation at Berth 408 would be identical to the proposed Project with the exception of the lease cap limiting throughput in certain years. However, as explained in Section 2.5.2.2, the lease cap would not change the amount of crude oil demanded in southern California, and therefore the analysis of the Reduced Project Alternative also includes the impacts of marine delivery of incremental crude oil deliveries to existing liquid bulk terminals in the San Pedro Bay Ports in years where demand exceeds the capacity of the lease-limited Berth 408.

As described in Section 2.5.2.2, the impact assessment for the Reduced Project Alternative also assumes existing terminals would eventually comply with the MOTEMS, that the LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with CAAP measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78).

Impact AQ-1: The Reduced Project Alternative would result in construction-related emissions that exceed a SCAQMD threshold of significance in Table 3.2-5.

Although there is no formal construction phasing for the Reduced Project Alternative, for the emissions analysis it is useful to divide the construction activities into the following two phases:

- Construction Phase I – Construction of the Marine Terminal, Tank Farm Site 1, and pipelines, and beginning of construction of Tank Farm Site 2. Construction Phase I ends when the Marine Terminal, Tank Farm Site 1, pipelines, and eight tanks on Tank Farm Site 2 are complete (approximately 20 months after Project approval; Section 2.4.3.1).
- Construction Phase II – Completion of the remaining tanks at Tank Farm Site 2. Construction Phase II would end approximately 30 months after Project approval. Construction Phase II will be conducted concurrent with initial operations of Berth 408 terminal.

The maximum daily emissions for Construction Phase I and Construction Phase II are shown below in Tables 3.2-44 and 3.2-45. The significance of Construction Phase I activities is considered under **Impact AQ-1**. Because Construction Phase II activities will be coincident with the initial operation of the Reduced Project Alternative, significance determinations for Construction Phase II are addressed in the impact discussions for the Operations phase of the project (i.e., **Impact AQ-3**).

Table 3.2-44. Peak Daily Emissions for Reduced Project Alternative Construction Phase I Activities without Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Pier 400 Marine Terminal And Wharf Construction						
Mobilization of Landside and Marine Equipment	47	197	592	0.50	21	20
Demobilization of Landside and Marine Equipment	47	197	592	0.50	21	20
Unloading Platform	100	424	1,403	1.12	42	39
Breasting Dolphin Platforms	100	424	1,403	1.12	42	39
Mooring Dolphin Platforms	100	424	1,403	1.12	42	39
Trestle Abutments	8	29	70	0.08	4	4
Main Trestle	21	86	306	0.32	10	9
Single Lane Trestle to Breasting Dolphin	20	83	289	0.29	9	9
Emergency Spill Boom Platforms	17	72	244	0.22	8	7
Pipeline Construction						
42" Pipeline	46	293	726	0.76	50	39
36" Pipeline	66	454	1,027	1.04	68	57
24" Pipeline	35	223	566	0.59	34	29
Tank Farm Site 1	69	433	1,149	1.25	102	62
Tank Farm Site 2	127	828	2,094	2.20	141	108
Stone Delivery	104	262	3,130	168	58	49
Worker Commuter Vehicles	45	622	401	1	21	17
Peak Daily Emissions	**384**	**2,195**	**7,110**	**172**	**291**	**224**
CEQA Baseline Emissions	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**384**	**2,195**	**7,110**	**172**	**291**	**224**
CEQA Significance Thresholds	75	550	100	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	0	0	0	0	0	0
Net Change Versus NEPA Baseline	**384**	**2,195**	**7,110**	**172**	**291**	**224**
NEPA Significance Thresholds	75	550	100	150	150	55
Significance under NEPA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

1. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Stone Delivery, and (e) Worker Commuter Vehicles.
2. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.

Table 3.2-45. Peak Daily Emissions for Reduced Project Alternative Construction Phase II Activities without Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Tank Farm Site 2	38	262	630	1	66	39
Worker Commuter Vehicles	41	584	367	1	20	16
Peak Daily Emissions	**80**	**846**	**997**	**2**	**86**	**55**

Notes:

1. Peak daily construction emissions would occur from the concurrent activities: (a) Tank Farm Site 2, and (b) Worker Commuter Vehicles.
2. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.

CEQA Impact Determination

The Reduced Project Alternative would exceed the daily construction emission thresholds for VOC, CO, NO_X, SO_X, PM_{10} and $PM_{2.5}$ during Construction Phase I. Therefore, significant impacts would occur under CEQA. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-3**.

Mitigation Measures

Mitigation measures for the Reduced Project Alternative are identical to the mitigation measures for the proposed Project: **MM AQ-1** through **MM AQ-12** and **MM 4G-5**.

Residual Impacts

Tables 3.2-46 and 3.2-47 present the maximum daily criteria pollutant emissions associated with construction of the Reduced Project Alternative, after the application of the proposed MMs. The emission reductions that would be realized from the application of several measures are uncertain and would vary due to the transient nature of the construction activities. The emissions reductions from the mitigation measures would not be sufficient to reduce the total construction emissions to below the significance criteria thresholds. Emissions of VOC, CO, NO_X, PM_{10} and $PM_{2.5}$ during Phase I construction would remain significant under CEQA. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-3**.

NEPA Impact Determination

The Reduced Project Alternative would exceed the daily construction emission thresholds for VOC, CO, NO_X, SO_X, PM_{10} and $PM_{2.5}$ during Construction Phase I. Therefore, significant impacts would occur under NEPA. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-3**.

Mitigation Measures

MM AQ-1 through **AQ-12** and **MM 4G-5** would be applied to the Reduced Project Alternative.

Residual Impacts

Table 3.2-46 presents the maximum daily criteria pollutant emissions associated with construction of the Reduced Project, after the application of the proposed mitigation measures. The emissions reductions from the mitigation measures would not be sufficient to reduce the construction emissions to a less than significant level. Emissions of VOC, CO, NO_X, PM_{10} and $PM_{2.5}$ during Construction Phase I would remain significant under NEPA. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-3**.

Table 3.2-46. Peak Daily Emissions for Reduced Project Alternative Construction Phase I Activities with Mitigation [1,2]

Construction Activity	Daily Emissions [1,2] (Pounds)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Pier 400 Marine Terminal and Wharf Construction						
Mobilization of Landside and Marine Equipment	26	273	443	0.50	17	15
Demobilization of Landside and Marine Equipment	26	273	443	0.50	17	15
Unloading Platform	56	605	1,006	1.12	35	32
Breasting Dolphin Platforms	56	605	1,006	1.12	35	32
Mooring Dolphin Platforms	56	605	1,006	1.12	35	32
Trestle Abutments	17	33	47	0.08	2	2
Main Trestle	15	117	176	0.32	6	6
Single Lane Trestle to Breasting Dolphin	14	113	173	0.29	6	6
Emergency Spill Boom Platforms	11	103	166	0.22	6	5
Pipeline Construction						
42" Pipeline	46	372	558	0.76	28	23
36" Pipeline	66	564	781	1.04	39	33
24" Pipeline	35	290	436	0.59	20	17
Tank Farm Site 1	69	574	932	1	100	48
Tank Farm Site 2	127	1,095	1,645	2	112	72
Stone Delivery	71	176	2,056	106	38	32
Worker Commuter Vehicles	45	622	401	1	21	17
Peak Daily Emissions	**307**	**2,541**	**5,176**	**110**	**233**	**162**
CEQA Baseline Emissions	**0**	**0**	**0**	**0**	**0**	**0**
Net Change Versus CEQA Baseline	**307**	**2,541**	**5,176**	**110**	**233**	**162**
CEQA Significance Thresholds	**75**	**550**	**100**	**150**	**150**	**55**
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Baseline Emissions	**0**	**0**	**0**	**0**	**0**	**0**
Net Change Versus NEPA Baseline	**307**	**2,541**	**5,176**	**110**	**233**	**162**
NEPA Significance Thresholds	**75**	**550**	**100**	**150**	**150**	**55**
Significance under NEPA?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

1. Implementation of **MM AQ-1** through **MM AQ-2** and **MM AQ-4** through **MM AQ-6** would result in a reduction in combustion emissions and fugitive dust emissions. However, the amounts of emission reductions are quantifiable only for fugitive dust emissions.
2. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Stone Delivery, (e) Worker Commuter Vehicles.

Table 3.2-47. Peak Daily Emissions for Reduced Project Alternative Construction Phase II Activities with Mitigation

Construction Activity	Daily Emissions (Pounds)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Tank Farm Site 2	36	346	494	1	64	28
Worker Commuter Vehicle	28	387	244	1	13	11
Peak Daily Emissions	**64**	**733**	**739**	**2**	**77**	**39**

Notes:

1. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.
2. Peak daily construction emissions would occur from the concurrent activities: (a) Tank Farm Site 2, and (b) Worker Commuter Vehicles.

Impact AQ-2: The Reduced Project Alternative construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-6.

Dispersion modeling of the Reduced Project construction emissions was performed to assess the impacts of the Reduced Project on local ambient concentrations. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-48 presents the maximum unmitigated project-related impacts from Phase I construction activities under the Reduced Project Alternative. The significance of Construction Phase I activities is considered under **Impact AQ-2**. Because Construction Phase II activities will be coincident with the initial operation of the Reduced Project Alternative, significance determinations for Construction Phase II are addressed in the impact discussion for the Operations phase of the Reduced Project Alternative (i.e., **Impact AQ-4**.)

Table 3.2-48. Maximum Offsite Ambient Concentrations – Reduced Project Alternative Construction without Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
Phase I						
NO_2	1-hour	20,064.8	263.2	20,328.0	338	Y
	Annual	212.1	54.5	266.6	56	Y
CO	1-hour	8,891.5	6,670	15,561.5	23,000	N
	8-hour	1,711.6	5,405	7,116.6	10,000	N
PM_{10}	24-hour	118.4	74	- - -	10.4	Y
	Annual	13.7	35.9	- - -	20	N
$PM_{2.5}$	24-hour	103.4	115.2	- - -	10.4	Y

Notes:
1. 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.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

The Phase I maximum offsite 1-hour and annual NO_2 concentrations, the 24-hour PM_{10} concentrations and the 24-hour $PM_{2.5}$ concentrations would exceed the applicable SCAQMD significance thresholds. Therefore, significant impacts under CEQA would occur. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-4**.

Mitigation Measures

To reduce the level of impact, the proposed Project **MM AQ-1** through **AQ-12** and **MM 4G-5** would apply to the Reduced Project Alternative.

Residual Impacts

Table 3.2-49 presents the maximum mitigated project-related impacts from Phase I construction activities. The Phase I maximum offsite 1-hour and annual NO_2

concentrations, the 24-hour PM_{10} concentrations, and the 24-hour $PM_{2.5}$ concentrations would exceed the applicable SCAQMD significance thresholds. Significant impacts would occur despite the application of all reasonably applicable mitigation measure under CEQA.

Table 3.2-49. Maximum Offsite Ambient Concentrations – Reduced Project Construction with Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact (µg/m³)*	*Background Concentration (µg/m³)*	*Total Impact (µg/m³)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
Phase I						
NO_2	1-hour	14,735.0	263.2	14,998.2	338	Y
	Annual	156.2	54.5	210.7	56	Y
CO	1-hour	11,021.4	6,670	17,691.4	23,000	N
	8-hour	2,121.2	5,405	7,526.2	10,000	N
PM_{10}	24-hour	64.5	74	- - -	10.4	Y
	Annual	7.6	35.9	- - -	20	N
$PM_{2.5}$	24-hour	57	115.2	- - -	10.4	Y

Notes:
1. 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.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

NEPA Impact Determination

The maximum offsite ambient pollutant concentrations associated with the Reduced Project Alternative Phase I construction would be significant for 1-hour and annual NO_x, 24-hour PM_{10} and 24-hour $PM_{2.5}$. Therefore, significant impacts under NEPA would occur. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-4**.

Mitigation Measures

To reduce the level of impact, the proposed Project **MM AQ-1** through **AQ-12** and **MM 4G-5** would apply to the Reduced Project Alternative.

Residual Impacts

Significant impacts would occur despite the application of all reasonably applicable mitigation measures under NEPA.

Impact AQ-3: The Reduced Project Alternative would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance in Table 3.2-7.

Unmitigated average daily operational emissions produced by the Reduced Project Alternative are presented in Table 3.2-50. The following paragraphs discuss resultant air quality impacts based on these emissions.

Table 3.2-50. Average Daily Emissions for Reduced Project Alternative Operation without Mitigation

Emission Source	Daily Emissions (Pounds)						
	VOC	CO	NO_x	SO_x	PM	PM_{10}	$PM_{2.5}$
Project Year 2010							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	46	93	1,160	697	104	103	93
Tanker Hoteling [2]	14	38	482	116	14	14	11
Offloading Emissions [3]	2	18	87	351	15	11	7
Transiting Operations [4]	0	1	15	117	5	4	2
Tug Assistance	5	23	144	0	- -	6	6
Tanks	14	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	9	32	6	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.3	0.7	8	0.5	0.4	0.4	0.4
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	0	0	0	0	0	0	0
BP (POLB Berth 78)	0	0	0	0	0	0	0
Tesoro (POLB Berth 84-87)	0	0	0	0	0	0	0
Average Daily Emissions	**86**	**183**	**1,928**	**1,288**	**138**	**140**	**119**
Project Year 2015							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	56	109	1,350	804	121	120	109
Tanker Hoteling [2]	15	43	541	126	16	15	12
Offloading Emissions [3]	3	23	111	434	20	15	10
Transiting Operations [4]	0	2	17	136	6	5	2
Tug Assistance	5	25	136	0	- -	6	5
Tanks	18	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	10	37	7	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	0	0	0	0	0	0	0
BP (POLB Berth 78)	0	0	0	0	0	0	0
Tesoro (POLB Berth 84-87)	0	0	0	0	0	0	0
Average Daily Emissions	**102**	**213**	**2,203**	**1,508**	**164**	**164**	**139**
Project Year 2025							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	56	109	1,350	804	121	120	109
Tanker Hoteling [2]	15	43	541	126	16	15	12
Offloading Emissions [3]	3	23	111	434	20	15	10
Transiting Operations [4]	0	2	17	136	6	5	2
Tug Assistance	5	25	113	0	- -	5	5
Tanks	18	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	10	37	7	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	37	80	751	59	14	18	14
BP (POLB Berth 78)	21	33	293	32	6	8	5
Tesoro (POLB Berth 84-87)	34	73	696	74	15	17	13
Average Daily Emissions	**194**	**399**	**3,920**	**1,673**	**199**	**206**	**171**

Table 3.2-50. Average Daily Emissions for Reduced Project Alternative Operation without Mitigation (continued)

Emission Source	Daily Emissions (Pounds)						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2040							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	43	99	1,261	755	111	110	100
Tanker Hoteling [2]	13	10	90	49	10	10	9
Offloading Emissions [3]	15	43	541	126	16	15	12
Transiting Operations [4]	3	23	111	434	20	15	10
Tug Assistance	5	25	101	0	- -	4	4
Tanks	18	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	10	37	7	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	42	91	849	67	16	20	16
BP (POLB Berth 78)	24	37	330	37	7	9	6
Tesoro (POLB Berth 84-87)	38	82	789	84	17	20	15
Average Daily Emissions	**206**	**421**	**4,120**	**1,560**	**198**	**206**	**173**

Notes:
1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. POLB: Port of Long Beach

The maximum daily emissions associated with the operation of the Reduced Project Alternative are calculated using the same methodology as was used to calculate the maximum daily emissions for the proposed Project. The peak daily emissions associated with the operation of the PLAMT terminal under the Reduced Project Alternative are identical to those emissions under the proposed Project. However, the peak daily emission under the Reduced Project Alternative would also include the increased emissions resultant from the increased crude oil throughput at the ExxonMobil, BP and Tesoro terminals. Table 3.2-51 presents the peak daily emissions under the Reduced Project Alternative.

A comparison of the maximum daily Reduced Project emissions to the CEQA and NEPA significance thresholds is shown in Table 3.2-52.

CEQA Impact Determination

The Reduced Project Alternative emissions would exceed the CEQA significance thresholds for all criteria pollutants. Therefore, the unmitigated air quality impacts associated with the Reduced Project Alternative operations would be significant under CEQA.

Table 3.2-51. Peak Daily Emissions for Reduced Project Alternative Operations Without Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Arrival/Departure Scenario							
PLAMT (LAHD Berth 408)	357	540	5,671	3,480	500	514	457
ExxonMobil (LAHD Berth 238-239)	159	204	1,982	101	32	44	37
BP (POLB Berth 78)	167	226	2,214	126	37	49	41
Tesoro (POLB Berth 84-87)	166	221	2,189	126	37	48	40
Maximum Daily Emissions for Vessel Arrival/Departure Scenario	**848**	**1,192**	**12,057**	**3,834**	**606**	**654**	**575**
Vessel Offloading Scenario							
PLAMT (LAHD Berth 408)	169	266	2,471	2,185	141	121	85
ExxonMobil (LAHD Berth 238-239)	100	43	368	81	13	13	8
BP (POLB Berth 78)	130	143	1,444	259	47	43	30
Tesoro (POLB Berth 84-87)	130	143	1,444	259	47	43	30
Maximum Daily Emissions for Vessel Offloading Scenario	**529**	**594**	**5,727**	**2,783**	**248**	**219**	**153**
No Vessel/Empty Berth Scenario							
PLAMT (LAHD Berth 408)	93	18	66	20	- -	4	- -
ExxonMobil (LAHD Berth 238-239)	91	9	35	6	0	2	0
BP (POLB Berth 78)	91	11	42	8	0	2	0
Tesoro (POLB Berth 84-87)	91	11	42	8	0	2	0
Maximum Daily Emissions for NoVessel/Empty Berth Scenario	**367**	**50**	**186**	**41**	**0**	**10**	**0**
Maximum Daily Emissions for all Scenarios	**848**	**1,192**	**12,057**	**3,834**	**606**	**654**	**575**

Notes:
1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. POLB: Port of Long Beach

Table 3.2-52. Comparison of Peak Daily Emissions for Reduced Project Alternative Operation to Significance Thresholds Without Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Peak Daily Emissions (From Table 3.2-51)	**848**	**1,192**	**12,057**	**3,834**	**606**	**654**	**575**
Construction Phase II Totals (From Table 3.2-45	80	846	997	2	86	86	55
Sum of Maximum Daily Emissions including Construction Phase II	**928**	**2,038**	**13,054**	**3,836**	**692**	**740**	**630**
CEQA Baseline Emissions	0	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**928**	**2,038**	**13,054**	**3,836**	**692**	**740**	**630**
CEQA Significance Thresholds	55	550	55	150	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	**923**	**853**	**8,744**	**4,980**	**533**	**549**	**427**
Net Change Versus NEPA Baseline	**5**	**1,185**	**4,310**	**-1,144**	**159**	**191**	**203**
NEPA Significance Thresholds	55	550	55	150	150	150	55
Significance under NEPA?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**

Mitigation Measures

To reduce the level of impact, **MM AQ-13** through **AQ-21** would apply to the Reduced Project Alternative. Table 3.2-53 presents the average daily emissions associated with the operation of the Reduced Project Alternative with mitigation.

Table 3.2-53. Average Daily Emissions for Reduced Project Alternative with Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2010							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	38	75	873	75	18	18	16
Tanker Hoteling [2, 5]	14	38	479	35	10	10	8
Offloading Emissions [3, 5]	2	19	80	115	12	9	6
Transiting Operations [4]	0.1	1	6	21	1	1	1
Tug Assistance	5	23	144	0	- -	6	6
Tanks	14	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	9	32	0	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.3	0.7	8	0.5	0.4	0.4	0.4
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	0	0	0	0	0	0	0
BP (POLB Berth 78)	0	0	0	0	0	0	0
Tesoro (POLB Berth 84-87)	0	0	0	0	0	0	0
Emissions from AMPed off-site electricity generation	0	0	0	0	0	0	0
Average Daily Operational Emissions with Mitigation	**78**	**166**	**1,622**	**247**	**41**	**46**	**37**
Project Year 2015							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	47	88	1,011	67	20	20	18
Tanker Hoteling [2, 5]	13	36	457	32	10	9	8
Offloading Emissions [3, 5]	3	23	103	138	15	11	7
Transiting Operations [4]	0	2	7	16	1	1	1
Tug Assistance	5	25	136	0	- -	6	5
Tanks	18	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	10	37	7	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	0	0	0	0	0	0	0
BP (POLB Berth 78)	0	0	0	0	0	0	0
Tesoro (POLB Berth 84-87)	0	0	0	0	0	0	0
Emissions from AMPed off-site electricity generation	0	3	18	2	1	1	1
Average Daily Operational Emissions with Mitigation	**91**	**188**	**1,780**	**263**	**48**	**51**	**41**
Project Year 2025							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	47	88	1,011	52	19	19	17
Tanker Hoteling [2, 5]	9	26	323	21	7	7	5
Offloading Emissions [3, 5]	3	23	103	133	15	11	7
Transiting Operations [4]	0	2	7	11	1	1	1
Tug Assistance	5	25	113	0	- -	5	5
Tanks	18	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	10	37	7	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	37	80	751	59	14	18	14
BP (POLB Berth 78)	21	33	293	32	6	8	5
Tesoro (POLB Berth 84-87)	34	73	696	74	15	17	13
Emissions from AMPed off-site electricity generation	0	3	17	2	1	1	1
Average Daily Operational Emissions with Mitigation	**179**	**364**	**3,362**	**392**	**79**	**90**	**69**

Table 3.2-53. Average Daily Emissions for Reduced Project Alternative with Mitigation (continued)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2040							
PLAMT (LAHD Berth 408)							
Tanker Cruising and Maneuvering [1]	47	88	1,012	52	19	19	17
Tanker Hoteling [2, 5]	5	13	161	11	3	3	3
Offloading Emissions [3, 5]	3	23	103	133	15	11	7
Transiting Operations [4]	0	2	7	11	1	1	1
Tug Assistance	5	25	101	0	- -	4	4
Tanks	18	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	2	10	37	7	- -	2	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Increases at Existing Terminals							
ExxonMobil (LAHD Berth 238-239)	42	91	849	67	16	20	16
BP (POLB Berth 78)	24	37	330	37	7	9	6
Tesoro (POLB Berth 84-87)	38	82	789	84	17	20	15
Emissions from AMPed off-site electricity generation	0	2	11	1	0	0	0
Average Daily Operational Emissions with Mitigation	**186**	**374**	**3,401**	**402**	**79**	**89**	**68**

Notes:
1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

POLB = Port of Long Beach

Table 3.2-54 presents the maximum daily emissions associated with the operation of the Reduced Project Alternative with mitigation.

Table 3.2-54. Peak Daily Emissions for Reduced Project Alternative Operations With Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Arrival/Departure Scenario							
PLAMT (LAHD Berth 408)	320	456	4,311	248	75	94	81
ExxonMobil (LAHD Berth 238-239)	159	204	1,982	101	32	44	37
BP (POLB Berth 78)	167	226	2,214	126	37	49	41
Tesoro (POLB Berth 84-87)	166	221	2,189	126	37	48	40
Maximum Daily Emissions for Vessel Arrival/Departure Scenario	**812**	**1,108**	**10,697**	**601**	**181**	**234**	**199**
Vessel Offloading Scenario							
PLAMT (LAHD Berth 408)	147	206	1,680	649	90	73	49
ExxonMobil (LAHD Berth 238-239)	100	43	368	81	13	13	8
BP (POLB Berth 78)	130	143	1,444	259	47	43	30
Tesoro (POLB Berth 84-87)	130	143	1,444	259	47	43	30
Emissions from AMPed off-site electricity generation	1	9	54	6	2	2	2
Maximum Daily Emissions for Vessel Offloading Scenario	**508**	**543**	**4,989**	**1,253**	**199**	**173**	**120**

Table 3.2-54. Peak Daily Emissions for Reduced Project Alternative Operations With Mitigation (continued)

Emission Source	Daily Emissions (Pounds)						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
No Vessel/Empty Berth Scenario							
PLAMT (LAHD Berth 408)	93	18	66	20	0	4	0
ExxonMobil (LAHD Berth 238-239)	91	9	35	6	0	2	0
BP (POLB Berth 78)	91	11	42	8	0	2	0
Tesoro (POLB Berth 84-87)	91	11	42	8	o	2	0
Maximum Daily Emissions for No Vessel/Empty Berth Scenario	**366**	**49**	**185**	**42**	**0**	**10**	**0**
Maximum Daily Emissions for all Scenarios	**812**	**1,108**	**10,697**	**601**	**181**	**234**	**199**

Notes:
1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. POLB: Port of Long Beach

Residual Impacts

Table 3.2-55 compares the mitigated Reduced Project Alternative emissions to the CEQA significance thresholds. Although implementation of the above mitigation measures would result in significant emission reductions for VOC, CO, NO_x, SO_x, PM, PM_{10} and $PM_{2.5}$. Reduced Project Alternative with mitigation would exceed the applicable significance thresholds for all of these pollutants. No other feasible mitigation measures are known that could achieve further reductions in these pollutants.

Table 3.2-55. Comparison of Peak Daily Emissions for Reduced Project Alternative Operation to Significance Thresholds with Mitigation [(1)]

Emission Source	Daily Emissions (Pounds)						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Peak Maximum Daily Emissions (From Table 3.2-54)	812	1,108	10,697	601	181	234	199
Construction Phase II Totals (From Table 3.2-47)	64	733	739	2	77	77	79
Sum of Maximum Daily Emissions including Construction Phase II	**876**	**1,841**	**11,436**	**603**	**258**	**311**	**278**
CEQA Baseline Emissions	0	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**876**	**1,841**	**11,436**	**603**	**258**	**311**	**278**
CEQA Significance Thresholds	55	550	55	150	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	923	853	8,744	4,980	533	549	427
Net Change Versus NEPA Baseline	**-47**	**988**	**2,692**	**-4,377**	**-275**	**-238**	**-149**
NEPA Significance Thresholds	55	550	55	150	150	150	55
Significance under NEPA?	**No**	**Yes**	**Yes**	**No**	**No**	**No**	**No**

NEPA Impact Determination

As shown in Table 3.2-52, the Reduced Project Alternative emissions would exceed the NEPA Baseline for CO, NO_x, PM, PM_{10}, and $PM_{2.5}$. Therefore, the impacts associated with the Reduced Project Alternative are considered significant.

Mitigation Measures

To reduce the level of impact, the proposed Project **MM AQ-13** through **AQ-21** would apply to the Reduced Project Alternative.

Residual Impacts

Table 3.2-55 compares the mitigated Reduced Project Alternative emissions to the NEPA significance thresholds. Mitigation measures would reduce the emissions of PM, PM_{10}, and $PM_{2.5}$ to below the significance threshold. Although implementation of mitigation measures would substantially reduce emissions of CO and NO_x, emissions in the Reduced Project Alternative after mitigation measures are applied would exceed the applicable significance thresholds for these pollutants. No other feasible mitigation measures are known that could achieve further reductions in these pollutants.

Impact AQ-4: The Reduced Project Alternative operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.

A dispersion modeling analysis of project operational emissions was performed to assess the impact of the Reduced Project Alternative on local ambient air concentrations. The analysis focused on Year 30 as Project sources would produce the highest amount of daily and annual emissions during this year. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-56 presents the maximum impacts of NO_2, CO, PM_{10} and $PM_{2.5}$ from operational activities without mitigation.

Table 3.2-56. Offsite Ambient Air Pollutant Concentrations for Reduced Project Alternative Operation without Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	60.9	263.2	324.1	338	N
	Annual	2.86	54.5	57.4	56	Y
CO	1-hour	7.9	6,670	6,677.9	23,000	N
	8-hour	2.6	5,405	5,407.6	10,000	N
PM_{10}	24-hour	0.37	51.0	- - -	2.5	N
	Annual	0.13	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.30	58.5	- - -	2.5	N

Notes:
1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the Reduced Project Alternative are expected to result in air pollutant concentrations in excess of the applicable annual NO_2 significance threshold. Therefore, significant impacts under CEQA would occur.

Mitigation Measures

To reduce the level of impact, the mitigation measures for the proposed Project (**MM AQ-13** through **AQ-21**) would apply to the Reduced Project Alternative.

Residual Impacts

Table 3.2-57 presents the maximum mitigated impacts for the Reduced Project Alternative. The maximum annual NO_2 concentrations would exceed the SCAQMD thresholds.

Maximum offsite ambient pollutant concentrations associated with the Reduced Project Alternative are expected to result in air pollutant concentrations in excess of the applicable annual NO_2 significance threshold. This would occur despite the application of all reasonably applicable mitigation measures. Therefore, significant impacts would occur under CEQA.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the Reduced Project Alternative are expected to result in air pollutant concentrations in excess of the applicable annual NO_2 significance threshold. Therefore, significant impacts under NEPA would occur.

Table 3.2-57. Offsite Ambient Air Pollutant Concentrations for Reduced Project Alternative Operation with Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	43.9	263.2	307.1	338	N
	Annual	2.6	54.5	57.1	56	Y
CO	1-hour	7.9	6,670	6,677.9	23,000	N
	8-hour	2.6	5,405	5,407.6	10,000	N
PM_{10}	24-hour	0.3	51.0	- - -	2.5	N
	Annual	0.1	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.3	58.5	- - -	2.5	N

Notes:

1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

Mitigation Measures

To reduce the level of impact, the mitigation measures for the proposed Project (**MM AQ-13** through **AQ-21**) would apply to the Reduced Project Alternative.

Residual Impacts

Maximum offsite ambient pollutant concentrations associated with the Reduced Project Alternative are expected to result in air pollutant concentrations in excess of the applicable annual NO_2 significance threshold. This would occur despite the application of all reasonably applicable mitigation measures. Therefore, significant impacts would occur under NEPA.

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

Operational emissions from the Reduced Project Alternative are not expected to produce objectionable odors that would affect a sensitive receptor. Implementation of the mitigation measures described for the proposed Project would reduce emissions from the Reduced Project Alternative.

CEQA Impact Determination

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

Mitigation Measures

Mitigation is not required.

Residual Impacts

Odor impacts under Reduced Project Alternative would be less than significant under CEQA.

NEPA Impact Determination

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

Mitigation Measures

Mitigation is not required.

Residual Impacts

Odor impacts under the Reduced Project Alternative would be less than significant under NEPA.

Impact AQ-6: The Reduced Project Alternative would expose receptors to significant levels of toxic air contaminants.

Construction and operations under the Reduced Project Alternative would emit TACs that could impact public health. An HRA was conducted for the Reduced Project Alternative pursuant to a Protocol reviewed and approved by both CARB and SCAQMD (LAHD 2006b). The HRA evaluated potential public health impacts based on the estimated TAC emissions from the construction and operation of the Reduced Project Alternative. Appendix H contains documentation of the Project HRA.

The primary constituent of concern from Reduced Project Alternative operations would be particulate matter emissions from the combustion of diesel fuel and other distillates in internal combustion engines. DPM would primarily be emitted from the ocean-going vessels which employ large horsepower internal combustion engines for propulsion and auxiliary internal combustion engines for various on-board power needs.

While diesel engine exhaust includes many compounds considered to be TACs, the State of California (i.e., CARB OEHHA) generally uses DPM as the surrogate for the aggregate health risk associated with the combustion of diesel fuel. As such, DPM was treated as a surrogate for the cancer and chronic non-cancer risk analysis. Since the State of California has not adopted an acute non-cancer REL for DPM, the acute non-cancer analysis was performed using a multi-pollutant speciation of the TACs known to be in diesel internal combustion engine exhaust.

In addition to DPM, the HRA also considered other TAC emissions which would result from the construction and operation of the Reduced Project Alternative. These would include diesel and distillate fuel combustion from external combustion sources such as boilers, fugitive organic compound emissions from the handling of crude oil, emissions for TACs from the thermal destruction of crude oil vapors in the VDUs, as well as natural gas combustion in the VDUs.

CEQA Impact Determination

As explained in Section 3.2.4.2, the applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0×10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-cancer impacts were compared to the predicted impacts under the CEQA Baseline on a location-specific basis.

Figure 3.2-6 presents the maximum incremental cancer risk results for the Reduced Project Alternative without mitigation under CEQA. The maximum impacted residential receptor location for cancer risk was predicted to be located at the Cabrillo Marina. While not zoned for residential use, the Cabrillo Marina does have some long-term residents living aboard small boats. Although it is not clear whether these residents could permanently reside in this area (i.e., 70 years), this was assumed to be the case under the HRA. This is a conservative assumption. All other residential receptors in the local communities and vicinity would experience lower impacts than what that identified for the maximum impact location. DPM was the primary driver for cancer health risks predicted by the HRA.

Table 3.2-58 presents the maximum predicted cancer and non-cancer health risk impacts for the Reduced Project Alternative without mitigation. As shown therein, the cancer impacts from the Reduced Project Alternative without mitigation would be significant for residential, sensitive, and student receptors when compared to the SCAQMD's significance threshold. The maximum chronic and acute non-cancer Hazard Indices would be below the applicable significant threshold for all receptors types.

Table 3.2-58. Maximum Cancer and Non-Cancer Health Risk Impacts for Reduced Project Alternative without Mitigation under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	25×10^{-6} (25 in a million)	10.0×10^{-6} (10 in a million)	Yes
	Occupational Area	9.6×10^{-6} (9.6 in a million)		No
	Sensitive Receptor	25×10^{-6} (25 in a million)		Yes
	Student	11×10^{-6} (11 in a million)		Yes
Non-Cancer Chronic Hazard Index	Residential	0.093	1.0	No
	Occupational Area	0.059		No
	Sensitive Receptor	0.098		No
	Student	0.098		No
Non-Cancer Acute Hazard Index	Residential	0.074	1.0	No
	Occupational Area	0.042		No
	Sensitive Receptor	0.083		No
	Student	0.083		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

Therefore, the impact of the Reduced Project Alternative without mitigation is significant under CEQA.

Mitigation Measures

The mitigation measures described above for **Impact AQ-1** and **Impact AQ-3** (**MM AQ-1** through **MM AQ-21** and **MM 4G-5**) would also serve the benefit of reducing TAC emissions from the Reduced Project Alternative.

Residual Impacts

Figure 3.2-7 presents the maximum incremental cancer risk results for the Reduced Project Alternative with mitigation under CEQA. The mitigation measures applied to the Reduced Project Alternative would greatly reduce the area predicted to exceed the significance threshold for cancer risk.

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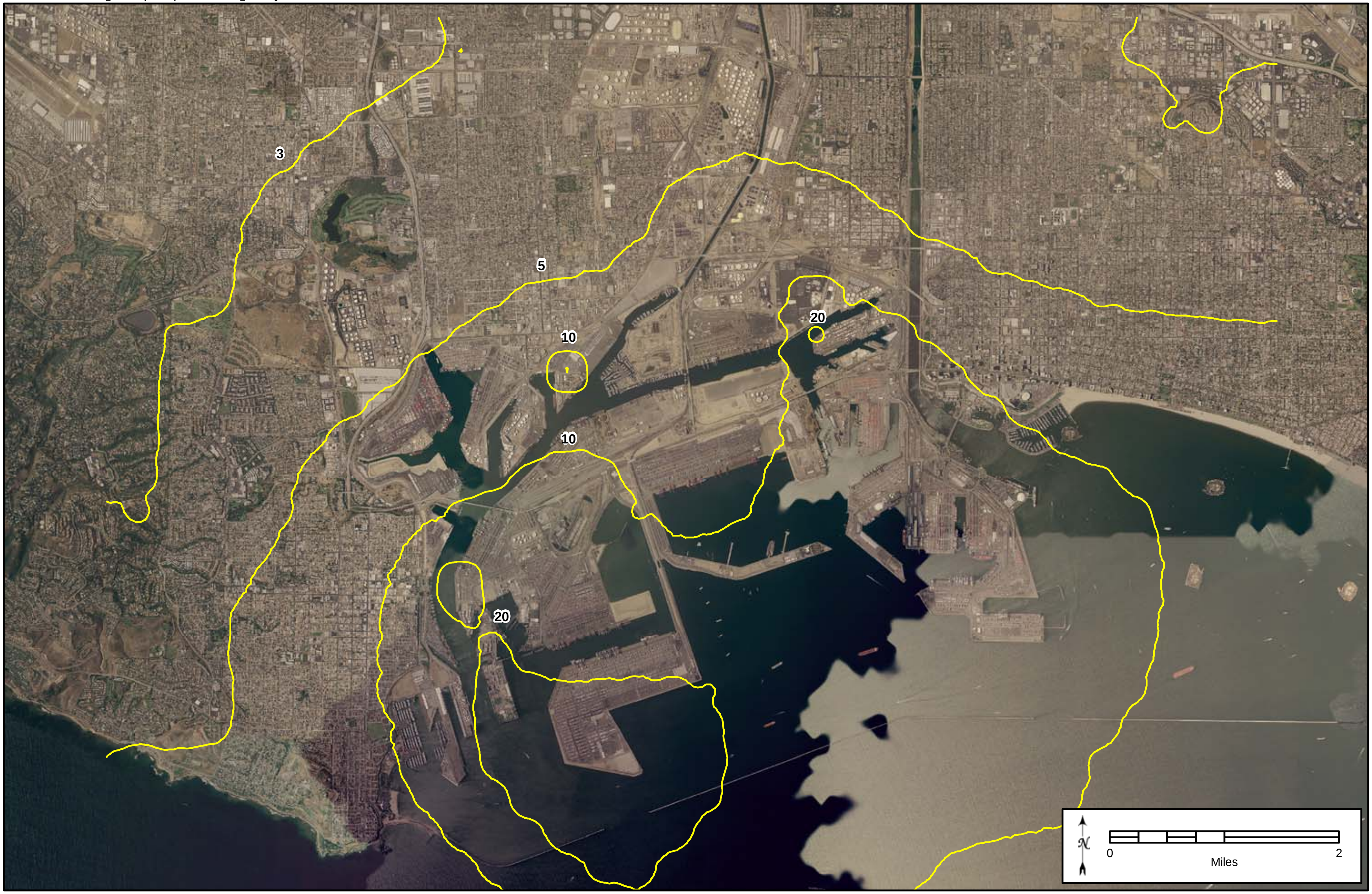

Figure 3.2-6. Reduced Project Alternative without Mitigation: Residential Cancer Risk under CEQA

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Figure 3.2-7. Reduced Project Alternative with Mitigation: Residential Cancer Risk under CEQA

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Table 3.2-59 presents the maximum predicted cancer and non-cancer health risk impacts for the Reduced Project Alternative with mitigation. As shown therein, the cancer impacts from the Reduced Project Alternative with mitigation would be greater than the significance thresholds for residential and sensitive receptors. Thus, the Reduced Project Alternative is considered significant under CEQA.

Table 3.2-59. Maximum Cancer and Non-Cancer Health Risk Impacts for Reduced Project Alternative with Mitigation under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	18×10^{-6} (18 in a million)	10.0×10^{-6} (10 in a million)	Yes
	Occupational Area	5.8×10^{-6} (5.8 in a million)		No
	Sensitive Receptor	18×10^{-6} (18 in a million)		Yes
	Student	5.7×10^{-6} (5.7 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.077	1.0	No
	Occupational Area	0.025		No
	Sensitive Receptor	0.087		No
	Student	0.087		No
Non-Cancer Acute Hazard Index	Residential	0.050	1.0	No
	Occupational Area	0.019		No
	Sensitive Receptor	0.066		No
	Student	0.066		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Fifteenth Street Elementary School.

NEPA Impact Determination

As above, the applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0×10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-cancer impacts were compared to the predicted impacts under the NEPA Baseline on a location-specific basis. The NEPA Baseline is equivalent to the No Federal Action/No Project Alternative.

Figure 3.2-8 presents the maximum incremental cancer risk results for the Reduced Project without mitigation as compared to the NEPA Baseline. Table 3.2-60 shows that the maximum residential NEPA cancer risk increment associated with the Reduced Project Alternative without mitigation is predicted to be less than significant. The maximum chronic hazard index increment associated with the Reduced Project Alternative without mitigation is predicted to be less than significant for all receptors. The maximum acute hazard index increment associated with the

Reduced Project Alternative without mitigation is predicted to be less than significant for all receptors. Therefore, the NEPA impact is considered less than significant.

Table 3.2-60. Maximum Cancer and Non-Cancer Health Risk Impacts for Reduced Project Alternative without Mitigation under NEPA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	4.2×10^{-6} (4.2 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	5.1×10^{-6} (5.1 in a million)		No
	Sensitive Receptor	4.2×10^{-6} (4.2 in a million)		No
	Student	3.2×10^{-6} (3.2 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.033	1.0	No
	Occupational Area	0.029		No
	Sensitive Receptor	0.034		No
	Student	0.034		No
Non-Cancer Acute Hazard Index	Residential	-0.12	1.0	No
	Occupational Area	-0.11		No
	Sensitive Receptor	-0.047		No
	Student	-0.047		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Cabrillo Marina; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Cabrillo Marina; student receptor, Point Fermin Elementary School.

Mitigation Measures

Although not required for this impact, the mitigation measures described above for **Impact AQ-1** and **Impact AQ-3** (**MM AQ-1** through **MM AQ-21** and **MM 4G-5**) would also serve the benefit of reducing TAC emissions from the Reduced Project Alternative.

Residual Impacts

Figure 3.2-9 presents the maximum incremental cancer risk results for the Reduced Project with mitigation as compared to the NEPA Baseline. Table 3.2-61 presents the maximum predicted cancer and non-cancer health risk impacts for the mitigated Reduced Project Alternative. As shown therein, cancer and non-cancer health risk impacts would not exceed the significance threshold for any of the receptors. Thus, the Reduced Project Alternative is considered less than significant under NEPA.

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Figure 3.2-8. Reduced Project Alternative without Mitigation: Residential Cancer Risk under NEPA

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Figure 3.2-9. Reduced Project Alternative with Mitigation: Residential Cancer Risk under NEPA

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Table 3.2-61. Maximum Cancer and Non-Cancer Health Risk Impacts for Reduced Project Alternative with Mitigation under NEPA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	-1.2×10^{-6} (-1.2 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	1.3×10^{-6} (1.3 in a million)		No
	Sensitive Receptor	-0.61×10^{-6} (-0.61 in a million)		No
	Student	-0.61×10^{-6} (-0.61 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.0179	1.0	No
	Occupational Area	-0.0032		No
	Sensitive Receptor	0.023		No
	Student	0.023		No
Non-Cancer Acute Hazard Index	Residential	-0.11	1.0	No
	Occupational Area	-0.13		No
	Sensitive Receptor	-0.053		No
	Student	-0.053		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Signal Hill Head Start; student receptor, Signal Hill Head Start.

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

Operation of the Reduced Project Alternative would comply with the applicable attainment strategies identified in the AQMP and SCAQMD, state, and federal regulations. Compliance with these requirements would ensure that the Reduced Project Alternative would not conflict with or obstruct implementation of the applicable air quality plans. This alternative would incorporate specific mitigation measures identified in 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 for the Reduced Project Alternative.

Residual Impacts

Impacts would be less than significant under CEQA.

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 for the Reduced Project Alternative.

Residual Impacts

Impacts would be less than significant under NEPA.

Impact AQ-8: The Reduced Project Alternative would produce GHG emissions that would exceed CEQA and NEPA Baseline levels.

Table 3.2-62 presents the annual GHG emissions associated with the construction of the Reduced Project Alternative without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-62. Average Annual GHG Emissions for Reduced Project Alternative Construction without Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-63 presents the annual GHG emissions associated with the construction of the Reduced Project Alternative with mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-63. Average Annual GHG Emissions for Reduced Project Alternative Construction with Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-64 presents the annual GHG emissions associated with the operation of the Reduced Project Alternative without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-64. Average Annual GHG Emissions for Reduced Project Alternative without Mitigation

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.05	5,347	0.71	5,376
Tanker Hoteling [2]	0.06	6,523	0.86	6,559
Offloading Emissions [3]	0.16	16,093	2.22	16,188
Transiting Operations [4]	0.03	2,592	0.36	2,608
Tug Assistance	0.004	453	0.06	456
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Average Annual Operational Emissions	**0.31**	**41,572**	**5.39**	**41,782**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.05	6,176	0.81	6,210
Tanker Hoteling [2]	0.06	7,264	0.96	7,304
Offloading Emissions [3]	0.20	20,123	2.77	20,243
Transiting Operations [4]	0.03	3,023	0.42	3,041
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Average Annual Operational Emissions	**0.37**	**48,546**	**6.31**	**48,794**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.05	6,176	0.81	6,210
Tanker Hoteling [2]	0.06	7,264	0.96	7,304
Offloading Emissions [3]	0.20	20,123	2.77	20,243
Transiting Operations [4]	0.03	3,023	0.42	3,041
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
BP (Existing Terminal)	0.07	13,815	1.67	13,871
Tesoro (Existing Terminal)	0.07	22,080	2.79	22,159
ExxonMobil (Existing Terminal)	0.10	17,558	2.18	17,634
Average Annual Operational Emissions	**0.61**	**101,998**	**12.94**	**102,458**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.05	6,176	0.81	6,210
Tanker Hoteling [2]	0.06	7,264	0.96	7,304
Offloading Emissions [3]	0.20	20,123	2.77	20,243
Transiting Operations [4]	0.03	3,023	0.42	3,041
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
BP (Existing Terminal)	0.07	14,621	1.78	14,681
Tesoro (Existing Terminal)	0.16	24,096	3.06	24,209
ExxonMobil (Existing Terminal)	0.11	18,927	2.36	19,012
Average Annual Operational Emissions	**0.72**	**106,190**	**13.51**	**106,696**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

CEQA Impact Determination

The Reduced Project Alternative would result in a significant CEQA impact if CO_2e emissions exceed the CEQA Baseline, which is equivalent to zero. As the data in Table 3.2-62 and Table 3.2-64 show, annual CO_2e emissions would increase from the CEQA Baseline levels for both construction and operation. As such, the Reduced Project Alternative would result in a significant impact under CEQA.

Mitigation Measures

To reduce the level of impact, **MM AQ-13**, **AQ-15**, and **AQ-22** through **AQ-27** would apply to the Reduced Project Alternative.

Residual Impacts

Table 3.2-65 presents the annual mitigated GHG emissions associated with the Reduced Project Alternative operations. Table 3.2-63 presents the annual mitigated GHG emissions associated with construction of the Reduced Project Alternative. As shown therein, the impacts would remain significant under CEQA.

NEPA Impact Determination

The operational CO_2e emissions summarized in Table 3.2-64 would increase relative to the NEPA Baseline for each project year. However, because no NEPA significance threshold has been established, no determination has been made of the significance of this impact.

Table 3.2-65. Average Annual GHG Emissions for Reduced Project Alternative with Mitigation

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.04	4,411	0.58	4,435
Tanker Hoteling [2]	0.06	6,233	0.86	6,270
Offloading Emissions [3]	0.16	16,032	2.21	16,127
Transiting Operations [4]	0.02	2,454	0.34	2,468
Tug Assistance	0.004	453	0.06	456
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	0	0	0
Average Annual Operational Emissions	**0.31**	**40,145**	**5.24**	**40,350**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.05	4,818	0.66	4,846
Tanker Hoteling [2]	0.05	6,175	0.81	6,209
Offloading Emissions [3]	0.20	20,044	2.76	20,163
Transiting Operations [4]	0.003	289	0.04	291
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0.03	3,440	0.02	3,450
Average Annual Operational Emissions	**0.36**	**46,725**	**5.65**	**46,954**

Table 3.2-65. Average Annual GHG Emissions for Reduced Project Alternative with Mitigation (continued)

Emission Source	*Annual Emissions (Tons)*			
	N_2O	*CO_2*	*CH_4*	*CO_2e*
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.05	4,818	0.66	4,846
Tanker Hoteling [2]	0.04	4,359	0.57	4,383
Offloading Emissions [3]	0.20	20,044	2.76	20,163
Transiting Operations [4]	0.003	289	0.04	291
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
BP (Existing Terminal)	0.07	13,815	1.67	13,871
Tesoro (Existing Terminal)	0.07	22,080	2.79	22,159
ExxonMobil (Existing Terminal)	0.10	17,558	2.18	17,634
Emissions from AMPed off-site electricity generation	0.05	5,692	0.03	5,707
Average Annual Operational Emissions	**0.59**	**100,612**	**12.05**	**101,050**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.05	4,818	0.66	4,846
Tanker Hoteling [2]	0.02	2,179	0.29	2,191
Offloading Emissions [3]	0.20	20,044	2.76	20,163
Transiting Operations [4]	0.003	289	0.04	291
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
BP (Existing Terminal)	0.07	14,621	1.78	14,681
Tesoro (Existing Terminal)	0.16	24,096	3.06	24,209
ExxonMobil (Existing Terminal)	0.11	18,927	2.36	19,012
Emissions from AMPed off-site electricity generation	0.03	4,156	0.02	4,167
Average Annual Operational Emissions	**0.67**	**101,089**	**12.32**	**101,557**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

1 ## 3.2.4.7 Mitigation Monitoring

Impact AQ-1. The Project would result in construction-related emissions that exceed a SCAQMD threshold of significance.	
Mitigation Measure	**MM AQ-1: Ridesharing or Shuttle Service** - Ridesharing or shuttle service programs shall be provided for construction workers. **MM-AQ-2: Staging Areas and Parking Lots -** On-site construction equipment staging areas and construction worker parking lots shall be located on either paved surfaces, or unpaved surfaces covered by gravel or subjected to soil stabilization treatments. The staging areas and worker parking lots shall be located as close as possible to public access routes. Access to public roadways from the staging areas and parking lots shall be controlled in order to minimize idling of Project construction equipment.

Impact AQ-1 (continued)	
Mitigation Measure	**MM-AQ-3: Construction Equipment Standards** -All on-site mobile diesel-powered construction equipment greater than 50 hp, except derrick barges, marine vessels shall meet the Tier 2 emission standards as defined in the USEPA Non road Diesel Engine Rule (USEPA 1998). In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-certified Level 3 diesel emissions control device. **MM AQ-4: Electricity Use** - Electricity supplied by a public utility shall be used where available on the tank farm and pier construction sites in lieu of temporary diesel or gasoline-powered generators. **MM AQ-5: Best Management Practices** - The LAHD shall implement a process to add BMPs to reduce air emissions from all LAHD-sponsored construction projects. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list and project scope. The LAHD shall then meet with the contractor to identify potential BMPs and work with the contractor to include such measures in the contract. BMPs shall be based on Best Available Control Technology (BACT) guidelines and may also include changes to construction practices and design to reduce or eliminate environmental impacts. **MM AQ-6: Additional Fugitive Dust Controls -** The construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels[5]. The Project construction contractor shall specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan. Their duties shall include holiday and weekend periods when work may not be in progress. • Measures to reduce fugitive dust include, but are not limited to, the following: • Active grading sites shall be watered one additional time per day beyond that required by Rule 403. • Contractors shall apply approved non-toxic 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 activity when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed. **MM AQ-7: Expanded VSR Program** - All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall comply with the expanded Vessel Speed Reduction (VSR) Program of 12 knots from 40 nautical miles (nm) from Point Fermin to the Precautionary Area. **MM AQ-8: Low Sulfur Fuel for Construction Delivery Vessels -** All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin. **MM AQ-9: Engine Standards for Harbor Craft Used in Construction –** Prior to December 31, 2010, all harbor craft with C1 or C2 marine engines must achieve a minimum emission reduction equivalent to a U.S. Environmental Protection Agency (USEPA) Tier-2 2004 level off-road marine engine. From January 1, 2011 on, all harbor craft with C1 or C2 marine engines must utilize a USEPA Tier-3 engine, or cleaner. **MM AQ-10: Fleet Modernization for On-Road Trucks** - All on-road 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 USEPA 2004 on road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr PM_{10} and 2.0 g/bhp-hr NO_x. Trucks hauling materials such as debris or fill shall be fully covered while in operation off Port property.

[5] Fugitive dust emissions will be reduced 75 percent from uncontrolled emissions and then an additional 60 percent from unmitigated emissions.

Impact AQ-1 (continued)	
Mitigation Measure	The construction contractor shall be exempt from the above harbor craft requirements and on-road truck requirements if he provides proof that any of following circumstances exist: • 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 project, but the application process is not yet approved, or the application has been approved, but funds are not yet available. • A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease. The effectiveness of this measure was determined by assuming that the mitigated construction truck fleet was 50 percent 2007 SCAB average fleet and 50 percent compliant with the year 2007 standards. Use of the EMFAC2007 emission factor model determined that the emission reductions associated with this mitigation measure would range from 9 to 15 percent, depending upon the pollutant. Because SO_x emissions are proportional to the fuel sulfur content, no appreciable change would occur in SO_x emissions. **MM AQ-11: Special Precautions near Sensitive Sites** - For construction activities that occur within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals), the Port shall notify each of these sites in writing at least 30 days before construction activities begin. **MM AQ-12** General Mitigation Measure - For any of the above mitigation measures **(MM AQ-1 through AQ-11**), 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 Port. **Deep Draft FEIS/FEIR MM 4G-5:** Discontinue construction activities during a Stage II Smog Alert.
Timing	During entire construction phase.
Methodology	The LAHD shall include **MM AQ-1** through **MM AQ-12** and **MM 4G-5** in the contract specifications for construction. LAHD shall monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant after mitigation for VOC, NO_X, SO_X, PM_{10} and $PM_{2.5}$.
Impact AQ-2. Project construction would result in offsite ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance in Table 3.2-8.	
Mitigation Measure	Specific mitigation measures identified under **Impact AQ-1** (**MM AQ-1** through **MM AQ-12** and **MM 4G-5**) would be incorporated into the Project.
Timing	During entire construction phase.
Methodology	The LAHD shall include **MM AQ-1** through **MM AQ-12** and **MM 4G-5** in the contract specifications for construction. LAHD shall monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant after mitigation for VOC, NO_X, SO_X, PM_{10} and $PM_{2.5}$.

Impact AQ-3. The Project would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance.	
Mitigation Measure	**MM AQ-13: Expanded Vessel Speed Reduction (VSR) Program** - All ships calling (100%) at Berth 408 shall comply with the expanded VSR Program of 12 knots between 40 nm from Point Fermin and the Precautionary Area from Year 1 of operation. **MM AQ-14: Low Sulfur Fuel Use in Main Engines, Auxiliary Engines, and Boilers** - Ships calling at Berth 408 shall use low-sulfur fuel in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) in the annual percentages in fuel requirements as specified below: • By end of year 1 - 50 percent of total ship calls • By end of year 3 - 50 percent of total ship calls • By end of year 5 - 75 percent of total ship calls • Years 7-30 – 90 percent of total ship calls • In addition, all callers carrying 0.2% low sulfur shall use 0.2% low sulfur within 40 nm of Point Fermin both on the inbound and outbound leg. **MM AQ-15: AMP -** Ships calling at Berth 408 facility shall use AMP while hoteling at the Port in the following at minimum percentages: • By end of year 2 of operation – 6 (4%) vessel calls • By end of year 3 of operation – 10% of annual vessel calls • By end of year 5 of operation – 15% of annual vessel calls • By end of year 10 of operation – 40% of annual vessel calls • By end of year 16 of operation – 70% of annual vessel calls Use of AMP would enable ships to turn off their auxiliary engines 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 the emission from ship boilers, a ship hoteling with AMP reduces its criteria pollutant emissions 88 to 98 percent, depending on the pollutant, when compared to a ship hoteling without AMP and burning residual fuel in the boilers. AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam power. The steam production capability cannot be replaced without complete vessel reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps. The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities. This measure incorporates the requirements of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR. **MM AQ-16: Slide Valves -** Ships calling at Berth 408 shall be equipped with slide valves or a slide valve equivalent (an engine retrofit device designed to reduce the sac volume in fuel valves of main engines in Category 3 marine engines) on main engines to the maximum extent possible: **MM AQ-17: Parking Configuration** - Configure parking during operation to minimize traffic interference. Because the effectiveness of this measure cannot be predicted, it is not quantified in this study. This measure incorporates the requirements of **MM 4G-14** from the 1992 Deep Draft FEIS/FEIR. **MM AQ-18: 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, O_3, and CFCs). 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. Common Rail 6. Low NO_x Burners for Boilers 7. Implement fuel economy standards by vessel class and engine 8. Diesel-electric pod propulsion systems

Impact AQ-3 (continued)	
Mitigation Measure	**New/Alternative Technology** The following measures are lease measures that will be included in the lease for Berth 400 due to projected future emissions levels. The measures do not meet all of the criteria for CEQA and 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 Project approvals. **MM AQ-19: Equivalent Measures** – General Mitigation Measure. For any of the above mitigation measures (MM AQ-13 through AQ-18), 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 the Port of Los Angeles. The technology's emissions reductions must be verifiable through USEPA, CARB, or other reputable certification and/or demonstration studies to the Port's satisfaction. This measure is intended to provide PLAMT the flexibility to achieve required emissions mitigation using alternative methods that may not be apparent at present. The applicant may use an AMP alternative emission reduction technology so long as the alternative technology will achieve emission reductions equivalent to the emission reductions that would have been achieved through the use of AMP. **MM AQ-20: Periodic Review of New Technology and Regulations -** The Port shall require the tenant to review, in terms of feasibility, any Port-identified or other new emissions-reduction technology, and report to the Port. Such technology feasibility reviews shall take place at the time of the Port's consideration of any lease amendment or facility modification. If the technology is determined by the Port to be feasible in terms of cost, technical and operational feasibility, the tenant shall work with the Port to implement such technology at sole cost to the tenant. 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 the Port shall work together to identify potential new technology. Such technology shall be studied for feasibility, in terms of cost, technical and operational feasibility. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies. 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. As partial consideration for the Port's agreement to issue the permit to the tenant, 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 the parties mutual agreement on operational feasibility and cost sharing which shall not be unreasonably withheld. **MM AQ-21: Throughput Tracking** - If the project exceeds project throughput assumptions / projections anticipated through the years 2010, 2015, 2025, or 2040, staff shall evaluate the effects of this on the emission sources (ship calls and crude oil throughput) relative to the SEIS/SEIR. If it is determined that these emission sources exceed SEIS/SEIR assumptions, staff would evaluate actual air emissions for comparison with the SEIS/SEIR and if the criteria pollutant emissions exceed those in the SEIS/SEIR, then new or additional mitigations would be applied through MM AQ-20.
Timing	During operation.
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project emissions would still result in significant unavoidable impacts.

Impact AQ-4. Proposed Project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-10.	
Mitigation Measure	The mitigation measures described for **Impact AQ-3** would be applied to the proposed Project.
Timing	During operation.
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project emissions would still result in significant unavoidable impacts for these criteria pollutants.

Impact AQ-5. The proposed Project would not create an objectionable odor at the nearest sensitive receptor.	
Mitigation Measure	Impacts would be less than significant; therefore, mitigation is not required.
Timing	Not applicable.
Methodology	Not applicable.
Responsible Parties	Not applicable.
Residual Impacts	Not applicable.
Impact AQ-6. The proposed Project would expose receptors to significant levels of toxic air contaminants.	
Mitigation Measure	The mitigation measures described for **Impact AQ-1** and **Impact AQ-3** would also serve the benefit of reducing TAC emissions from the proposed Project.
Timing	During operation
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project TAC emissions would remain significant.
Impact AQ-7. The proposed Project would not conflict with or obstruct implementation of an applicable AQMP.	
Mitigation Measure	Impacts would be less than significant; therefore, mitigation is not required.
Timing	Not applicable.
Methodology	Not applicable.
Responsible Parties	Not applicable.
Residual Impacts	Not applicable.
Impact AQ-8. The proposed Project would produce GHG emissions that would exceed CEQA Baseline levels.	
Mitigation Measure	The mitigation measures described for **Impact AQ-1** and **Impact AQ-3** would also serve the benefit of reducing GHG emissions from the proposed Project.
Timing	During operation
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project impacts would remain significant.
Mitigation	**MM AQ-22:** Leadership in Energy and Environmental Design (LEED) The administration building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level. **MM AQ-23:** Compact Fluorescent Light Bulbs All interior terminal building lighting shall use compact fluorescent light bulbs and the tenant shall maintain and replace all compact fluorescent bulbs. **MM AQ-24:** Energy Audits The tenant shall conduct a third party energy audit every 5 years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use. **MM AQ-25:** Solar Panels The applicant shall install solar panels on the administration building. **MM AQ-26:** Recycling The tenant shall ensure a minimum of 40 percent of all waste generated in all terminal buildings is recycled by 2012 and 60 percent of all waste generated in all terminal buildings is recycled by 2015. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and (j) all plastic bottles. **MM AQ-27:** Tree Planting The applicant shall plant shade trees around the administration building. All shade trees shall be maintained over the life of the project.
Timing	During operation
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project impacts would remain significant.

3.2.4.8 Summary of Impact Determinations

Table 3.2-66 summarizes the CEQA and NEPA impact determinations of the proposed Project and its alternatives related to Air Quality. 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, or City of Los Angeles significance criteria, Port 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. Note that impact descriptions for each of the alternatives are the same as for the proposed Project, unless otherwise noted.

3.2.4.9 Significant Unavoidable Adverse Impacts

3.2.4.9.1 Construction

The proposed Project impact analysis determined that implementation of **MMs AQ-1** through **AQ-12** and **MM 4G-5** would not reduce the maximum daily construction emissions to below their respective significance thresholds. No additional mitigation measures are available that would reduce these impacts to a less than significant level. Therefore, these air quality impacts are considered significant, adverse, and unavoidable.

3.2.4.9.2 Operations

The proposed Project impact analysis determined that implementation of **MMs AQ-13** through **AQ-21** would not reduce the maximum daily operational emissions to below applicable significance thresholds. Implementation of these measures would be unable to mitigate the impacts under Significant Criteria **AQ-3**, **AQ-4**, **AQ-6** or **AQ-8**. Additional mitigation measures would not be unable to mitigate these impacts to a less than significant level. Therefore, the operational air quality impacts are considered significant, adverse, and unavoidable.

3.2.4.10 Health Risk Assessment

Results of the HRA have been discussed for the proposed Project under **Impact AQ-6**. The complete HRA report, including figures showing the Project-related mitigated and unmitigated cancer risk isopleths for the surrounding area, is provided in Appendix H.

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality				
Proposed Project	**AQ-1:** The proposed Project would result in construction-related emissions that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$	**MM AQ-1:** Ridesharing or Shuttle Service **MM AQ-2:** Staging Areas and Parking Lots **MM AQ-3:** Construction Equipment Standards **MM AQ-4:** Electricity Use **MM AQ-5:** Best Management Practices **MM AQ-6:** Additional Fugitive Dust Controls **MM AQ-7:** Expanded VSR Program **MM AQ-8:** Low-Sulfur Fuel for Construction Delivery Vessels **MM AQ-9:** Engine Standards for Harbor Craft Used in Construction **MM AQ-10:** Fleet Modernization for On-Road Trucks **MM AQ-11:** Special Precautions near Sensitive Sites **MM AQ-12**: General Mitigation Measure **MM 4G-5:** Discontinue Construction Activities During Stage II Smog Alerts	CEQA: **Significant** and unavoidable impact for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for SO_x
		NEPA: **Significant** impact for VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	NEPA: **Significant** and unavoidable impact for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for SO_x

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality (continued)				
Proposed Project (continued)	**AQ-2:** Project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	CEQA: **Significant** and unavoidable impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants
		NEPA: **Significant** impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	NEPA: **Significant** and unavoidable impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants
	AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance.	CEQA: **Significant** impact for VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$	**MM AQ-13:** Expanded Vessel Speed Reduction Program **MM AQ-14:** Low Sulfur Fuel Use in Main Engines, Auxiliary Engines, and Boilers **MM AQ-15:** Alternative Maritime Power (AMP) **MM AQ-16:** Slide Valves **MM AQ-17:** Parking Configuration **MM AQ-18:** New Vessel Builds **MM AQ-19:** Equivalent Measures **MM AQ-20**: Periodic Review of New Technology and Regulations **MM AQ-21:** Throughput Tracking	CEQA: **Significant** and unavoidable impact for VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions
		NEPA: **Significant** impact for CO, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for VOC and NO_x Measured pollutants: VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$	**MM AQ-13** through **MM AQ-21**.	NEPA: **Significant** and unavoidable impact for CO emissions Less than significant impact for all other pollutants

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality (continued)				
Proposed Project (continued)	**AQ-4:** Proposed Project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for 1-hr and annual NO_2 Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-13** through **MM AQ-21**.	CEQA: **Significant** and unavoidable impact for annual NO_2 Less than significant impact for all other pollutants
		NEPA: **Significant** impact for 1-hr and annual NO_2 Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-13** through **MM AQ-21.**	NEPA: **Significant** and unavoidable impact for annual NO_2 Less than significant impact for all other pollutants
	AQ-5: The proposed Project would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: Less than significant impact	Mitigation not required	NEPA: Less than significant impact
Proposed Project (continued)	**AQ-6:** The proposed Project would expose receptors to significant levels of toxic air contaminants.	CEQA: **Significant** impact for cancer risk at residential and sensitive receptors Less than significant impact for cancer risk at student and occupational receptors Less than significant impact for chronic and acute non-cancer effects at all receptors	**MM AQ-1** through **MM AQ-21** and **MM 4G-5**.	CEQA: Less than significant impact for cancer risk at all receptors Less than significant impact for chronic and acute non-cancer effects at all receptors
		NEPA: Less than significant impact for cancer risk at all receptors Less than significant impact for chronic and acute non-cancer effects at all receptors	**MM AQ-1** through **MM AQ-21** and **MM 4G-5**.	NEPA: Less than significant impact for cancer risk at all receptors Less than significant impact for chronic and acute non-cancer effects at all receptors
	AQ-7: The proposed Project would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: Less than significant impact	Mitigation not required	NEPA: Less than significant impact

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality (continued)				
Proposed Project (continued)	**AQ-8:** The proposed Project would produce GHG emissions that would exceed CEQA Baseline levels. No impact determination is made with respect to NEPA.	CEQA: **Significant** impact	**MM AQ-13** **MM AQ-15** **MM AQ-22:** LEED **MM AQ-23:** Compact Fluorescent Light Bulbs **MM AQ-24:** Energy Audit **MM AQ-25:** Solar Panels **MM AQ-26:** Recycling **MM AQ-27:** Tree Planting	CEQA: **Significant** and unavoidable impact
		NEPA: No determination of significance	**MM AQ-13** **MM AQ-15** **MM AQ-22** through **MM AQ-27**	NEPA: No determination of significance
No Federal Action/No Project Alternative	**AQ-1:** The No Federal Action/No Project Alternative would not result in construction-related emissions that exceed a SCAQMD threshold of significance.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: No impact	Mitigation not required	NEPA: No impact
	AQ-2: No Federal Action/No Project Alternative construction would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: No impact	Mitigation not required	NEPA: No impact
	AQ-3: The No Federal Action/No Project Alternative would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance.	CEQA: **Significant** impact for VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$	Mitigation not applicable	CEQA: **Significant** and unavoidable impact for VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions
		NEPA: No impact	Mitigation not required	NEPA: No impact

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality (continued)				
No Federal Action/No Project Alternative (continued)	**AQ-4:** No Federal Action/No Project Alternative operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for annual NO_2 Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	Mitigation not applicable	CEQA: **Significant** and unavoidable impact for annual NO_2 Less than significant impact for all other pollutants
		NEPA: No impact	Mitigation not required	NEPA: No impact
	AQ-5: The No Federal Action/No Project Alternative would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: No impact	Mitigation not required	NEPA: No impact
	AQ-6: The No Federal Action/No Project Alternative would expose receptors to significant levels of toxic air contaminants.	CEQA: **Significant** impact for cancer risk at all receptor types Less than significant impact for chronic and acute non-cancer effects at all receptor types	Mitigation not applicable	CEQA: **Significant** and unavoidable impact for cancer risk at all receptor types Less than significant impact for chronic and acute non-cancer effects at all receptor types
		NEPA: No impact	Mitigation not required	NEPA: No impact
	AQ-7: The No Federal Action/No Project Alternative would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: No impact	Mitigation not required	NEPA: No impact
	AQ-8: The No Federal Action/No Project Alternative would produce GHG emissions that would exceed CEQA Baseline levels.	CEQA: **Significant** impact	Mitigation not applicable	CEQA: **Significant** and unavoidable impact
		NEPA: No impact	Mitigation not required	NEPA: No impact

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
		3.2 Air Quality (continued)		
Reduced Project Alternative	**AQ-1:** The Reduced Project Alternative would result in construction-related emissions that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	CEQA: **Significant** and unavoidable impact for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for SO_x
		NEPA: **Significant** impact for VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	NEPA: **Significant** and unavoidable impact for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for SO_x
	AQ-2: The Reduced Project Alternative construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	CEQA: **Significant** and unavoidable impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants
		NEPA: **Significant** impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-1** through **MM AQ-12** and **MM 4G-5**	NEPA: **Significant** and unavoidable impact for 1-hr and annual NO_2, 24-hr PM_{10}, and 24-hr $PM_{2.5}$ emissions Less than significant impact for all other pollutants
	AQ-3: The Reduced Project Alternative would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance.	CEQA: **Significant** impact for VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$	**MM AQ-13** through **MM AQ-21.**	CEQA: **Significant** and unavoidable impact for VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$ emissions
		NEPA: **Significant** impact for CO, NO_x, PM, PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for VOC and SO_x emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM, PM_{10}, and $PM_{2.5}$	**MM AQ-13** through **MM AQ-21.**	NEPA: **Significant** and unavoidable impact for CO and NO_x emissions Less than significant impact for all other pollutants

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality (continued)				
Reduced Project Alternative (continued)	**AQ-4:** Reduced Project Alternative operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for annual NO_2 Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-13** through **MM AQ-21.**	CEQA: **Significant** and unavoidable impact for annual NO_2 Less than significant impact for all other pollutants
		NEPA: **Significant** impact for annual NO_2 Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, annual PM_{10}, and 24-hr $PM_{2.5}$	**MM AQ-13** through **MM AQ-21.**	NEPA: **Significant** and unavoidable impact for annual NO_2 Less than significant impact for all other pollutants
	AQ-5: The Reduced Project Alternative would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: Less than significant impact	Mitigation not required	NEPA: Less than significant impact
	AQ-6: The Reduced Project Alternative would expose receptors to significant levels of toxic air contaminants.	CEQA: **Significant** impact for cancer risk at residential, sensitive, and student receptors Less than significant impact for cancer risk at occupational receptors Less than significant impact for chronic and acute non-cancer effects at all receptor types	**MM AQ-1** through **MM AQ-21** and **MM 4G-5**	CEQA: **Significant** and unavoidable impact for cancer risk at residential and sensitive receptors Less than significant impact for cancer risk at occupational and student receptors Less than significant impact for chronic and acute non-cancer effects at all receptor types
		NEPA: Less than significant impact for cancer risk at all receptor types Less than significant impact for chronic and acute non-cancer effects at all receptor types	**MM AQ-1** through **MM AQ-21** and **MM 4G-5**	NEPA: Less than significant impact for cancer risk at all receptor types Less than significant impact for chronic and acute non-cancer effects at all receptor types

Table 3.2-66. Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Alternatives (continued)

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality (continued)				
Reduced Project Alternative (continued)	**AQ-7:** The Reduced Project Alternative would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
		NEPA: Less than significant impact	Mitigation not required	NEPA: Less than significant impact
	AQ-8: The Reduced Project Alternative would produce GHG emissions that would exceed CEQA Baseline levels. No impact determination is made with respect to NEPA.	CEQA: **Significant** impact	**MM AQ-13** **MM AQ-15** **MM AQ-22** through **MM AQ-27**	CEQA: **Significant** and unavoidable impact
		NEPA: No determination of significance	**MM AQ-13** **MM AQ-15** **MM AQ-22** through **MM AQ-27**	NEPA: No determination of significance

Project operations would emit TACs that could affect public health. Therefore, an HRA, conducted pursuant to a Protocol reviewed and approved by both CARB and SCAQMD, was used to evaluate potential health impacts to the public from TACs generated by proposed Project operations. The complete HRA report is included in Appendix H of this Draft SEIS/SEIR.

The main sources of TACs from proposed Project operations would be DPM emissions from ships and tugboats. CARB considers DPM as representative of the total health risks associated with the combustion of diesel fuel in internal combustion engines. The HRA focused primarily on DPM for evaluation of cancer risk and chronic noncancer health effects from diesel combustion. However, TAC emissions from non-diesel sources and external combustion sources (such as auxiliary boilers) also were evaluated in the HRA. For health effects from short-term (acute) exposure, DPM is not used as a surrogate for diesel combustion emissions. Instead, hydrocarbon and particulate matter emissions from diesel combustion were speciated into their TAC components; and the components were assessed for acute health effects.

The maximum residential receptor was selected from all residential or zoned residential areas, including the public marinas (for possible live-aboards) located in Cabrillo Marina. Although the public marinas are not zoned for residential use, these areas were conservatively treated as potential residential receptors because there are a number of live aboards present.

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

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

For the impacts under CEQA, this HRA determined the incremental increase in health effects values at residential receptors associated with the proposed Project by estimating the net change in impacts between the proposed Project and the CEQA Baseline. For the determination of significance under NEPA, this HRA determined the incremental increase in health effects values associated with the proposed Project by estimating the net change in impacts between the proposed Project and the NEPA Baseline. Both of these incremental health effects values were compared to the significance thresholds for health risk described in Section 3.2.4.2.

A great deal of uncertainty is associated with the process of risk assessment. The uncertainty arises from lack of data in many areas, necessitating the use of assumptions. The assumptions used in this HRA are designed to err on the side of health protection to avoid underestimation of risk to the public. Sources of uncertainty, which could either over estimate or underestimate risk, include: (1) extrapolation of toxicity data in animals to humans, (2) uncertainty in the estimation of emissions, (3) uncertainty in the air dispersion models, and (4) uncertainty in the exposure estimates. Thus, risk estimates generated by an HRA should not be interpreted as the expected rates of disease in the exposed population but rather as estimates of potential risk, based on current knowledge and a number of assumptions. Additionally, the uncertainty factors integrated within the estimates of noncancer reference exposure levels (RELs) are meant to err on the side of public health protection to avoid underestimation of risk. Risk assessment is best used as a ruler to compare one source with another and to prioritize concerns. Consistent approaches to risk assessment are necessary to fulfill this function (OEHHA 2003).

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