Section 3.2
Air Quality and Meteorology

SECTION SUMMARY

This section describes existing air quality and meteorology within the Port, potential impacts on air quality and human health associated with construction and operation of the proposed Project and alternatives, and mitigation measures.

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

- a description of existing air quality in the Port area;
- a discussion on the methodology used to determine whether the proposed Project and alternatives would result in an impact on air quality from air emissions;
- an impact analysis of the proposed Project and alternatives; and
- a description of mitigation measures proposed to reduce potential impacts, as applicable.

Key Points of Section 3.2:

The proposed Project and alternatives would improve the existing YTI container terminal, and its operations would be consistent with other uses and container terminals in the proposed project area.

Construction Impacts

Construction of the proposed Project, Alternative 2, and Alternative 3 would result in significant air quality emissions impacts under CEQA. Construction of the proposed Project and Alternative 3 would also result in significant air quality emissions impacts under NEPA.

Construction-related emissions would result in significant ambient air concentrations under CEQA for the proposed Project and Alternatives 2 and 3. The proposed Project and Alternative 3 would also result in significant ambient air concentrations under NEPA. After the application of mitigation measures MM AQ-1 through MM AQ-8, summarized below, construction impacts would be reduced but would remain significant and unavoidable for air quality impacts.

- **MM AQ-1:** **Crane Delivery Ships Used during Construction.** All ships and barges must comply with the expanded Vessel Speed Reduction Program (VSRP) of 12 knots between 20 nautical miles (nm) and 40 nm from Point Fermin.
- **MM AQ-2:** **Harbor Craft Used During Construction.** Harbor craft must use U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines.
- **MM AQ-3:** **Fleet Modernization for On-road Trucks Used during Construction.** Trucks with a Gross Vehicle Weight Rating (GVWR) of 19,500 pounds (lbs) or greater,

including import haulers and earth movers, must comply with EPA 2007 on-road emission standards.

- **MM AQ-4:** **Fleet Modernization for Construction Equipment (except vessels, harbor craft, on-road trucks, and dredging equipment).** All diesel-powered construction equipment greater than 50 horsepower (hp) must meet EPA Tier 4 off-road emission standards.
- **MM AQ-5:** **Dredging Equipment.** All dredging equipment must be electric.
- **MM AQ-6:** **Construction Best Management Practices (BMPs).** LAHD will implement BMPs, per LAHD Sustainable Construction Guidelines, to reduce air emissions from all LAHD-sponsored construction projects. The following measures are required for construction equipment, including on-road trucks used during construction:
  - Use diesel oxidation catalysts and catalyzed diesel particulate traps.
  - Maintain equipment according to manufacturers' specifications.
  - Restrict idling of construction equipment to a maximum of 5 minutes when not in use.
  - Install high-pressure fuel injectors on construction equipment vehicles.

  LAHD will implement a process by which to select additional BMPs to further reduce air emissions during construction. LAHD will determine the BMPs once the contractor identifies and secures a final equipment list. Because the effectiveness of this measure has not been established and includes some emission reduction technology that may already be incorporated into equipment as part of the Tier level requirement in MM AQ-3 and MM AQ-4, it is not quantified in this study.
- **MM AQ-7:** **Additional Fugitive Dust Controls.** Contractor must apply water to disturbed surfaces at intervals of 2 hours.
- **MM AQ-8:** **General Mitigation Measure.** For any of the above mitigation measures (MM AQ-2 through MM AQ-7), if a California Air Resources Board (CARB)-certified technology becomes available and is shown to be as good as, or better than, the existing measure in terms of emissions performance, the technology could replace the existing measure pending approval by LAHD. Measures will be set at the time a specific construction contract is advertised for bid.

Operational Impacts

Operation of the proposed Project and Alternatives 1 through 3 would result in significant air quality emissions impacts under CEQA. Operation of the proposed Project and Alternative 3 would also result in significant air quality emissions impacts under NEPA.

Operation of the proposed Project and Alternatives 1 through 3 would result in significant ambient air concentrations under CEQA. Operation of the proposed Project and Alternative 3 would also result in significant ambient air concentrations under NEPA.

After the application of MM AQ-9, MM AQ-10, LM AQ-1, and LM AQ-2, summarized below, operational impacts would be reduced but would remain significant and unavoidable.

- **MM AQ-9:** **Vessel Speed Reduction Program (VSRP).** Starting January 1, 2017 and thereafter, 95% of ships calling at the YTI Terminal will be required to comply with the expanded VSRP at 12 knots between 40 nm from Point Fermin and the Precautionary Area.
- **MM AQ-10:** **Alternative Maritime Power (AMP).** By 2026, NYK Line-operated ships calling at the YTI Terminal will use AMP for 95% of total hoteling hours while hoteling at the Port.

Lease Measures

LAHD's standard lease measures LM AQ-1 and LM AQ-2 would be included in the tenant lease. Although not quantifiable, the measures would further reduce future air quality emissions and serve to comply with Port air quality planning requirements.

- **LM AQ-1:** **Periodic Review of New Technology and Regulations.** LAHD will require the tenant to review any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to LAHD. Such technology feasibility reviews will take place at the time of LAHD's consideration of any lease amendment or facility modification for the proposed project site. If the technology is determined by LAHD to be feasible in terms of cost and technical and operational feasibility, the tenant will work with LAHD to implement such technology.

  Potential technologies that may further reduce emissions and/or result in cost-savings benefits for the tenant may be identified through future work on the Clean Air Action Plan (CAAP). Over the course of the lease, the tenant and LAHD will work together to identify potential new technology. Such technology will be studied for feasibility, in terms of cost, technical and operational feasibility, and emissions reduction benefits. As partial consideration for the lease amendment, the tenant will implement not less frequently than once every five years following the effective date of the permit new air quality technological advancements, subject to mutual agreement on operational feasibility and cost sharing, which will not be unreasonably withheld. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies.

- **LM AQ-2:** **Substitution of New Technology by Tenant.** If any kind of technology becomes available and is shown to be as good as or better than the existing measure in terms of emissions reduction performance, the technology could replace the requirements of MM AQ-9 and MM AQ-10, pending approval by LAHD.

Health Risk Impacts

Project operations would emit toxic air contaminant (TAC) emissions that could affect public health. A health risk assessment (HRA) evaluated three different types of health effects: individual lifetime cancer risk, acute noncancer hazard index (e.g., temporary irritation to the eyes, nose, throats, and lungs), and chronic noncancer hazard index (e.g., emphysema). Individual lifetime cancer risk is the additional chance for a person to contract cancer after a lifetime of exposure (in this case 70 years for a resident and 40 years for a worker) to proposed Project or alternative emissions.

The maximum incremental CEQA cancer risks under the proposed Project and Alternative 3 would exceed significance thresholds for residential and occupational receptors. The maximum incremental

CEQA cancer risks under Alternative 1 and Alternative 2 would exceed significance thresholds for occupational receptors only. The receptors identified for the peak residential impact are live-aboards (people who live on boats) on boats docked in the Cerritos Channel, west of the Terminal Island Freeway near Anchorage Road. However, residential incremental cancer risk would not exceed the significance threshold at any residential areas on land. Mitigation measures MM AQ-1 and MM AQ-10 would slightly reduce the maximum incremental CEQA cancer risks associated with the proposed Project and all alternatives. However, incremental cancer risk to the maximum exposed residential and occupational receptors would remain significant and unavoidable for the proposed Project and Alternative 3. Incremental cancer risk to the maximum exposed occupational receptors would remain significant and unavoidable for Alternatives 1 and 2. The maximum incremental NEPA cancer risks to all receptors would be less than significant for the proposed Project and all alternatives.

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. Acute hazard index impacts under CEQA and NEPA from combined construction and operational activities would be less than significant for the proposed Project and all alternatives.

The chronic hazard index is a ratio of 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. Chronic hazard index impacts under CEQA and NEPA would be less than significant for the proposed Project and all alternatives.

Carbon Monoxide Hotspot, Odor, and Air Quality Plan Impacts

Construction and operation of the proposed Project or any of the alternatives would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour carbon monoxide (CO) standards, would not create an objectionable odor at the nearest sensitive receptor, and would not conflict with or obstruct implementation of the applicable Air Quality Management Plan (AQMP) or the CAAP. Impacts would be less than significant and mitigation would not be required.

3.2.1 Introduction

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

3.2.2 Environmental Setting

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

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

The proximity of the Eastern Pacific High and a thermal low pressure system in the desert interior to the east produce a sea breeze regime that prevails within the proposed project region for most of the year, particularly during the spring and summer months. Sea breezes at the Port typically increase during the morning hours from the southerly direction and reach a peak in the afternoon as they blow from the southwest. These winds generally subside after sundown. During the warmest months of the year, however, sea breezes could persist well into the nighttime hours. Conversely, during the colder months of the year, northerly land breezes increase by sunset and into the evening hours. Sea breezes transport air pollutants away from the coast and 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 northern side of the Palos Verdes Hills and end up as a northwest breeze in the inner harbor area. This topographic feature also deflects northeasterly land breezes that flow from the coastal plains to a more northerly direction through the Port.

3.2.2.2 Criteria Pollutants and Air Monitoring

Criteria Pollutants

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

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

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

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

Table 3.2-1: Adverse Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Ozone (O_3)	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals and (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide (CO)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide (NO_2)	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide (SO_2)	(a) Broncho-constriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma
Suspended Particulate Matter less than 10 Microns (PM_{10})	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma) [a]
Suspended Particulate Matter less than 2.5 microns ($PM_{2.5}$)	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma)[a]
Lead [b]	(a) Increased body burden; (b) impairment of blood formation and nerve conduction, and neurotoxin.
Sulfates [c]	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardiopulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage

Source: (SCAQMD 2007).
Notes:
[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment's, Particulate Matter Health Effects and Standard Recommendations (www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may), May 9, 2002, and EPA's Air Quality Criteria for Particulate Matter, October 2004 (EPA 2004).
[b] Lead is not a pollutant of concern for the proposed Project.
[c] Sulfate is not a pollutant of concern for the proposed Project. SCAQMD has not established an emissions threshold for sulfates, nor does it require dispersion modeling against the localized significance thresholds.
[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.

Of the criteria pollutants of concern, ozone is unique because it is not directly emitted from proposed project-related sources. Rather, ozone is a secondary pollutant formed from the precursor pollutants volatile organic compounds (VOC) and 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 of predicting photochemical pollutant concentrations, ozone impacts are indirectly addressed in this study by comparing proposed Project and alternative-generated emissions of VOC and NO_X to daily emission thresholds set by the South Coast Air Quality Management District (SCAQMD). These emission thresholds are discussed in Section 3.2.4.4.

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

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

Local Air Monitoring Levels

EPA designates all areas of the United States according to whether they meet the NAAQS. A *nonattainment* designation means that one or more of the six criteria pollutants considered as indicators of air quality exceeds the primary NAAQS in any given area, over a period of time specified by the NAAQS. States with nonattainment areas must prepare a State Implementation Plan (SIP) that demonstrates how those areas will come into attainment. EPA currently designates the SCAB as a nonattainment area for ozone, $PM_{2.5}$ (24-hour standard), and lead[1]. In December 2012, EPA revised the $PM_{2.5}$ annual standard and plans to issue formal area designations in December 2014. The severity of nonattainment has been classified by EPA for several pollutants. EPA classifies the SCAB as extreme nonattainment[2] for the 8-hour ozone NAAQS. The SCAB is in attainment/maintenance of the NAAQS for CO, SO_2, NO_2, and PM_{10}.

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. CARB currently designates the SCAB as a nonattainment area for ozone, PM_{10}, $PM_{2.5}$, NO_2, and lead. The air basin is in attainment of the CAAQS for CO, SO_2, and sulfates, and is unclassified for hydrogen sulfide and visibility reducing particles (CARB 2013a).

[1] The contributions to the violation of the lead standard are caused by lead-related industrial facilities located within a 15-mile radius in the southern portion of Los Angeles County. This project is not a source of lead emissions and would not contribute to a violation of the lead standard.

[2] The *extreme* classification for ozone nonattainment means the air quality is worse than areas with a *severe* classification and more time will be needed to bring the area into attainment of the NAAQS.

LAHD has been conducting its own air quality monitoring program since February 2005. The main objective of the program is to estimate ambient levels of DPM near the Port. The secondary objective of the program is to estimate ambient particulate matter levels within adjacent communities due to Port emissions. To achieve these objectives, the program measures ambient concentrations of PM_{10}, $PM_{2.5}$, and elemental carbon (which indicates fossil fuel combustion sources) at the following four locations in the Port vicinity (LAHD 2013a):

- Wilmington Community Station, at the Saints Peter and Paul School. This station measures aged urban emissions during offshore flows and a combination of marine aerosols (salt spray from the ocean that typically consists of sodium chloride [table salt] and other salts and organic matter), aged urban emissions (man-made and naturally occurring airborne particulates that have been in the atmosphere long enough to have undergone some chemical reaction or accumulation with other airborne compounds or particles), 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, 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.
- Source-Dominated Station, at the Terminal Island Water Reclamation Plant (TITP). 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. Meteorological data from this site was used in this air quality analysis to model human health risks and criteria pollutant impacts associated with the proposed Project and alternatives.
- San Pedro Community Station, along Harbor Boulevard near 3rd Street, adjacent to the San Pedro Waterfront Promenade. This location is near the western edge of Port operational emission sources and adjacent to residential areas in San Pedro. During onshore flows, aged urban emissions, marine aerosols, and fresh Port emissions have the potential to affect this site. During nighttime offshore flows, this site measures aged urban emissions and Port emissions.

LAHD has been collecting PM_{10} data since 2005 at the Wilmington Community station and since 2008 at the Coastal Boundary station, as well as $PM_{2.5}$ and elemental carbon data since 2005 at all four stations. In addition, LAHD is now collecting several gaseous pollutant (ozone, NO_2, SO_2, and CO) data at all four stations. Table 3.2-2 shows the highest pollutant concentrations, excepting PM_{10}, recorded at the Source-Dominated Station for 2010 through 2012, the most recent complete 3-year period of data available. PM_{10} concentrations were not collected at the Source-Dominated Station; PM_{10} concentrations were obtained from the Wilmington Community Station, the closest station collecting PM_{10} data to the proposed project site.

Table 3.2-2: Maximum Pollutant Concentrations Measured at the TITP[a]

Pollutant	Averaging Period	National Standard	State Standard	Highest Monitored Concentration		
				2010	2011	2012
Ozone (ppm)	1-hour	--	0.09	**0.101**	**0.143**	0.077
	8-hour National [b]	0.075	--	0.058	0.057	0.058
	8-hour State	--	0.07	0.062	0.062	0.062
CO (ppm)	1-hour	35	20	4.9	2.1	3.1
	8-hour	9	9	1.6	1.3	1.5
NO_2 (ppm)	1-hour National [c]	0.100	--	0.087	0.090	0.078
	1-hour State	--	0.18	0.101	0.099	0.092
	Annual	0.053	0.030	0.022	0.02	0.018
SO_2 (ppm)	1-hour National [d]	0.075	--	0.059	0.032	0.036
	1-hour State	--	0.25	0.104	0.059	0.045
	24-hour	--	0.04	0.025	0.024	0.014
PM_{10} ($\mu g/m^3$)[a]	24-hour	150	50	**71.0**	46.6	**61.5**
	Annual	--	20	**24.0**	**21.5**	**25.2**
$PM_{2.5}$ ($\mu g/m^3$)	24-hour [e]	35	--	22.1	19.2	19.4
	Annual	15	12	9.3	7.1	8.2

Source:
(LAHD 2013a; EPA 2013; CARB 2013a)
Notes:
Exceedances of the standards are shown in **bold**. All reported values represent the highest recorded concentration during the year unless otherwise noted.
[a] The Source-Dominated Station or TITP does not collect PM_{10} data; PM_{10} information was obtained from the Wilmington Community Station.
[b] The monitored concentrations reported for the national 8-hour ozone standard represent the 3-year average (including the reported year and the prior 2 years) of the fourth-highest 8-hour concentration each year.
[c] The monitored concentrations reported for the national 1-hour NO_2 standard represent the 3-year average (including the reported year and the prior 2 years) of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations.
[d] The monitored concentrations reported for the national 1-hour SO_2 standard represent the 3-year average (including the reported year and the prior 2 years) of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations.
[e] The monitored concentrations reported for the national 24-hour $PM_{2.5}$ standard represent the 3-year average (including the reported year and the prior 2 years) of the 98th percentile of the annual distribution of daily average concentrations.

Toxic Air Contaminants

The California Office of Environmental Health Hazard Assessment (OEHHA) identifies and studies TAC toxicity. TACs include air pollutants that can produce adverse human health effects, including carcinogenic effects, after short-term (acute) or long-term (chronic) exposure. Examples of TAC sources within the SCAB include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources.

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

As discussed in Section 1.7.2.1, LAHD, in conjunction with the Port of Long Beach, developed the San Pedro Bay CAAP, which targets all emissions related to the ports. In 2010 the ports released a CAAP update, with emission reduction goals for 2014 and 2023. Through 2012, the Port of Los Angeles had achieved actual reductions of 79% for DPM, 56% for NO_X, and 88% for SO_X, relative to uncontrolled levels as described in the 2012 Port Emissions Inventory (LAHD 2012a). For the first time ever, the ports established uniform air quality standards at the program level, project-specific level, and the source-specific level.

Secondary $PM_{2.5}$ Formation

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

Ultrafine Particles

Although EPA and the State of California currently monitor and regulate PM_{10} and $PM_{2.5}$, research is being done on ultrafine particles (UFP), particles classified as less than 0.1 micron in diameter. UFPs are usually formed during combustion, independent of fuel type. When diesel fuel is used, UFPs can be formed directly from fuel combustion. With gasoline and natural gas (liquefied or compressed), UFPs are formed mostly from the burning of lubricant oils. 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 suggests they might be more dangerous to human health than the larger PM_{10} and $PM_{2.5}$ particles (termed *fine particles*) due to size and shape. Because of their smaller size, UFPs are able to travel more deeply into the lung (the alveoli) and are deposited in the deep lung regions more efficiently than fine particles. UFPs are inert; therefore, normal bodily defense does not recognize the particles. Additionally, UFPs might have the ability to travel across cell layers and enter into the bloodstream and/or into individual cells. With a large surface area-to-volume ratio, other chemicals might attach to the particle and travel into the cell as a kind of "hitchhiker." Recent studies have found that UFPs may also pose a risk to cardiovascular health, particularly in at-risk individuals, and may be a risk-factor for heart arrhythmias (UCLA 2010).

The University of Southern California, in collaboration with CARB and the California Environmental Protection Agency (CalEPA), released a study in April 2011 investigating UFP concentrations within communities in Los Angeles, including the port area of San Pedro and Long Beach (USC 2011). The study found that UFP concentrations vary significantly near the ports (a major UFP source), thereby substantiating concerns about the applicability of using centrally located UFP concentrations for estimating population exposure.

Additional UFP research primarily involves roadway exposure. Studies suggest that over 50% of an individual's daily exposure is from driving on highways (Fruin et al. 2004). Levels appear to drop off rapidly as one moves away from major roadways (Zhu et al. 2002a and 2002b). Little research has been done directly on ships and off-road vehicles. Work is being done on filter technology, including filters for ships, which appears promising. LAHD began collecting UFP data at its four air quality monitoring stations in late 2007 and early 2008. LAHD actively participates in the CARB testing at the Port and will comply with all future regulations regarding UFPs. Finally, measures included in the CAAP aim to reduce all emissions Port-wide.

Atmospheric Deposition

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

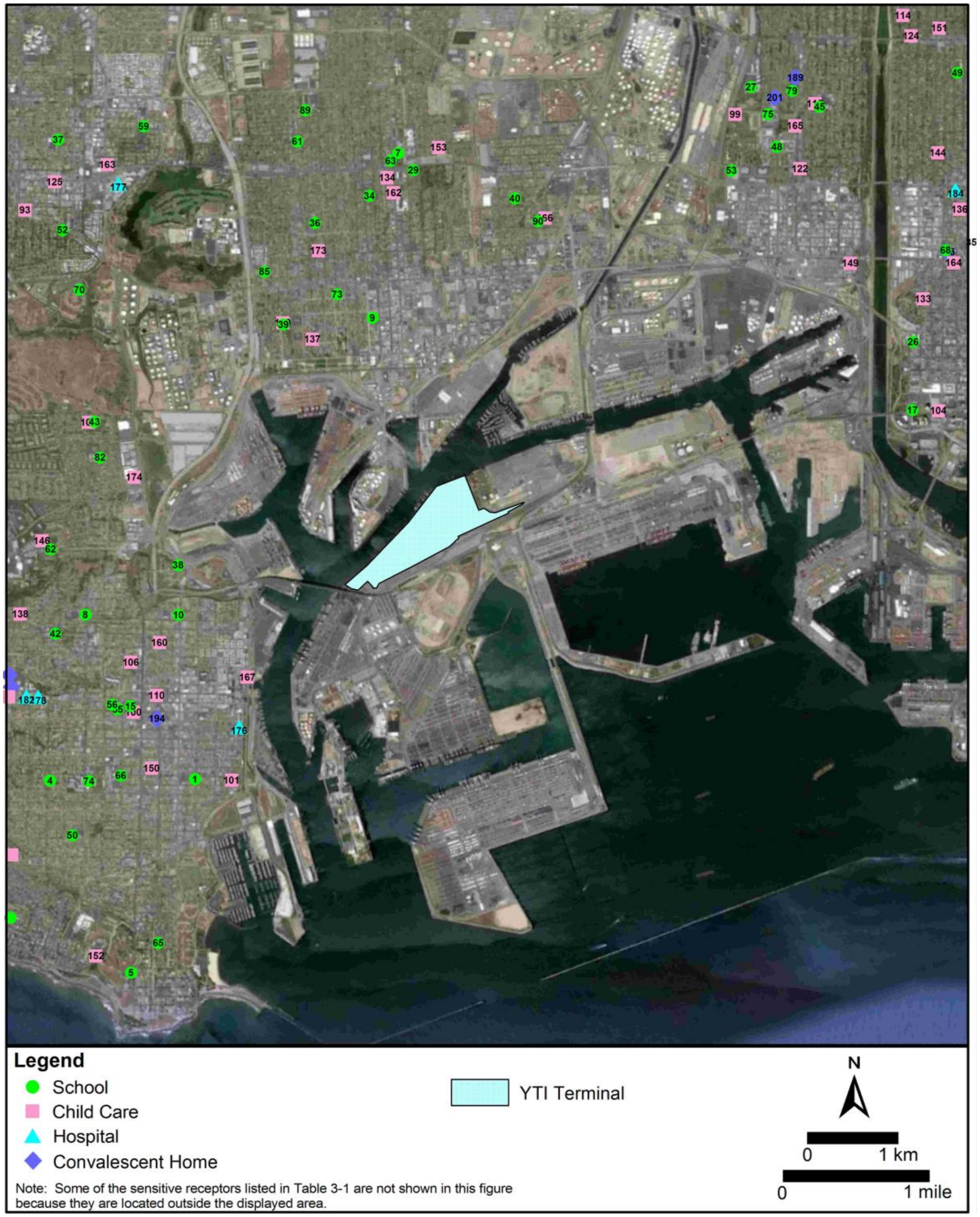
CARB and the California Water Resources Control Board are in the process of examining the need to regulate atmospheric deposition for the purpose of protecting both fresh and saltwater bodies from pollution. Port emissions deposit into both local waterways and regional land areas. Emission sources from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

3.2.2.3 Sensitive Receptors

The impact of air emissions on sensitive members of the population is a special concern. Sensitive receptor groups include children, the elderly, and the acutely and chronically ill. The locations of these groups include residences, schools, daycare centers, convalescent homes, and hospitals. The nearest sensitive receptors to the proposed project site are live-aboard residents at the Newmarks Yacht Centre marina, in the Cerritos Channel, about 0.25 mile northeast of the proposed project site.

The nearest landside residents are in San Pedro, west of Harbor Blvd., approximately 0.75 mile southwest of the proposed project site. The nearest schools are Port of Los Angeles High School and Barton Hill Elementary School, about 1.1 and 1.2 miles, respectively, southwest of the proposed project site. The nearest daycare center is the World Tots LA Daycare Center, about 0.9 mile southwest of the proposed project site. The nearest convalescent home is the Harbor View House, about 1.2 mile southwest of the proposed project site. The nearest hospitals are the San Pedro Peninsula Hospital and Providence Little Company of Mary San Pedro Hospital, both about 2.2 miles southwest of the proposed project site. Figure 3.2-1 shows the locations of sensitive receptors.

Figure 3.2-1: Sensitive Receptors



3.2.3 Applicable Regulations

The Federal Clean Air Act of 1970 and its subsequent amendments established air quality regulations and the NAAQS, and delegated enforcement of these standards to the states.

In California, CARB is responsible for enforcing air pollution regulations. CARB has, in turn, delegated the responsibility of regulating stationary emission sources to the local air agencies. In the SCAB, the local air agency is SCAQMD.

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

3.2.3.1 International Regulations

International Maritime Organization International Convention for the Prevention of Pollution from Ships Annex VI

The International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which came into force in May 2005, set new international NO_X emission limits on marine engines over 130 kilowatts (kW) installed on new vessels retroactive to the year 2000. In October 2008, IMO adopted amendments to international requirements under MARPOL Annex VI, which introduced NO_X emission standards for new engines and more stringent fuel quality requirements (DieselNet 2013a; IMO 2008). The Annex VI North American Emission Control Area (ECA) requirements applicable to the proposed Project include:

- Caps on the sulfur content of fuel as a measure to control SO_X emissions and, indirectly, PM emissions. For ECAs, the sulfur limits are capped at 1.0% starting in 2012 and 0.1% starting in 2015[3]. The proposed Project and alternatives assume full compliance with MARPOL Annex VI SO_X limits.
- NO_X engine emission rate limits for new engines. Tier I and Tier I limits effective 2000 and 2011 are global limits, whereas Tier III limits, effective in 2016, apply only in NO_X ECAs. NO_X emission reductions due to these engine limits were conservatively excluded from the analysis because they apply to newly built engines, and the number of newly built Tier III vessels associated with the proposed Project and alternatives would not be guaranteed. In addition, a draft amendment is being considered to postpone the date for the Tier III NO_X standards' implementation within ECAs from 2016 to 2021. The draft amendment will be considered for adoption during the 66th IMO session in March 2014.

3.2.3.2 Federal Regulations

State Implementation Plan

In federal nonattainment areas, the Federal Clean Air Act (CAA) requires preparation of a SIP detailing how the state will attain the NAAQS within mandated timeframes. In response to this requirement, SCAQMD, in collaboration with other agencies, such as CARB and Southern California Association of Governments (SCAG), periodically prepares an Air Quality Management Plan (AQMP) designed to bring the SCAB into attainment with federal requirements and/or to incorporate the latest technical planning information. The AQMP is then incorporated into the SIP, which is submitted by CARB to EPA for approval.

[3] The sulfur requirements in ECA's are 1.0% as of July 2010 and 0.1% starting in January 2015. North America was designated as ECA in August 2012, and the sulfur requirements became applicable as of the time of designation.

SCAQMD has prepared AQMPs in 1997, 2003, 2007, and most recently in 2012. Each iteration of the AQMP is an update of the previous AQMP. The focus of the 2007 AQMP was to demonstrate compliance with the NAAQS for $PM_{2.5}$ and 8-hour ozone and other planning requirements, including compliance with the NAAQS for PM_{10} (SCAQMD 2007). The 2007 AQMP proposed attainment demonstration of the federal $PM_{2.5}$ standards through a focused control of SO_X, directly emitted $PM_{2.5}$, and NO_X, supplemented with VOCs by 2015.

In December 2012, the SCAQMD Governing Board adopted the 2012 AQMP (SCAQMD 2013). The 2012 AQMP focuses on $PM_{2.5}$ control measures designed to attain the federal 24-hour $PM_{2.5}$ standard and contingency measures in case the targeted attainment date is missed. The 2012 AQMP also contains proposed actions to reduce ozone. Staff is initiating an early development process for the 2016 AQMP, which will be a comprehensive and integrated AQMP primarily focused on addressing the ozone standards and will include a full 2023 attainment demonstration of the 8-hour ozone standard.

SIP approval lags the development and implementation of AQMPs. EPA often approves portions and disapproves other portions of submitted SIPs. CARB, and in turn SCAQMD, act to correct the deficiencies identified by EPA and resubmit the disapproved SIP portions to EPA for approval. For example, EPA approved California's 1997 SIP in 2011, excepting contingency measures. The contingency measures for the 1997 $PM_{2.5}$ SIP were finally approved by EPA in September 2013.

EPA Emissions Standards for Marine Diesel Compression Ignition Engines—Category 1 and 2 Engines

Engine Categories are identified on the basis of engine displacement per cylinder. Category 1 engines have engine displacements per cylinder of less than 5 liters, whereas Category 2 engines have engine displacements of between 5 and 30 liters. Category 1 and 2 engines are often the auxiliary engines on large ocean going vessels (OGVs) as well as auxiliary and propulsion engines on harbor craft. To reduce emissions from these marine diesel engines, EPA established 1999 emission standards for newly built engines, referred to as *Tier 2 marine engine standards*. These standards were based on the land-based standard for non-road engines. The Tier 2 standards were phased in from 2004 to 2007 (year of manufacture), depending on the engine size.

On March 14, 2008, EPA finalized a program to reduce emissions from marine diesel Category 1 and 2 engines (73 FR 88 25098-25352). The regulations introduced Tier 3 and Tier 4 standards, which apply to both new and remanufactured diesel engines. The phase-in of Tier 3 standards began in 2009 for new Category 1 engines and will continue through 2014. The phase-in of Tier 3 standards for new Category 2 engines began in 2013 and will continue through 2014. Tier 4 standards will be phased in for new Category 1 and 2 engines above 600 kW from 2014 to 2017. For remanufactured engines, standards apply only to commercial marine diesel engines above 600 kW when the engines are remanufactured and as soon as certified systems are available.

For the proposed Project and alternatives, 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.

EPA Emission Standards for Large Marine Diesel Engines—Category 3 Engines

Category 3 engines have engine displacements per cylinder greater than 30 liters. Category 3 engines are propulsion engines on OGVs. To reduce emissions from these engines, EPA established 2003 Tier 1 NO_X standards for marine diesel engines above 30 liters per cylinder, large Category 3 marine propulsion engines on U.S. flagged ocean-going vessels (40 CFR Part 9 and 94) (68 FR 9745-9789). The standards went into effect for new engines built in 2004 and later. Tier 1 limits were achieved by engine-based controls, without the need for exhaust gas after-treatment.

In December 2009, EPA adopted Tier 2 and Tier 3 emissions standards for newly built Category 3 engines installed on U.S. flagged vessels, as well as marine fuel sulfur limits. The Tier 2 and 3 engines standards and fuel limits are equivalent to the amendments to MARPOL Annex VI. Tier 2 NO_X standards for newly built engines apply beginning in 2011 and require the use of engine-based controls, such as engine timing, engine cooling, and advanced electronic controls. Tier 3 standards will apply beginning in 2016 in ECAs and would be met with the use of high efficiency emission control technology, such as selective catalytic reduction. The Tier 2 standards are anticipated to result in a 15 to 25% NO_X reduction below the Tier 1 levels; Tier 3 standards are expected to achieve NO_X reductions 80% below the Tier 1 levels (DieselNet 2013a). In addition to the Tier 2 and Tier 3 NO_X standards, the final regulation established standards for hydrocarbon (HC) and CO.

EPA Emission Standards for Non-Road Diesel Engines

To reduce emissions from non-road diesel equipment, EPA established a series of increasingly strict emission standards for new non-road diesel engines. Tier 1 standards were phased in on newly manufactured equipment from 1996 through 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in on newly manufactured equipment from 2001 through 2006. Tier 3 standards were phased in on newly manufactured equipment from 2006 through 2008. Tier 4 standards, which require advanced emission control technology to attain them, are being phased in between 2008 to 2015. These standards apply to construction equipment and CHE.

EPA Emission Standards for Locomotives

In 1997, to reduce emissions from switch and line-haul locomotives, EPA established a series of increasingly strict emission standards for new or remanufactured locomotive engines (63 FR 18997-19084). Tier 0 standards, effective as of 2000, applied to engines manufactured or remanufactured from 1973 to 2001. Tier 1 standards applied to engines manufactured/remanufactured from 2002 to 2004. Tier 2 standards applied to engines manufactured/ remanufactured after 2004.

In 2008, EPA strengthened the Tier 0 through 2 standards to apply to existing locomotives and introduced more stringent Tier 3 and 4 emission requirements (73 FR 88 25098-25352). Tier 3 standards, met by engine design methods, were phased in between 2011 and 2014. Tier 4 standards, which are expected to require exhaust gas after-treatment technologies, become effective starting in 2015 (DieselNet 2013b).

EPA Emission Standards for On-Road Trucks

Heavy-duty trucks are subdivided into three categories by the vehicle's GVWR: light heavy-duty engines (8,500 to 19,500 pounds), medium heavy-duty engines (19,500 to 33,000 pounds), and heavy heavy-duty engines (greater than 33,000 pounds).

To reduce emissions from on-road, heavy-duty diesel trucks, EPA established a series of increasingly strict emission standards for new truck engines. The 1988 through 2003 emission standards applied to truck manufactured between 1988 and 2003. In 1997, EPA adopted new emission standards for model year 2004 and later heavy-duty trucks. The goal of the 1997 regulation was to reduce NO_X engine emissions to approximately 2.0 g/bhp-hr. In 2000, EPA adopted standards for PM, NO_X and nonmethane hydrocarbon (NMHC) for model year 2007 and later heavy-duty highway engines and a 15 ppm limit on the sulfur content of diesel fuel. The NO_X and NMHC standards were phased in between 2007 and 2010; the PM standard applied to 2008 and newer engines. The 15 ppm sulfur limit was required starting in 2006.

EPA Non-Road Diesel Fuel Rule

With this rule, EPA set sulfur limitations for non-road diesel fuel, including locomotives and marine vessels (though not for the marine residual fuel used by very large engines on oceangoing vessels). For the proposed Project and alternatives, this rule affects line-haul locomotives; the California Diesel Fuel Regulation (described below) (CARB 2005a) generally pre-empts this rule for other sources such as yard locomotives, construction equipment, terminal equipment, and harbor craft. Under this rule, the diesel fuel used by line-haul locomotives was limited to 500 ppm starting June 1, 2007 and further limited to 15 ppm sulfur content (ultra-low-sulfur diesel) starting January 1, 2010 for non-road fuel, and June 2012 for and marine and locomotive fuels (EPA 2004).

EPA and National Highway Traffic Safety Administration Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards

In May 2010, EPA, in conjunction with the Department of Transportation's National Highway Traffic Safety Administration (NHTSA), finalized the Light-Duty Vehicle Rule that establishes a national program consisting of greenhouse gas (GHG) emissions standards and Corporate Average Fuel Economy standards for light-duty vehicles (EPA 2010). Light-Duty Vehicle Rule standards first apply to new cars and trucks starting with model year 2012. Although the rule is primarily designed to address GHG emissions, the fuel economy standards portion of the rule would serve to also reduce criteria pollutant emissions. On August 28, 2012, EPA and NHTSA extended the National Program of harmonized GHG and fuel economy standards to model year 2017 through 2025 passenger vehicles (EPA 2012). The 2010 and 2012 rules affect passenger vehicles (i.e., terminal workers) and other light-duty vehicles traveling to the terminal.

General Conformity Rule

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

On April 5, 2010, EPA revised the General Conformity Regulations (40 CFR Parts 51 and 93.153). The revisions were intended to clarify, streamline, and improve conformity determination and review processes, and provide transition tools for making conformity determinations for new NAAQS standards. The revisions also allowed federal facilities to negotiate a facility-wide emission budget with the applicable air pollution control agencies, and to allow the emissions of one precursor pollutant to be offset by the emissions of another precursor pollutant. The revised rules became effective on July 6, 2010.

Based on the current General Conformity rule and attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$ (or any of the $PM_{2.5}$ precursors: NO_X, SO_2, VOC or ammonia), 100 tons of PM_{10}, or 10 tons of NO_X or VOC. These *de minimis* thresholds apply to both proposed Project or alternative construction and proposed Project or alternative 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.

Conformity Statement

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

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

As part of the environmental review of the federal action, USACE conducted a general conformity evaluation pursuant to SCAQMD Rule 1901 and 40 CFR Part 51 Subpart W. The general conformity regulations apply at this time to those actions at LAHD requiring USACE approval, because the portion of the SCAB where the Port is situated is a nonattainment area for ozone and $PM_{2.5}$ and a maintenance area for NO_2 and CO.

USACE began the general conformity evaluation by conducting the applicability analysis in which the calculated federal action emissions are compared to the general conformity *de minimis* thresholds. This applicability analysis is presented in Appendix B1. Following USACE guidance (USACE 1994), the federal actions for this evaluation included construction emissions for the following proposed project elements:

- Sheet piling, dredging and disposal of 21,000 cubic yards required to improve Berths 214–216;
- Sheet piling, dredging and disposal of 6,000 cubic yards required to improve Berths 217–220;
- Berths 212–216 crane rail extension by 1,500 feet to Berths 217–220 to accommodate 100-foot gauge cranes at Berths 217–220;
- Relocation offsite of two LAHD cranes from Berths 217–220;
- Relocation/realignment of two YTI cranes; and
- Delivery and installation of four new cranes.

Modification of six existing YTI cranes Construction of the federal action elements was estimated to require approximately 18 months to complete. Emissions associated with actions taken under the USACE federal control and responsibility were determined for this period. The methodology and assumptions used to estimate emissions are discussed in Section 3.2.4.1. The federal action is not subject to a general conformity determination for CO, VOC (as an ozone and $PM_{2.5}$ precursor), NO_X (as an ozone and $PM_{2.5}$ precursor), PM_{10}, $PM_{2.5}$, or SO_X (as a $PM_{2.5}$ precursor) because the net emissions associated with the federal action would be less than the general conformity *de minimis* thresholds. Therefore, USACE concluded that the federal action as designed would conform to the purpose of the approved SIP and would be consistent with all applicable requirements.

3.2.3.3 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 requires 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.

AB 2650

AB 2650 (Lowenthal) was signed into law by Governor Davis and became effective on January 1, 2003. Under AB 2650, shipping terminal operators are required to limit truck-waiting times to no more than 30 minutes at the Ports of Los Angeles, Long Beach, and

Oakland, or face fines of $250 per violation. A companion piece of legislation (AB 1971) was approved in September 2004 to ensure that the intent of AB 2650 is not circumvented by moving trucks with appointments inside the terminal gates to wait.

CARB Heavy Duty Diesel Vehicle Idling Emission Reduction Regulation

This CARB rule has been in effect for heavy-duty diesel trucks in California since 2008. The rule requires that heavy-duty trucks be equipped with a non-programmable engine shutdown system that shuts down the engine after five minutes or optionally meet a stringent NO_X idling emission standard (CCR Title 13, Section 1956.8 and 2485). This regulation applies to trucks used during construction and operation.

CARB 1998 South Coast Locomotive Emissions Agreement

In 1998, CARB, Class I freight railroads operating in the SCAB (Burlington Northern and Santa Fe and Union Pacific Railroad), and EPA signed the 1998 Memorandum of Understanding (MOU) agreeing to a locomotive fleet average emissions program in the SCAQMD. The 1998 MOU requires that, by 2010, the Class I freight railroad fleet of locomotives in the SCAQMD achieve average emissions equivalent to the NO_X emission standard established by EPA for Tier 2 locomotives (5.5 g/bhp-hr). The MOU applies to both line-haul (freight) and switch locomotives operated by the railroads. This emission level is equivalent, on average district-wide, to operating only federal Tier 2 NO_X-compliant locomotives in the SCAQMD (CARB 1998).

CARB 2005 Railroad Statewide Agreement

In 2005, CARB, Class I freight railroads operating in the SCAB, and EPA signed the 2005 MOU agreeing to several program elements intended to reduce the emission impacts of rail-yard operations on local communities. The 2005 MOU includes a locomotive idling-reduction program, early introduction of lower-sulfur diesel fuel in interstate locomotives, and a visible emission reduction and repair program (CARB 2005b).

CARB California Diesel Fuel Regulation

With this rule, CARB set sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles (CCR Title 13, Sections 2281–2285; CCR Title 17, Section 93114). Harbor craft and intrastate locomotives were originally excluded from the rule, but were later included by a 2004 rule amendment (CARB 2005a). Under this rule, diesel fuel used in motor vehicles except harbor craft and intrastate locomotives has been limited to 500-ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm on September 1, 2006. A federal diesel rule similarly limited sulfur content nationwide to 15 ppm by October 15, 2006. Diesel fuel used in harbor craft in the SCAQMD was limited to 500-ppm sulfur starting January 1, 2006 and 15-ppm sulfur starting September 1, 2006. Diesel fuel used in intrastate locomotives (switch locomotives) was limited to 15-ppm sulfur starting January 1, 2007.

CARB In-Use Off-road Diesel Vehicle Regulation

In 2007, CARB adopted a rule that requires owners of off-road mobile equipment powered by diesel engines 25 hp or larger to meet the fleet average or best available control technology (BACT) requirements for NO_X and PM emissions by March 1 of each year (CCR Title 13, Section 2449). The rule is structured by fleet size: large, medium, and small fleets. The regulation was adopted in April 2008 and subsequently amended to delay the turnover of Tier 1 equipment for meeting the NO_X performance requirements of the regulation, and then to delay overall implementation of the equipment turnover compliance schedule in response to the economic downturn in 2008 and 2009.

In September 2013, CARB received authorization from EPA to enforce the In-Use Off-road Diesel Vehicle Regulation, including the regulation's performance requirements, such as turnover requirements and restrictions on adding older, dirtier Tier 0 and 1 vehicles. Enforcement of the restrictions on adding Tier 0 and 1 vehicles began January 1, 2014. Enforcement of the first fleet average requirements for large fleets (greater than 5,000 total fleet horsepower) will begin on July 1, 2014. For the purposes of this analysis, the regulation was applied to construction activities.

CARB Airborne Toxic Control Measure for Diesel-Fueled Transport Refrigeration Units, Generator Sets, and Facilities Where Transport Refrigeration Units Operate

In 2011, CARB amended the 2004 rule designed to reduce the DPM emissions from in-use TRUs) and TRU generator set engines (CCR Title 13, Section 2477). Under the rule, TRU engines are required to meet in-use performance standards by installing the required level of verified diesel emission control strategy (VDECS) or using an alternative technology. Compliance may also be maintained by replacing the engine with a cleaner new or rebuilt engine.

The in-use performance standards have two levels of stringency (Low Emission and Ultra Low Emission in-use performance standards) that are phased in per the compliance scheduled set forth in the rule.

CARB Measures to Reduce Emissions from Goods Movement Activities

Emission Reduction Plan for Ports and Goods Movement in California

In April 2006, CARB approved the *Emission Reduction Plan for Ports and Goods Movement in California* (CARB 2006b). The Goods Movement Plan proposes measures that would reduce emissions from the main sources associated with port cargo-handling activities, including ships, harbor craft, terminal equipment, trucks, and locomotives. This effort was a step in implementing the *Goods Movement Action Plan (GMAP)* developed by the California Business, Transportation, and Housing Agency (BTH) and Cal/EPA. The final GMAP was released on January 11, 2007, and includes measures to address the various layers of the goods movement system throughout the state including freeways, rail, and ports.

CARB Regulations for Fuel Sulfur and Other Operational Requirements for OGVs within California Waters and 24 Nautical Miles of the California Baseline

In July 2008, CARB approved the Regulation for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline (CCR Title 13, Section 2299.2). These regulations have required ship main engines, auxiliary engines, and auxiliary boilers operating in California waters since July 2009 to either use MDO with a maximum sulfur content of 0.5% or MGO with a maximum sulfur content of 1.5%. By August 1, 2012, these source activities were required to meet an MDO limit of 0.5% or MGO limit of 1.0%. By January 1, 2012, these source activities were required to meet an MDO or MGO sulfur limit of 0.1%, but this requirement was delayed to January 1, 2014.

CARB Regulation to Reduce Emissions from Diesel Auxiliary Engines on OGVs While at Berth at a California Port

In December 2007, CARB adopted a regulation to reduce emissions from diesel auxiliary engines on OGVs while at berth for container, cruise, and refrigerated cargo vessels (CCR Title 17, Section 93118.3). The regulation requires that auxiliary diesel engines on OGVs be shut down for specified percentages of fleet's visits and also for the fleet's at-berth auxiliary engine power generation to be reduced by the same percentages. By 2014, vessel operators are required to shut down their auxiliary engines at berth for 50% of the fleet's vessel visits and also reduce their onboard auxiliary engine power generation by 50%. The specified percentages will increase to 70% in 2017 and 80% in 2020. Vessel operators can also choose an emissions reduction equivalency alternatives; the regulation requires a 10% reduction in OGV hoteling emissions starting in 2010, increasing in stringency to an 80% reduction by 2020 (CARB 2007a).

CARB Regulation Related to Ocean Going Ship Onboard Incineration

CARB adopted this regulation in 2005 and amended it in 2006. As of November 2007, the regulation has prohibited all OGVs greater than 300 registered gross tons from conducting on-board incineration within 3 nm of the California coast.

CARB Mobile Cargo-Handling Equipment at Ports and Intermodal Rail Yards

In December 2005, CARB approved the Regulation for Mobile CHE at Ports and Intermodal Rail Yards (CCR Title 13, Section 2479) designed to use BACT to reduce diesel PM and NO_X emissions from mobile CHE at ports and intermodal rail yards. Since January 1, 2007, the regulation has imposed emission performance standards on new and in-use terminal equipment that vary by equipment type. The regulation also includes recordkeeping and reporting requirements. The effects of this regulation are accounted for in CARB's CHE Inventory Model emission factors used in this study (CARB 2011a). In October 2012, the Office of Administrative Law approved amendments to the CARB regulation to provide additional flexibility for CHE owners/operators in an effort to reduce compliance costs while continuing to reduce emissions (CARB 2012a).

CARB Emission Standards, Test Procedures, for Large Spark Ignition Engine Forklifts and Other Industrial Equipment

Since 2007, CARB has promulgated more stringent emissions standards for hydrocarbon and oxides of nitrogen combined ($HC + NO_X$) emissions and test procedures. The engine emission standards and test procedures were implemented in two phases. The first phase was implemented for engines built between January 2007 and December 2009. The second more stringent phase was implemented for engines built starting in January 2010.

The regulation was amended in 2010 establishing fleet average emissions requirements for existing engines.

CARB California Drayage Truck Regulation

CARB adopted the drayage truck regulation in December 2007 to modernize the class 8 drayage truck fleet (trucks with GVWR greater than 33,000 pounds) in use at California's ports. Emergency vehicles and yard trucks are exempted from this regulation. The regulatory objective is to be achieved in two phases:

1) By December 31, 2009, pre-1994 model year engines were to be retired or replaced with 1994 and newer model year engines. In addition, all drayage trucks with 1994 to 2003 model year engines were required to achieve an 85% PM emission reduction through the use of a CARB-approved Level 3 VDEC.

2) By December 31, 2013, all trucks operating at California ports must comply with the 2007 and newer on-road heavy-duty engine standards.

In December 2010, CARB amended the regulation to include Class 7 drayage trucks with GVWR between 26,000 and 33,001 pounds. The amended regulation required the acceleration of filter replacements to January 1, 2012 for Class 7 trucks in the SCAB and required that Class 7 trucks statewide operate with 2007 or newer emission standard engines by January 1, 2014. CARB furthermore expanded the definition of drayage trucks to include dray-offs, those non-compliant trucks that may not directly come to the ports to pick up/drop off cargo but that engage in moving cargo destined to or originating from port facilities and to/from near-port facilities or rail yards.[4]

CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation—Truck and Bus Regulation

In December 2011, CARB amended the 2008 Statewide Truck and Bus Regulation to modernize in-use heavy-duty vehicles operating throughout the state. Under this regulation, existing heavy-duty trucks are required to be replaced with trucks meeting the latest NO_X and PM BACT or retrofitted to meet these levels.

Trucks with GVWR less than 26,000 (most construction trucks) are required to replace engines with 2010 or newer engines, or equivalent, by January 2023. Trucks with GVWR greater than 26,000 (most drayage trucks) must meet PM BACT and upgrade to a 2010 or newer model year emissions equivalent engine pursuant to the compliance schedule set forth by the rule. By January 1, 2023, all model year 2007 class 8 drayage trucks are required to meet NO_X and PM BACT (i.e., EPA 2010 and newer standards) (CARB 2011b).

CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft

In November 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from new and in-use commercial harbor craft. Under CARB's definition, commercial harbor craft include tug boats, tow boats, ferries, excursion vessels, work boats, crew boats, and

[4] Regulation is preempted by the San Pedro Bay Ports Clean Air Action Plan, Clean Trucks Program (POLA and POLB 2006 and 2010).

fishing vessels. The regulation implemented stringent emission limits on harbor craft auxiliary and propulsion engines. In 2010, CARB amended the regulation to add specific in-use requirements for barges, dredges, and crew/supply vessels.

The regulation requires that all in-use, newly purchased, or replacement engines meet EPA's most stringent emission standards per a compliance schedule set forth by CARB. For harbor craft with home ports in the SCAQMD, the compliance schedule is accelerated by two years, as compared to statewide requirements. The compliance schedule as listed in the 2007 regulation for in-use engine replacement was supposed to begin in 2009, but was not enforced until August 2012, after EPA approved CARB's regulation.

CARB Statewide Portable Equipment Registration Program

The Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB 2011c). Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts. Equipment subject to the PERP must meet weighted fleet average PM emission requirements, per CARB's phased-in compliance schedule, based on engine size. The PERP generally would apply to construction-related dredging and barge equipment.

3.2.3.4 Local Regulations and Agreements

SCAQMD develops Rules and Regulations to regulate sources of air pollution in the SCAB. SCAQMD's regulatory authority applies primarily to stationary sources. The emission sources associated with the proposed Project and alternatives are mobile sources and as such are, for the most part, not subject to the SCAQMD rules that apply to stationary sources, such as Regulation XIII (New Source Review), Rule 1401 (New Source Review of Toxic Air Contaminants), or Rule 431.2 (Sulfur Content of Liquid Fuels). However, several of SCAQMD's prohibition rules do apply to the proposed Project and alternatives as listed below.

SCAQMD Rule 402—Nuisance

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

SCAQMD Rule 403—Fugitive Dust

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

3.2.3.5 LAHD Emission Reduction Programs

LAHD has developed several programs designed to reduce pollution from mobile sources associated with Port operations. Programs pertinent to the proposed Project and alternatives are listed below.

San Pedro Bay Ports Clean Air Action Plan

The Ports of Los Angeles and Long Beach, with the participation and cooperation of EPA, CARB, and SCAQMD staff, developed the San Pedro Bay Ports CAAP, a planning and policy document that sets goals and implementation strategies to reduce air emissions and health risks associated with port operations while allowing port development to continue (POLA and POLB 2006). In addition, the CAAP sought the reduction of criteria pollutant emissions to the levels that ensure port-related sources decrease their "fair share" of regional emissions to enable the SCAB to attain state and federal ambient air quality standards. Each individual CAAP measure is a proposed strategy for achieving these emissions reductions goals. The ports approved the first CAAP in November 2006. Specific strategies to significantly reduce the health risks posed by air pollution from port-related sources include:

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

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

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

The goals set forth as the San Pedro Bay Standards, as part of the 2010 CAAP update, are the most significant addition to the CAAP and include both a Bay-wide health risk reduction standard and a Bay-wide mass emission reduction standard. Ongoing port-wide CAAP progress and effectiveness is measured against these Bay-wide Standards, which consist of the following reductions as compared to 2005 emissions levels:

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

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

The goals set forth as the Source-Specific Performance Standards of the CAAP address a variety of port-related emission sources—ships, trucks, trains, CHE, and harbor craft—and outline specific strategies to reduce emissions from each source category. The Source-Specific Performance Standards have been updated as detailed in Section 2 of the CAAP Update, and the applicable emission control measures (as detailed in Section 4 of the CAAP Update) for the proposed Project and alternatives are discussed below.

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

As the CAAP is a planning document that sets goals and implementation strategies to guide future actions, it does not constrain the discretion of the Board of Harbor Commissioners as to any specific future action. Each individual CAAP measure is a proposed strategy for achieving necessary emission reductions. The Board of Harbor Commissioners uses its discretion in its approvals of projects, leases, tariffs, contracts, or other implementing activities in order to appropriately apply the CAAP to the particular situation, and may make adjustments if any proposed measure proves infeasible or if better alternatives for a measure emerge.

CAAP Measure—SPBP-OGV1, Vessel Speed Reduction Program

Under this voluntary program, LAHD has requested that ships coming into the Port reduce their speed to 12 knots or less within 20 nm of the Point Fermin Lighthouse. Reduction in speed demands less power from the main engine, which in turn reduces fuel usage and emissions. This reduction of 3 to 10 knots per ship (depending on the ship's cruising speed) can substantially reduce emissions from the main propulsion engines of the ships. The program started in May 2001. The CAAP adopted the VSRP as control measure OGV-1 and expanded the program out to 40 nm from the Point Fermin Lighthouse in 2008.

CAAP Measure—SPBP-OGV2, Reduction of At-Berth OGV Emissions

This measure requires the use of shore power to reduce hoteling emissions at all container and cruise terminals by 2014. This measure also requires demonstration and application of alternative emissions reduction technologies for ships that are not viable candidates for shore power, to be facilitated through the Technology Advancement Program (TAP).

CAAP Measures—SPBP-OGV3 and 4, OGV Low Sulfur Fuel for Auxiliary Engines, Auxiliary Boilers, and Main Engines

This measure requires the use of 0.2% or lower sulfur distillate fuels in the auxiliary engines, auxiliary boilers, and main engines of OGVs within 40 nm of Point Fermin and while at berth. For vessel calls that are subject to these measures, due to new lease agreements or renewal, the fuel switch emissions benefits will initially surpass the benefits of CARB's regulation. However, by January 1, 2014, CARB's regulation will surpass these CAAP measures by requiring the use of MGO and MDO with a sulfur fuel content of 0.1% within 24 nm of the California coastline. The analysis assumes compliance with CARB's regulation starting in 2014.

CAAP Measure—SPBP-OGV5 and 6, Cleaner OGV Engines and OGV Engine Emissions Reduction Technology Improvements and Environmental Ship Index Program

Measure OGV5 seeks to maximize the early introduction and preferential deployment of vessels to the San Pedro Bay Ports with cleaner/newer engines meeting the new IMO NO_X standard for ECAs. Measure OGV6 focuses on reducing DPM and NO_X from the legacy fleet through identification and deployment of effective emission reduction technologies.

In order to advance the goals of OGV5 and 6, LAHD approved the voluntary Environmental Ship Index (ESI) Program in May 2012. The ESI Program is an international clean ship indexing program developed through the International Association of Ports and Harbors' World Ports Climate Initiative. Operators registered under this program earn an ESI score for their vessels by using cleaner technology and practices that reduce emissions beyond the regulatory requirements set by IMO. The ESI Program rewards vessel operators for reducing NO_X, SO_X, and GHG emissions in advance of regulatory requirements. The ESI Program also rewards vessel operators for bringing their newest and cleanest vessels to the Port and demonstrating technologies onboard their vessels. This program became effective in July 2012.

CAAP Measure—SPBP-HC1, Performance Standards for Harbor Craft

The measure calls for repowering all harbor craft home-based in the San Pedro Bay to Tier 3 within five years after Tier 3 engines become available. The measure also requires the use of shore power. In addition, LAHD plans to accelerate harbor craft emission reductions through emerging technologies, such as hybrid tugs, more efficient engine configurations, and alternative fuels, through incentives or voluntary measures.

CAAP Measure—SPBP-CHE1, Performance Standards for CHE

This measure calls for 2007 through 2014 phased-in CHE emission reductions beyond CARB's CHE regulation, at the time of terminal lease renewal. As of 2007, CHE purchases were required to meet the cleanest available NO_X available at the time of purchase or install cleanest available VDEC. In addition, by the end of 2010, yard tractors were required to meet, at a minimum, the EPA 2007 on-road or Tier 4 engine standards. By the end of 2012, pre-2007 on-road or pre-Tier 4 off-road toppicks, forklifts, reach stackers, rubber tired gantry cranes (RTGs), and straddle carriers were required to meet EPA 2007 on-road engine standards or Tier 4 off-road engine standards. Finally, by the end of 2014, all CHE with engines greater than 750 hp must meet, at a minimum, the EPA Tier 4 off-road engine standards. Starting in 2007 and until equipment is replaced with Tier 4, all CHE with engines greater than 750 hp were required to be equipped with the cleanest CARB VDEC.

CAAP Measure—SPBP-RL1, Pacific Harbor Line Rail Switch Engine Modernization

This measure implements the switch locomotive engine modernization and emission reduction requirements included in the operating agreements between the ports and the Pacific Harbor Line (PHL). In 2010, PHL entered into a third amendment to their operating agreements, which facilitated the upgrade of their Tier 2 switcher locomotive fleet to meet Tier 3-plus standards. By the end of 2011, PHL upgraded all of its Tier 2 switcher locomotives to meet Tier 3-plus standards.

CAAP Measure—SPBP-RL2, Class 1 Line-Haul and Switcher Fleet Modernization

This measure is designed to identify emission reductions associated with the CARB Class 1 railroads MOU and the 2008 EPA locomotive engine standards. The goal of this measure is for all Class 1 locomotives entering the ports to meet emissions equivalent to Tier 3 locomotive standards by 2023.

CAAP Measure—SPBP-HDV1, Performance Standards for On-Road Heavy-Duty Vehicles; Clean Trucks Program

The Port Clean Trucks Program (CTP) is a central element of the CAAP. The CTP established a progressive ban on polluting trucks. As of October 1, 2008, all pre-1989 trucks were banned from the Port. As of January 1, 2010, all 1989 to 1993 trucks were banned from the Port in addition to 1994 to 2003 trucks that had not been retrofitted. As of January 1, 2012, all trucks that did not meet the 2007 Federal Clean Truck Emissions Standards were banned from the Port. Following full implementation in 2012, Port truck emissions were reduced by more than 90% for DPM, PM and SO_X, and by 79% for NO_X (LAHD 2012c). The analysis assumes full compliance with the CTP.

3.2.3.6 LAHD Sustainable Construction Guidelines

In February 2008, the LAHD Board of Harbor Commissioners adopted the Los Angeles Harbor Department Sustainable Construction Guidelines for Reducing Air Emissions (LAHD Construction Guidelines). These guidelines, updated in November 2009, will be used to establish air emission criteria for inclusion in construction bid specifications. The LAHD Construction Guidelines reinforce and require sustainability measures during performance of the contracts, balancing the need to protect the environment, be socially responsible, and provide for the economic development of the Port. Future Board resolutions will expand the guidelines to cover other aspects of construction, as well as planning and design. These guidelines support the forthcoming Port Sustainability Program. The intent of the LAHD Construction Guidelines is to facilitate the integration of sustainable concepts and practices into all capital projects at the Port and to phase in the implementation of these procedures in a practical yet aggressive manner. Significant features of the LAHD Construction Guidelines include, but are not limited to:

- All ships and barges used primarily to deliver construction-related materials for LAHD construction contracts will comply with the VSRP and use low-sulfur fuel within 40 nautical miles of Point Fermin.
- Harbor craft will meet EPA Tier 2 engine emission standards. This requirement will increase to EPA Tier 3 engine emission standards by January 1, 2011.
- All dredging equipment will be electric.
- On-road heavy-duty trucks will comply with EPA 2004 on-road emission standards for PM_{10} and NO_X and will be equipped with a CARB-verified Level 3 device. Emission standards will increase to EPA 2007 on-road emission standards for PM_{10} and NO_X by January 1, 2012.
- Construction equipment (excluding on-road trucks, derrick barges, and harbor craft) will meet EPA Tier-2 non-road standards. The requirement will increase to Tier 3 by January 1, 2012, and Tier 4 by January 1, 2015. In addition, construction equipment will be retrofitted with a CARB-certified Level 3 diesel emissions control device.
- Comply with SCAQMD Rule 403 regarding fugitive dust and other fugitive dust control measures.
- Additional best management practices, based largely on BACT, will be required on construction equipment (including on-road trucks) to further reduce air emissions.

This EIR analysis assumes that the proposed Project would adopt all applicable LAHD Construction Guidelines as mitigation measures. These measures are incorporated into the emission calculations for the mitigated proposed Project and mitigated alternatives.

3.2.4 Impacts and Mitigation Measures

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

3.2.4.1 Methodology

This section summarizes the methodologies used to assess air quality impacts under CEQA and NEPA. The following types of impacts were analyzed.

- Air pollutant emissions of CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ within the SCAB were estimated for construction and operation of the proposed Project and alternatives. To determine their significance, the proposed Project and alternatives emissions minus the appropriate baseline emissions were compared to Significance Criteria AQ-1 (construction) and AQ-3 (operation) identified in Section 3.2.4.4. The criteria pollutant emission calculations are presented in Appendix B1.
- Dispersion modeling of CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ emissions was performed to estimate maximum offsite air pollutant concentrations from

emission sources attributed to the proposed Project and alternatives. The predicted ambient concentrations associated with construction and operation of the proposed Project and alternatives were compared to Significance Criteria AQ-2 and AQ-4, respectively. A summary of the dispersion modeling methodology is presented in this section, while the complete dispersion modeling report is presented in Appendix B2.

- Dispersion modeling of vehicle traffic also was performed for a worst-case roadway intersection affected by proposed Project- or alternative-generated truck and automobile trips. The maximum predicted CO "hot spot" concentrations near the intersection were compared to Significance Criterion AQ-5.
- The potential for proposed Project- or alternative-generated odors at sensitive receptors in the proposed project vicinity was assessed qualitatively and compared to Significance Criterion AQ-6.
- An HRA of toxic air contaminant emissions associated with construction and operation of the proposed Project and alternatives was conducted in accordance with a Protocol prepared previously by LAHD and reviewed and approved by both CARB and SCAQMD (LAHD 2005). The LAHD protocol is based on the methodology in OEHHA's *Air Toxics Hot Spots Program Risk Assessment Guidelines* (OEHHA 2003). Maximum predicted health risk values in the communities adjacent to the proposed project site were compared to Significance Criterion AQ-7. The HRA analyzed proposed project emissions and human exposure to the emissions during the 70-year period from 2015 to 2084. The HRA includes an evaluation of three different types of health effects: individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index.
- To better apprise the public and decision makers of the proposed Project's environmental impacts under CEQA, the predicted cancer risk for the proposed Project and alternatives is compared to both a CEQA baseline and a future CEQA baseline. The CEQA baseline cancer risk uses 2012 activity levels and 2012 emission factors. The Future CEQA baseline cancer risk also uses 2012 activity levels, but uses emission factors, averaged over a 70-year exposure period, that incorporate the effects of existing air quality regulations. The CEQA baseline cancer risk is typically higher than the future CEQA baseline cancer risk because emission factors for port-related equipment generally decline in response to existing air quality regulations and assumptions regarding equipment fleet turnover. The complete HRA Report is presented in Appendix B3.
- LAHD has developed a methodology for assessing mortality and morbidity in CEQA documents based on the health effects associated with changes in $PM_{2.5}$ concentrations. Because mortality and morbidity studies represent major inputs used by CARB and EPA to set CAAQS and NAAQS, project-level mortality and morbidity is presented in LAHD CEQA documents as a further elaboration of local $PM_{2.5}$ impacts, which are already addressed. Per LAHD policy, mortality and morbidity are quantified if dispersion modeling of ambient air quality concentrations during proposed project operation (Significance Criterion AQ-4) identify a significant impact for 24-hour $PM_{2.5}$. Mortality and morbidity effects are calculated for the population living inside the 2.5 $\mu g/m^3$ proposed project increment isopleth identified during the dispersion modeling.

- Consistency of the proposed Project and alternatives with the AQMP and CAAP was addressed in accordance with Significance Criterion AQ-8.
- Mitigation measures were applied to proposed project and alternative activities that would exceed a significance criterion prior to mitigation, and then evaluated as to their effectiveness in reducing proposed project or alternative impacts.

The emission estimates, dispersion modeling, and health risk estimates presented in this document were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. The numerical results presented in the tables of this report were rounded, often to the nearest whole number, for presentation purposes. As a result, the sum of tabular data in the tables could differ slightly from the reported totals. For example, if emissions from Source A equal 1.2 pounds per day (lbs/day) and emissions from Source B equal 1.4 lbs/day, the total emissions from both sources would be 2.6 lbs/day. However, in a table, the emissions would be rounded to the nearest lbs/day, such that Source A would be reported as 1 lbs/day, Source B would be reported as 1 lbs/day, and the total emissions from both sources would be reported as 3 lbs/day. Although the rounded numbers create an apparent discrepancy in the table, the underlying addition is accurate.

Methodology for Determining Construction Emissions

Proposed project and alternatives construction activities would involve the use of off-road land-side construction equipment, in-water equipment such as dredgers and pile drivers, on-road trucks, tugboats, integrated tug barges used to deliver cranes, and worker vehicles. Because these sources would primarily use diesel fuel, they would generate emissions of diesel exhaust in the form of CO, VOC, NO_X, SO_X, PM_{10} and $PM_{2.5}$. In addition, off-road construction equipment traveling over unpaved surfaces and performing earthmoving activities, such as site clearing or grading, would generate fugitive dust emissions in the form of PM_{10} and $PM_{2.5}$. Worker commute trips would also generate vehicle exhaust and paved road dust emissions.

The equipment utilization and scheduling data needed to calculate emissions for the proposed construction activities were obtained from the proposed project applicant and LAHD Engineering staff and are included in Appendix B1. Activities associated with each construction phase are summarized as follows:

- Phase 1 would consist of deepening Berths 217–220 and expanding the TICTF;
- Phase 2 would consist of deepening Berths 214–216;
- Removal, relocation, and modification of wharf cranes would for the most part take place during Phase 2 and would occur in late 2015 and early 2016;
- Minor upland improvements would occur under both Phase 1 and Phase 2; and
- No physical changes would occur at Berths 212–213 or Berths 221–224.

Phases 1 and 2 would include dredging activities and, as such, would require the disposal of dredged material. All dredged material would be disposed of at an approved site, such as LA-2 ocean disposal site, the Berths 243–245 confined disposal facility (CDF), or a land-based location. In 2013, LAHD tested sediment at Berths 217–220 and 214–216 to determine whether dredged material from these locations would be suitable for disposal at LA-2. The testing showed that the majority of the material to be dredged would be suitable for disposal at LA-2. Section 3.15 discusses test results and determinations.

LAHD would pursue a permit from the Los Angeles Regional Water Quality Control Board (RWQCB) to dispose of the majority of the dredged material in LA-2. However, because RWQCB had not issued a permit for disposal at LA-2 at the time of the air quality analysis, the analysis calculated emissions associated with both ocean disposal and land disposal. The disposal method that resulted in the higher emissions for each specific pollutant was conservatively used for impact determination.

To estimate peak daily construction emissions for comparison to SCAQMD emission thresholds, emissions were first calculated for the individual construction activities (for example, wharf construction, marine terminal crane delivery, or upland construction). Peak daily emissions were then determined by summing emissions from overlapping construction activities as indicated in the proposed construction schedule (Table 2-4). The SCAQMD emission thresholds are discussed in Section 3.2.4.4.

The specific approaches to calculating emissions for the various emission sources during construction of the proposed Project and alternatives are discussed below. Table 3.2-3 includes a summary of the regulations and agreements that were assumed as part of the proposed Project in the construction calculations. Construction emission calculations are presented in Appendix B1.

Table 3.2-3: Regulations and Agreements Assumed in the Unmitigated Construction Emissions

Off-road Construction Equipment	On-Road Trucks	Tugboats/Harbor Craft	Delivery Ships	Fugitive Dust
EPA Emission Standards for Non-road Diesel Engines: Tier 1, 2, 3, and 4 standards gradually phased in over all years due to normal construction equipment fleet turnover. **CARB In-Use Off-road Diesel Vehicle Regulation:** Off-road mobile equipment powered by diesel engines 25 hp or larger are required to meet the fleet average or BACT requirements for NO_X and PM emissions. **California Diesel Fuel Regulation**: 15-ppm sulfur. **CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft**: Harbor craft are subject to engine replacement/retrofit schedule set forth by CARB. **CARB Portable Diesel-Fueled Engines Air Toxic Control Measure (ATCM)**: Portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel must meet weighted fleet average PM emission standards.	**EPA Emission Standards for On-Road Trucks**: Increasingly stringent engine standards phased in due to truck turnover. **CARB Heavy Duty Diesel Vehicle Idling Emission Reduction**: Diesel trucks are subject to idling limits when not being used to power concrete mixing, water pumps, etc. **CARB Statewide Truck and Bus Regulation**: Trucks less than 26,000 GVWR are required to replace engines with 2010+ engines by January 2023. Trucks with GVWR greater than 26,000 must meet PM BACT and upgrade to a 2010+ model year emissions equivalent engine pursuant to the rule compliance schedule. **California Diesel Fuel Regulation**: 15-ppm sulfur.	**California Diesel Fuel Regulation:** 15-ppm sulfur. **CARB Regulation to Reduce CARB Emissions from Diesel Engines on Commercial Harbor Craft**: Harbor craft are subject to engine replacement/retrofit schedule set forth by CARB.	**IMO Marpol VI**: 0.1% sulfur fuel. **VSRP**: Comply with the expanded Vessel Speed Reduction Program (VSRP) of 12 knots between 40 nm from Point Fermin and the Precautionary Area.	**SCAQMD Rule 403 Compliance**: 61% reduction in fugitive dust via watering three times per day.

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

Off-road Construction Equipment

Emissions of VOC, NO_X, PM_{10}, and $PM_{2.5}$ from diesel-powered construction equipment were calculated using emission factors derived from the CARB Off-road 2011 Emissions Inventory Database for equipment representative of the SCAB (CARB 2011a). Emission factors were calculated for each type of equipment based on the horsepower rating of the equipment and corresponding equipment activity levels. The CARB database output shows that, on a per-horsepower-hour basis, emission factors will steadily decline in future years as older equipment is replaced with newer, cleaner equipment that meets the already-adopted future state and federal off-road engine emission standards. CO emission factors were derived from CARB's Off-road 2007, based on equipment operating in the SCAB because CARB's Off-road 2011 inventory database does not provide CO estimates. SO_X emission factors were calculated based on 15 ppm sulfur fuel content and on the brake-specific fuel consumption (BSFC) provided by the 2011 Off-road inventory database.

On-Road Trucks

Emissions from on-road, heavy-duty diesel trucks during proposed project and alternatives construction were calculated using emission factors generated by the EMFAC2011 on-road mobile source emission factor model for a truck fleet representative of the SCAB (CARB 2011a). The EMFAC2011 model output shows that, on a per-mile basis, emission factors will steadily decline in future years as older trucks are replaced with newer, cleaner trucks that meet the required state and federal on-road engine emission standards. Other assumptions regarding on-road trucks during construction include:

- The average one-way trip travel distances for trucks were assumed to be 20 miles for haul trucks, 200 miles for trucks hauling dredged materials, 65 miles for pile/concrete/rail delivery trucks, and 0.5 mile on site (CAPCOA 2013; LAHD 2013c).
- Non-incidental onsite truck idling times were assumed to be 5 minutes per one-way trip.

Crane Delivery Ships

One crane delivery ship would be used to deliver marine terminal cranes during construction Phase 2. Emissions from the main engines, auxiliary engines, and boilers were calculated using engine size, load, and emission factors provided by LAHD, based on similar ships in the LAHD database of ships having visited the Port (LAHD 2014). At low loads in the precautionary zone and within the harbor, the emission factors for main engines were adjusted higher, on a per kilowatt hour (kWh) basis, using low-load adjustment factors (LAHD 2012a).

The following assumptions were made regarding crane delivery ship used during construction:

- One crane delivery ship is capable of transporting up to four cranes. As a result, one crane delivery ship would be required for the construction phase of the proposed Project.
- The crane delivery ship would arrive at and remain at berth (hoteling) for approximately 7 working days while up to four cranes are side-shifted onto the wharf, and then depart.
- The crane delivery ship would hotel for 24 hours during each day it is at berth.
- During hoteling, the crane delivery ship was assumed to turn off the main engines but leave the auxiliary engines running for the duration of the ship call.

- The maximum sulfur content of fuel burned in propulsion and auxiliary engines was assumed to be 0.1%.
- Crane delivery and associated crane delivery ship emissions were conservatively assumed to overlap with other construction elements.

Tugboats

Tugboats would be used during construction to assist dredging barges and scows. Tugboat main and auxiliary engine sizes and load factors were obtained from the 2012 Port Emissions Inventory (LAHD 2012a). Emission factors were derived based on the EPA standards for marine compression-ignition engines.

The fuel sulfur content for Port tug boats has been 15 ppm starting September 1, 2006. The fuel sulfur content limits are required for California harbor craft in accordance with the California Diesel Fuel Regulation (CARB 2005a).

Fugitive Dust

Fugitive dust emissions (PM_{10} and $PM_{2.5}$) from grading and material loading/handling activities would occur during upland improvements. Earthmoving and bulldozing activities are not anticipated for the proposed project or alternatives construction. Emission factors for these fugitive dust sources were derived from EPA's compilation of emission factors, AP-42 Section 11.9 (EPA 1998) and CalEEMod (CAPCOA 2013). The activity information necessary to quantify fugitive dust emissions from grading and material loading/handling was provided by LAHD's Engineering Division (LAHD 2013c).

In addition, fugitive dust in the form of PM_{10} and $PM_{2.5}$ would result from vehicles traveling on paved roads. These emissions were calculated using Section 13.2.1 of EPA's AP-42 (EPA 2011). Because the existing proposed project site and surrounding areas are paved, no transit on unpaved roads is anticipated.

Finally, fugitive dust emissions from upland development were reduced by 61% from uncontrolled levels to reflect compliance with SCAQMD Rule 403 for unmitigated conditions. The dust-control methods would be specified in the dust-control plan that must be submitted to SCAQMD per Rule 403.

Fugitive Emissions from Asphalt Paving

VOC emissions from asphalting activities would occur during upland improvements. The VOC emission factor for asphalt paving was obtained from CalEEMod (CAPCOA 2013). The activity information necessary to quantify VOC emissions from asphalt paving was provided by LAHD's Engineering Division (LAHD 2013c).

Worker Commute Trips

Emissions from worker trips during construction of the proposed Project and alternatives were calculated using EMFAC2011 emission factors, which are based on SCAQMD default assumptions for vehicle fleet mix and average travel speeds. The peak number of workers was determined by multiplying the active pieces of equipment for each construction element by a factor of 1.25, per CalEEMod (CAPCOA 2013). It was assumed that each worker would travel a distance of 12.7 miles each way (CAPCOA 2013), for a roundtrip total of 25.4 miles per worker.

Methodology for Determining Operational Emissions

Operational emission sources include container ships, tugboats, on-road trucks, trains, and CHE. Because these sources would use diesel fuel, they would generate emissions of diesel exhaust in the form of CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. In addition, when ships are using AMP, indirect emissions would be created by regional power plants burning fossil fuels to generate the electricity consumed by the hoteling ships. Worker commute trips would generate primarily gasoline vehicle exhaust and paved road dust emissions.

Information regarding the activity and characteristics of proposed operational emission sources was obtained primarily from LAHD staff, YTI staff, the proposed project traffic study conducted as part of this Draft EIS/EIR (Section 3.6, Ground Transportation), and the 2012 Port Emissions Inventory (LAHD 2012a). Activity and utilization assumptions used to estimate peak daily operational emissions for comparison to SCAQMD emission thresholds represent upper-bound estimates of activity levels at the terminal, would occur infrequently, and, therefore, represent a conservative set of assumptions.

Table 3.2-4 summarizes the regulations assumed in the unmitigated operational emissions calculations. Current in-place regulations are treated as proposed project elements rather than mitigation because they represent enforceable rules with or without proposed project approval. Only current regulations and agreements were assumed as part of the unmitigated proposed project emissions for the various analysis years. CAAP measures planned for future implementation at a project level were treated as mitigation.

Table 3.2-4: Regulations and Agreements Assumed as Part of the Unmitigated Operational Emissions

Container Ships	Tugboats	Terminal Equipment	Trucks	Trains
MARPOL Annex VI: 0.1% sulfur limit for fuels, beginning in 2015 (200 nm of CA coast). NO_X engine emission limits for new engines.[a] **EPA Engine Standards for Marine Diesel Engines:** NO_X, HC, and CO engine emission standards for new engines.[b] **CARB Airborne Toxic Control Measure for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels Within California Waters and 24 Nautical Miles of the California Coast:** Limits sulfur content for marine gas oil or marine diesel oil to 0.1% sulfur by January 2014. **CARB Regulation to Reduce Emissions from OGV Auxiliary Engines at Berth:** Operational limits for OGV auxiliary engines while at hoteling at berth: 50% in 2014, 70% in 2017, and 80% in 2020. **CAAP Vessel Speed Reduction Program:** 95% compliance to 20 nm.	**EPA Engine Standards for Marine Diesel Engines:** NO_X, HC, and CO engine emission standards for new engines. **CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft:** Requires that harbor craft engines meet EPA's most stringent emission standards per an accelerated, rule-specified compliance schedule. **California Diesel Fuel Regulation:** 15 ppm sulfur.	**EPA Emission Standards for Non-road Diesel Engines:** Engine standards for newly built engines. **CARB Mobile CHE at Ports and Intermodal Rail Yards:** Emission performance standards on new and in-use terminal equipment. **California Diesel Fuel Regulation:** 15-ppm sulfur.	**EPA Emission Standards for On-road Trucks:** Tiered standards gradually phased in over all years due to normal truck fleet turnover. **California Diesel Fuel Regulation:** 15-ppm sulfur. **Heavy Duty Diesel Vehicle Idling Emission Reduction Regulation:** Idling limits for on-terminal trucks. **CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation:** Trucks are required to replace engines with 2010+ engines by January 2023. Trucks with GVWR greater than 26,000 must also meet PM BACT. **CAAP Clean Truck Program:** In January 2012, banned all trucks that did not meet 2007+ EPA standards for heavy duty trucks.	**EPA Emission Standards for Locomotives:** Tier 0 through Tier 4 standards gradually phased in over all years due to normal locomotive fleet turnover. **CARB 1998 South Coast Locomotive Emissions Agreement:** Cleaner NO_X Class I locomotives. **CAAP PHL Rail Switch Engine Modernization:** All PHL locomotives meet Tier 3 or 4 standards. **CARB Non-road Diesel Fuel Rule:** 15-ppm sulfur starting January 1, 2012. Applies to all line-haul locomotives. **California Diesel Fuel Regulation:** 15-ppm sulfur. Applies to all switch locomotives.

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

[a] 100% compliance with IMO Annex VI sulfur limits in SO_X Emission Control Areas is assumed and analyzed. Compliance with IMO Annex VI engine standards is assumed but not analyzed because IMO engine standards apply to newly built engines and the mix of vessels with new or older engines visiting the YTI terminal cannot be accurately predicted.
[b] Compliance with EPA engine standards is assumed but not analyzed because engine standards apply to newly built engines and the mix of vessels with new or old engines visiting the YTI terminal cannot be accurately predicted.

The methodology for calculating emissions for the various emission sources during proposed project and alternatives operations is discussed below. Because the proposed Project is within the SCAB, the analysis scope is also limited to the SCAB and to the thresholds established by SCAQMD for that jurisdiction. The SCAQMD thresholds are discussed in Section 3.2.4.4. The operational emission calculations are presented in Appendix B1.

Container Ships

Emissions from container ship main engines, auxiliary engines, and boilers were calculated using emission factors reported in the 2012 Port Emissions Inventory (LAHD 2012a) and activity provided by LAHD. Sulfur fuel content and emission factors were adjusted to conform to IMO and CARB requirements. The assumptions below were applied to estimate unmitigated emissions.

Emission Factor Assumptions:

- Emission factors for propulsion engines, auxiliary engines, and auxiliary boilers were obtained from the 2012 Port Emissions Inventory (LAHD 2012a). The 2012 Port Emissions Inventory provided emission factors for ship TEU categories reflected in the 2012 baseline operations and future year operations.
- Emission factors for propulsion and auxiliary engines are dependent upon engine tier, which in turn is dependent upon engine age. Starcrest provided the average age of vessels that called at the YTI terminal in 2012 (Starcrest 2013a). Because most of the vessels were on average 10 years old, emission factors corresponding to IMO Tier 1 for slow-speed diesel propulsion engines (model years 2000 to 2010) and IMO Tier 1 for medium-speed diesel auxiliary engines were used in the analysis. The mix of older and newer ships calling at YTI in future years cannot be accurately predicted and was conservatively assumed to remain unchanged from the 2012 baseline scenario.
- Emission factors were adjusted for the appropriate sulfur fuel content.

Engine and Boiler Load Assumptions:

- Main engine, auxiliary engine, and boiler loads were obtained from the 2012 Port Inventory (LAHD 2012a).
- Ship auxiliary boilers were assumed to operate at engine loads less than or equal to 20% (LAHD 2012a).
- During transit, main engine load factors were determined using the propeller law, which states that the engine load factor is proportional to the speed of the ship cubed. At low loads, the emission factors for main engines were adjusted higher, on a per kWh basis, using low-load adjustment factors (LAHD 2012a).

Fuel Sulfur Content Assumptions:

- 0.5% fuel sulfur content was assumed for peak day and annual ship calls in the 2012 CEQA baseline year, per CARB's *ATCM for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline* and MARPOL Annex VI (DieselNet 2013a; IMO 2008). This is a conservative assumption for the baseline because MARPOL Annex VI allowed for higher fuel sulfur in 2012 and CARB's regulation allowed for higher fuel sulfur content in the first 7 months of 2012. The use of the lower sulfur fuel in the baseline analysis yields a lower baseline and conservative incremental impacts when baseline is subtracted from the proposed Project and alternatives for determination of significance.

- 0.1% fuel sulfur content was assumed for peak day and annual ship calls in all future analysis years, per CARB's *ATCM for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline* and MARPOL Annex VI.

VSRP Assumptions:

- Annual VSRP compliance between the precautionary zone and 20 nm in 2012 and all analysis years was assumed to be 95% without mitigation, which is the minimum compliance rate for VSRP recognition by LAHD.
- Annual VSRP compliance between 20 nm and 40 nm in 2012 and all analysis years was assumed to be 77% without mitigation. This compliance rate was provided by Starcrest for ships having called at the YTI terminal in 2012 (Starcrest 2013a).
- Peak day VSRP compliance was derived using a probability simulator to estimate the probability of VSRP compliance on a peak day, given the number of peak day vessel transits and annual rate of VSRP compliance. For example, on a peak day with four ship transits and an annual VSRP compliance rate of 95%, the number of ships assumed to actually comply with VSRP was conservatively assumed to be three, because 98.5% of all simulations predicted at least three ships observing VSRP. This methodology was used for transit between the precautionary zone and 20 nm as well as for transit between 20 nm and 40 nm for the baseline and all future analysis years.

Hoteling Assumptions:

- During hoteling (without AMP), ships were assumed to turn off main engines but leave the auxiliary engines and boilers running.
- Hoteling times used in annual calculations during the 2012 baseline year were provided by Starcrest for ships that visited YTI in 2012 and averaged 49 hours per call (Starcrest 2013a).
- The average hoteling time of 50.4 hours per call for future analysis years was provided by YTI and was based on anticipated shipping schedules, future projected lifts per call, ship work rates, and crane productivity (YTI 2013).
- The average hoteling time is not anticipated to increase in future years because increased throughput would be handled with increased crane activity.
- Peak day hoteling times were provided by YTI for each analysis year and ship category and were based on anticipated shipping schedules, future projected lifts per call, ship work rates, and crane productivity (YTI 2013).

AMP Assumptions:

- With AMP, the auxiliary engines would be turned off, but boilers would continue to operate.
- Berths 214–216 had viable shore power in the 2012 baseline year. According to information provided by Starcrest, 9% of annual ship calls at the YTI terminal used AMP at Berths 214–216 during the baseline year (Starcrest 2013a).
- In future analysis years, annual AMP utilization was assumed to increase in accordance with CARB's Regulation to Reduce Emissions from OGV Auxiliary

Engines at Berth. Per regulatory requirements, it was assumed that 70% of ships would use AMP in 2017, 80% in 2020, and 80% in 2026 (CARB 2007a).

- Peak day AMP utilization was derived using the same probability simulator that was used to estimate the probability of VSRP compliance. For example, in analysis year 2020 when AMP compliance will be 80%, the simulator model predicted that out of four peak day vessel calls, two vessel calls could be reasonably assumed to use AMP (97% of all simulations predicted at least two vessels using AMP).
- It was assumed that a vessel would require approximately 3 hours to engage and disengage from AMP (CARB 2007b).

Additional Assumptions:

- Ship transit emissions were calculated from berth to the edge of the SCAB over-water boundary (roughly a 50-mile one-way trip).
- Some arriving container ships are unable to proceed directly to the berth, but instead must wait at a designated anchorage point either inside or outside the breakwater until given clearance to proceed to the berth. Average anchorage times for each container ship size were provided by Starcrest for the 2012 baseline year, based on 2012 data for YTI ship visits (Starcrest 2013a). Similar to hoteling, the main engine is assumed to be turned off during anchorage, while the auxiliary engines and boilers are assumed to remain running.
- 5% of all annual berth calls were assumed to anchor in the harbor prior to calling at the terminal in future analysis years. This percentage was derived from the anchorage calls and total ship calls reported in the 2012 Port Inventory (LAHD 2012a).
- The peak day scenario assumed no anchorage; the peak day is represented by vessels transiting and berthing.
- Fuel slide valves installed on main propulsion engines result in better combustion, lower fuel consumption and reduced emissions. 27% of annual ship calls in 2012 were equipped with fuel slide valves. This information was provided by Starcrest based on survey of vessels that called at the YTI terminal in 2012 (Starcrest 2013a). The percentage of ships equipped with fuel slide valves was conservatively assumed to remain the same in future analysis years.
- The peak day analysis conservatively assumed that ships would not be equipped with fuel slide valves.

Activity Assumptions:

Table 3.2-5 shows TEU throughput, ship calls by ship size category, and peak day ship activity for the 2012 baseline and future analysis years. The table also shows which berths would be operational and which berths would be equipped with AMP in the different analysis years.

Table 3.2-5: Annual TEU Throughput, Annual Ship Calls by Ship Size, and Peak Day Activity

	CEQA Baseline	Operation during Construction Years		Operation during Future Analysis Years		
	2012	2015[a]	2016[a]	2017	2020	2026
Proposed Project						
Annual TEU Throughput	996,109	1,230,126	1,267,816	1,380,253	1,596,153	1,913,000
Annual Ship Calls by Ship TEU						
1,000–1,999	10					
2,000–2,999	37	52	52	52	52	52
3,000–3,999		52	52	52	52	52
4,000–4,999	1					
5,000–5,999	9					
6,000–6,999	87	94	94	77		
7,000–7,999	5	8	8			
8,000–9,999					52	
10,000–10,999						52
11,000–11,999						
12,000–13,000				25	50	50
Reefer	13					
Total Annual Ship Calls	162	206	206	206	206	206
Peak Day Ship Calls—Ships at Berth	3	4	4	4	4	4
Peak Day Number of Transits	3	4	4	4	4	4
Operating Berths	212–213 214–216	212–213 214–216	212–213 217–220	212–213 214–216 217–220	212–213 214–216 217–220	212–213 214–216 217–220
AMP Berths	214–216	212–213 214–216	212–213 217–220	212–213 214–216 217–220	212–213 214–216 217–220	212–213 214–216 217–220
Alternative 1—No Project, Alternative 2—No Federal Action / NEPA Baseline						
Annual TEU Throughput		1,230,126	1,267,816	1,306,611	1,430,376	1,692,000
Annual Ship Calls by Ship TEU						
1,000–1,999						
2,000–2,999		52	52	52	52	52
3,000–3,999		52	52	52	52	52
4,000–4,999						
5,000–5,999						
6,000–6,999		94	94	52		
7,000–7,999		8	8			
8,000–9,999				50	102	102

Table 3.2-5: Annual TEU Throughput, Annual Ship Calls by Ship Size, and Peak Day Activity

	CEQA Baseline	Operation during Construction Years		Operation during Future Analysis Years		
	2012	2015[a]	2016[a]	2017	2020	2026
Total Annual Ship Calls		206	206	206	206	206
Peak Day Ship Calls—Ships at Berth		4	4	4	4	4
Peak Day Number of Transits		4	4	4	4	4
Operating Berths		212–213 214–216	212–213 214–216	212–213 214–216	212–213 214–216	212–213 214–216
AMP Berths		212–213 214–216	212–213 214–216	212–213 214–216	212–213 214–216	212–213 214–216
Alternative 3—Reduced Project						
Annual TEU Throughput	996,109	1,230,126	1,267,816	1,380,253	1,596,153	1,913,000
Annual Ship Calls by Ship TEU						
1,000–1,999						
2,000–2,999		52	52	52	52	52
3,000–3,999		52	52	52	52	52
4,000–4,999						
5,000–5,999						
6,000–6,999		94	94	52	26	26
7,000–7,999		8	8			
8,000–9,999					52	
10,000–11,000				50	50	102
Total Annual Ship Calls		206	206	206	232	232
Peak Day Ship Calls—Ships at Berth		4	4	4	5	5
Peak Day Number of Transits		4	4	4	5	5
Operating Berths		212–213 214–216	212–213 214–216	212–213 214–216 217–220	212–213 214–216 217–220	212–213 214–216 217–220
AMP Berths		212–213 214–216	212–213 217–220	212–213 214–216 217–220	212–213 214–216 217–220	212–213 214–216 217–220

Notes:

[a] Operational activity during construction years 2015 and 2016 is presented because operation would overlap construction during these years. Operational activity would be the same for the proposed Project and all alternatives during the construction years.

Tugboats

During proposed project operations, tugboats would be used to assist container ships while maneuvering and docking inside Port breakwater. The assumptions below were applied to estimate peak day and annual unmitigated emissions.

- Two tugboats were assumed for each arrival/departure assist of a container ship.
- Tugboat transit time was assumed to equal the average of container ship transit times in the harbor, multiplied by 1.3 to account for tug movement and assist time (LAHD 2011).
- Tugboat main and auxiliary engine sizes and load factors were obtained from the 2012 Port Emissions Inventory (LAHD 2012a).
- Tugboat emission factors were derived based on EPA standards for marine compression-ignition engines. The applicable engine Tiers were determined based on EPA requirements for new engines, average age and size of tugboats operating in the Port, and CARB harbor craft compliance schedule (CARB 2010a).
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB 2005a).
- SO_X emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Cargo-Handling Equipment

CHE includes yard tractors, RTGs, top handlers, forklifts, sweepers, and other miscellaneous equipment. All equipment is assumed to be diesel powered with the exception of a certain number of propane-powered forklifts. The marine terminal cranes used to lift containers on and off container ships would be electric and, therefore, would have no direct emissions. Yard tractors and top handlers would operate at both the YTI terminal and the YTI portion of the TICTF.

The following assumptions were applied to estimate peak day and annual unmitigated emissions:

- Annual and peak day 2012 baseline activity was provided by YTI in hours for each type of CHE. CHE activity in future analysis years was derived based on projected terminal throughput.
- CHE model year and load factors were provided by Starcrest (Starcrest 2013a).
- Emission factors were derived from CARB's CHE inventory model (CARB 2011a).
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB 2005a).
- SO_X emission factors were determined from the fuel consumption rate and the 15 ppm sulfur content of diesel fuel.

Annual and peak daily activity (hours) by CHE type are presented in Table 3.2-6.

Table 3.2-6: Annual and Peak Day CHE Activity and Size Parameters

CHE Type	HP/Load Factor	2012 CEQA Baseline	Operation during Construction Years[a]		Operation during Future Analysis Years		
			2015	2016	2017	2020	2026
Proposed Project and Alternative 3 (Reduced Project): Annual (Peak Daily) Hours of Operation							
Forklift (Diesel)	191/.30	5,637 (80)	6,961 (99)	7,175 (102)	7,811 (111)	9,033 (128)	10,826 (154)
RTG cranes	451/.20	21,704 (96)	26,803 (119)	27,624 (122)	30,074 (133)	34,778 (154)	41,682 (184)
Sweeper	240/0.68	2,086 (6)	2,086 (6)	2,086 (6)	2,086 (6)	2,086 (6)	2,086 (6)
Top handler (terminal)	318/.59	50,629 (288)	62,523 (356)	64,439 (367)	70,154 (399)	81,127 (461)	97,232 (553)
Top handler (TICTF)	318/.59	6,777 (32)	8,369 (40)	8,626 (41)	9,391 (44)	10,859 (51)	13,015 (61)
Yard tractor (terminal)	201/.39	171,929 (1,280)	212,320 (1,581)	218,826 (1,629)	238,232 (1,774)	275,497 (2,051)	330,185 (2,458)
Yard tractor (TICTF)	201/.39	21,758 (128)	26,870 (158)	27,693 (163)	30,149 (177)	34,865 (205)	41,786 (246)
Forklift (propane)[b]	58/0.3	1,726 (7)	2,131 (7)	2,197 (7)	2,392 (8)	2,766 (9)	3,315 (11)
Alternative 1 (No Project) and Alternative 2 (No Federal Action): Annual (Peak Daily) Hours of Operation							
Forklift (Diesel)	191/.30				7,394 (105)	8,095 (115)	9,575 (136)
RTG cranes	451/.20				28,469 (126)	31,166 (138)	36,867 (163)
Sweeper	240/0.68				2,086 (6)	2,086 (6)	2,086 (6)
Top handler (terminal)	318/.59				66,411 (378)	72,701 (414)	85,999 (489)
Top handler (TICTF)	318/.59		Same as proposed Project and Alternative 3		8,889 (42)	9,732 (46)	11,511 (54)
Yard tractor (terminal)	201/.39				225,522 (1,679)	246,884 (1,838)	292,040 (2,174)
Yard tractor (TICTF)	201/.39				28,540 (168)	31,244 (184)	36,958 (217)
Forklift (propane)[b]	58/0.3				2,264 (7)	2,478 (8)	2,932 (9)

Notes:

[a] Operational activity during construction years 2015 and 2016 is presented because operation would overlap construction during these years. Operational activity would be the same for the proposed Project and all alternatives during the construction years.

[b] Forklift (propane) annual activity is in gallons per year and gallons per day for peak day activity.

Trucks

The assumptions below were applied to estimate peak day and annual unmitigated emissions.

- Emissions from on-road, heavy-duty diesel trucks hauling containers during proposed project and alternative operations were calculated using emission factors generated by the EMFAC2011 on-road mobile source emission factor model (CARB 2011a). EMFAC2011 was run by Starcrest using the Port fleet mix for the baseline and future proposed project and alternative years.
- The Port's truck fleet mix reflects the Clean Truck Program, which banned pre-1989 trucks from Port services in October 2008 and all trucks that did not meet 2007 and newer on-road heavy duty truck standards by January 1, 2012.
- Trucks fueled with liquefied natural gas (LNG) composed 10% of the POLA truck calls in the 2012 baseline year (Starcrest 2013a). Although the percentage of alternative fueled drayage trucks is likely to increase in future years, the fleet was conservatively assumed to remain 10% LNG trucks for all proposed project analysis years. LNG trucks are subject to the same emission standards as diesel trucks, and therefore were assumed to have the same criteria pollutant emission factors as diesel trucks. However, DPM emissions, a key contributor to cancer risk impacts, were assumed to be only 1.5% of PM_{10} exhaust emissions, because Starcrest reports that 15% of LNG trucks are dual-fueled and use 10% diesel fuel (resulting in an average use of 1.5% diesel fuel for all LNG trucks).
- PM_{10} and $PM_{2.5}$ emissions from paved road dust were calculated and added to the EMFAC2011 emissions from truck exhaust, tire wear, and brake wear. Road dust emission factors for on-terminal driving, off-terminal local streets, and freeways were derived from Section 13.2 of EPA's AP-42 compilation of emission factors (EPA 2011).
- Truck idling time was assumed to be 6 minutes at the in-gate and 8 minutes at the out-gate. Average on-terminal idling, not including at-gate idling times, was assumed to be 10 minutes. Truck idling times were provided by YTI (YTI 2013).
- On-terminal drive distance was assumed to be 1.5 miles per round trip at an average speed of 10 mph (YTI 2013).
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB 2005a).

Truck activity was provided by the traffic consultant, and is summarized in Table 3.2-7.

Table 3.2-7: Annual and Peak Day Truck Trips and Operating Hours

Parameter	2012 CEQA Baseline	Operation during Construction Years[a] 2015	2016	Operation during Future Analysis Years 2017	2020	2026
Proposed Project and Alternative 3 (Reduced Project)						
Annual Truck Trips	907,176	931,410	946,086	1,014,899	1,156,692	1,347,939
Peak Day Truck Trips	3,081	3,300	3,401	3,703	4,220	4,918
Truck Gate Operating Hours (hours/day by days/week)	3 days/week x 8 hrs; 3 days/week x 16 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs
Alternative 1 (No Project) and Alternative 2 (No Federal Action)						
Annual Truck Trips	Same as Proposed Project and Alternative 3			960,749	1,036,557	1,222,690
Peak Day Truck Trips				3,505	3,782	4,461
Truck Gate Operating Hours (hours/day by days/week)				2 days/week x 9 hrs; 4 days/week x 18 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs	2 days/week x 9 hrs; 4 days/week x 18 hrs

Notes:
[a] Operational activity during construction years 2015 and 2016 is presented because operation would overlap construction during these years. Operational activity would be the same for the proposed Project and all alternatives during the construction years.

Trains

The Berths 212–224 terminal generates train trips to and from the on-dock rail yard (TICTF) as well as near- and off-dock rail yards. Containers arriving and departing via a near- or off-dock rail yard are transported between the terminal and rail yard by drayage trucks. Emissions associated with hauling containers by rail include diesel exhaust from PHL locomotives performing switching activities at the on-dock rail yard, Class I switch locomotives performing switching activities at the near- and off-dock rail yards, and line-haul locomotive emissions used during transport within the SCAB and idling at the rail yards.

The assumptions below were applied to estimate peak day and annual unmitigated emissions.

- Class I switch and line haul locomotive emissions for VOC, NO_X, and PM_{10} were calculated from EPA emission factors (EPA 2009), with the exception of line haul locomotive emission factors for NO_X in years 2012 through 2015. NO_X emission factors in years 2012 through 2015 reflect compliance with the 1998 MOU, and are based on the most recent 2011 compliance report at the time the emission calculations were performed (Starcrest 2013b). By 2016, EPA line haul locomotive emission factors become cleaner than the MOU emission factor due to anticipated locomotive fleet turnover; therefore, national fleet average emission factors for NO_X were used starting in 2016.

- The emission factors for PHL switch locomotives at the on-dock rail yard were based on PHL's 2012 switch engine fleet and fleet turnover assumptions for future proposed project analysis years. The active PHL switcher locomotive fleet in the baseline year of 2012 consisted of a combination of Tier 3-plus and genset locomotives (LAHD 2012a). For future analysis years, the gensets were assumed to convert to Tier 4 locomotive standards based on a 15-year repower schedule. The Tier 3-plus locomotives were assumed to be replaced with Tier 4 locomotives based on a 30-year lifetime.
- The fuel sulfur content was assumed to be 15 ppm for all analysis years, in accordance with California Diesel Fuel Regulation (CARB 2005a).
- Line-haul locomotives were assumed to operate 2.5 hours on-port per TICTF departing train and 1 hour on-port per TICTF arriving train (LAHD 2012a). These residence times include both moving and idling. A similar assumption was made for proposed Project-related trains arriving at and departing from near- and off-dock rail yards; line-haul locomotives were assumed to operate in the rail yard 2.5 hours per departure and 1 hour per arrival.
- Line haul locomotives were assumed to operate at the EPA line haul duty cycle, which reflects an average engine load factor, including idling time, of 28%.
- The average line haul locomotive was assumed to be 4,000 hp.
- In the 2012 baseline year, the average daily PHL switch engine use on-dock was assumed to be 5.7 hours per day (YTI 2013). The peak day use was assumed to be 8% higher than the average day use (YTI 2013). The PHL switch engine use in all other analysis years was scaled from the 2012 use by the quantity of TEUs by on-dock rail. Switch engine use at near- and off-dock rail yards was assumed to be equivalent to on-dock use on a per-TEU basis.
- Switch engine locomotives were assumed to operate at the EPA switch locomotive duty cycle, which reflects an average engine load factor, including idling time, of 10%. Switch engine locomotives were assumed to produce an average of 240 brake-horsepower while in use (LAHD 2007).
- The transportation study for this EIS/EIR (Section 3.7 and Appendix D) provided the train and locomotive activity data used in the emission calculations. The data included average daily train counts, train length, number of locomotives per train, and average daily train-miles within the SCAB.

The train activity is summarized in Table 3.2-8.

Table 3.2-8: Annual and Peak Day Rail Locomotive Operations

Parameter	2012 CEQA Baseline	Operation during Future Analysis Years		
		2017	2020	2026
Proposed Project and Alternative 3 (Reduced Project)				
On-Dock				
Annual Trains	725	916	1,059	1,269
Annual Average Locomotives per Train	4.0	4.3	4.3	4.3
Peak Day Trains	3	3	4	5
Peak Day Locomotives per Train	4.0	4.3	4.5	4.4
Near- and Off-Dock				
Annual Trains	178	136	157	189
Annual Average Locomotives per Train	4.0	4.2	4.2	4.2
Peak Day Trains	0.5	0.4	0.5	0.6
Peak Day Locomotives per Train	4.0	4.2	4.2	4.2
Alternative 1 (No Project) and Alternative 2 (No Federal Action)				
On-Dock				
Annual Trains	Same as Proposed Project and Alternative 3	867	949	1,075
Annual Average Locomotives per Train		4.3	4.3	4.3
Peak Day Trains		3	3	4
Peak Day Locomotives per Train		4.3	4.3	4.5
Near- and Off-Dock				
Annual Trains	Same as Proposed Project and Alternative 3	129	141	217
Annual Average Locomotives per Train		4.2	4.2	4.2
Peak Day Trains		0.4	0.4	0.7
Peak Day Locomotives per Train		4.2	4.2	4.2

Note:
Operational rail activity during construction years 2015 and 2016 was scaled from 2017 data according to the number of TEUs moved by rail.

AMP Power Generation

Indirect CO, VOC, and PM regional emissions associated with electricity generation for AMP were calculated using criteria pollutant emission factors provided by SCAQMD in the *CEQA Air Quality Handbook* (SCAQMD 1993). Although the emissions could be generated by power plants inside and outside the SCAB, the emissions were conservatively assumed in this study to be produced entirely within the SCAB. Indirect NO_X and SO_X emissions were based on emission factors from EPA's Emissions and Generation Resource Integrated Database (eGRID) (EPA 2014).

The amount of electricity required by hoteling container ships was estimated using average auxiliary engine sizes and load factors in the Port Emissions Inventory (LAHD 2012a) and average hoteling times calculated as described in the container ships methodology above. As shown in Table 3.2-9, AMP was applied to the study years, in accordance with CARB's *Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels at Berth in a California Port* (CARB 2007a).

Table 3.2-9: AMP Power Generation

Analysis Year	Regulatory Compliance Rate (by percentage)
2012 CEQA Baseline	Actual Inventory
Construction Year 2015	50%
Construction Year 2016	50%
Operational Analysis Year 2017	70%
Operational Analysis Year 2020	80%
Project Year 2026	80%

Notes:
Actual YTI inventory was used for year 2012 (Starcrest 2013a).
CARB regulatory requirements were used for other analysis years (CARB 2007a).

Worker Commute Trips

Emissions from worker trips during proposed project operation were calculated using worker trips provided by the traffic consultant and emission factors from EMFAC2011 (CARB 2011a). PM_{10} and $PM_{2.5}$ emissions from paved road dust were calculated and added to the EMFAC2011 emissions. Road dust emission factors were derived from Section 13.2 of EPA's AP-42 compilation of emission factors (EPA 2011).

Dispersion Modeling Methodology

The dispersion modeling methodology was based on LAHD's Draft Criteria Pollutant Dispersion Modeling Protocol (LAHD 2012b). The EPA dispersion model AERMOD, version 12345, was used to predict maximum ambient pollutant concentrations at or beyond the proposed project site. The following presents a brief summary of the dispersion modeling methodology and assumptions; the complete dispersion modeling report is included in Appendix B2.

- The analysis modeled peak 1-hour and annual NO_X emissions, peak 1-hour and peak daily 24-hour SO_X emissions, peak 1-hour and 8-hour CO emissions, peak daily 24-hour and annual PM_{10} emissions, and peak daily 24-hour $PM_{2.5}$ emissions.
- Construction emissions were modeled both alone and together with concurrent terminal operational emissions in 2015 and 2016. Operational emissions were modeled alone for the post-construction analysis years starting in 2017.
- To ensure the capture of maximum ambient pollutant concentrations in AERMOD, peak emissions were modeled for each emission source category, even if the peak emissions would not occur simultaneously. For example, peak construction emissions were determined separately for diesel exhaust, fugitive dust, and all other sources. These peak emissions were conservatively modeled together in AERMOD even if they would occur during different combinations of overlapping construction phases. Similarly, peak operational emissions were determined separately for automobile diesel exhaust, automobile road dust, all other automobile emissions, cargo handling equipment, harbor craft, line haul locomotives, OGV boilers during anchorage, OGV diesel exhaust during anchorage, OGV boilers during hoteling, OGV diesel exhaust during hoteling, OGV boilers during transit, OGV diesel exhaust during transit, truck diesel

exhaust, truck road dust, all other truck emissions, transport refrigeration units, and yard locomotives. These peak emissions were conservatively modeled together in AERMOD even if they would occur during different analysis years.

- Valid receptors include all locations along and outside the proposed project footprint boundary and exclude over water non-marina receptors and boundary receptors bordering water.
- Significance concentration thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds. Therefore, both CEQA and NEPA impacts are determined by subtracting baseline modeled concentrations from proposed project modeled concentrations (i.e., proposed Project minus baseline) at each receptor. Significance is determined by comparing the modeled receptor with the greatest increment to the thresholds.
- Significance concentration thresholds for NO_2, SO_2, and CO are absolute thresholds based on the ambient air quality standards. Therefore, the change in modeled proposed project concentrations relative to existing conditions (i.e., modeled 2012 baseline) is determined at each receptor, and the receptor with the highest change in concentration is added to the ambient background concentration to yield a total concentration. Significance is determined by comparing the total concentration (proposed Project plus background) with the threshold.
- Ambient background concentrations were obtained from the Source-Dominated monitoring station at the Terminal Island Water Reclamation Plant. Because this station is close to the proposed project site, it was assumed that the station captures baseline effects from the YTI Terminal. Therefore, the incremental proposed project concentrations (i.e., proposed Project minus 2012 baseline) were added to the ambient background concentration from the Source-Dominated monitoring station to yield a total concentration for comparison to the significance concentration thresholds for NO_2, SO_2, and CO.

CO Hot Spots Assessment Methodology

The analysis of potential CO hot spots near heavily traveled roadway intersections was conducted with the CAL3QHC dispersion model, using guidance from Caltrans (Caltrans 1997) and SCAQMD (SCAQMD 2005). For the most conservative estimate of 1-hour and 8-hour CO concentrations, the roadway intersection in the proposed project study area with the highest peak-hour traffic volume and level of service (LOS) was modeled. The analysis modeled total traffic through the intersection, including proposed Project-generated truck and automobile trips, in the operational years with the highest vehicle CO emission factors (2017) and highest traffic volumes (2026).

Peak-hour intersection turning movements were provided by the traffic study. CO emission factors were estimated by EMFAC2011. The CAL3QHC dispersion model assumed worst-case meteorological conditions. The input data and CAL3QHC output files for the CO intersection analysis are presented in Appendix B2.

Health Risk Assessment Methodology

An HRA spanning 70 years was conducted pursuant to a protocol reviewed and approved by both CARB and SCAQMD (LAHD 2005). The Port protocol is based on the methodology in OEHHA's *Air Toxics Hot Spots Program Risk Assessment Guidelines*

(OEHHA 2003). The period from 2015 to 2084 was used as the 70-year exposure period with the greatest combined DPM emissions from proposed project and alternatives construction and operation. The HRA was used to evaluate potential health impacts on the public from TACs generated by construction and operation of the proposed Project and alternatives. The following presents a brief summary of the HRA methodology and assumptions; the complete HRA report is included in Appendix B3.

- The EPA dispersion model AERMOD, version 12345, was used to predict maximum ambient pollutant concentrations at or beyond the proposed project site. The Hotspots Analysis and Reporting Program, version 1.4f (CARB 2012b), was then used to perform health risk calculations based on output from the AERMOD dispersion model.
- The HRA evaluated four different types of health effects: individual lifetime cancer risk, population cancer burden, 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 proposed project emissions. The "lifetime" exposure duration assumed in this HRA is 70 years for a residential receptor and 40 years for an occupational receptor[5]. Cancer burden is an estimate of the expected number of additional cancer cases in a population exposed to proposed Project-generated TAC emissions, and is the product of individual lifetime incremental cancer risk multiplied by the population exposed to that level of incremental risk, calculated at the census tract or block level. In accordance with SCAQMD guidance (SCAQMD 2011a), cancer burden was calculated in this analysis for all census blocks with an individual lifetime residential cancer risk increment exceeding one in one million.

  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.

- The main sources of TACs from proposed project and alternatives operations would be DPM emissions from container ships, tugboats, cargo handling equipment, locomotives, and trucks. Proposed project and alternatives construction emissions were also included in the HRA.

  For health effects resulting from long-term (i.e., multiple-year) exposure, CARB considers DPM as representative of the total cancer risk associated with the combustion of diesel fuel. TAC emissions from non-diesel sources (such as alternative fuel engines) and diesel non-internal combustion sources (such as auxiliary boilers) also were evaluated in the HRA, although their impacts were minor in comparison to DPM. Because the proposed Project and alternatives would generate emissions of PM in general, Impact AQ-7 also discusses the effects of ambient PM on increased mortality and morbidity.

[5] The 40-year exposure period for the assessment of occupational cancer risk is 2015 through 2054 for the proposed Project, alternatives, and NEPA baseline and 2012 through 2051 for the CEQA baseline.

- For the determination of significance under CEQA, this HRA evaluated the incremental change in health effects associated with the proposed Project and alternatives relative to the CEQA baseline health effects. For the determination of significance under NEPA, this HRA evaluated the incremental change in health effects associated with the proposed Project and alternatives relative to the NEPA baseline health effects. Both of these incremental health effects values (proposed Project or alternative minus CEQA baseline, and proposed Project or alternative minus NEPA baseline) were compared to the significance thresholds for health risk described in Sections 3.2.4.2 and 3.2.4.3, respectively.
- To estimate residential cancer risk impacts, VOC and DPM emissions were projected over a 70-year period, from 2015 to 2084. To estimate occupational cancer risk impacts, VOC and DPM emissions were projected over a 40-year period, from 2015 through 2054. These 70-year and 40-year projections of emissions were done for the proposed Project, alternatives, CEQA baseline, and NEPA baseline to enable a proper calculation of the CEQA and NEPA cancer risk increments. To calculate the 70-year and 40-year emissions, estimates of activity levels and emission factors were made for each year from 2015 through 2084.[6]
- The extent of this analysis assumes exposure beyond the lease termination date for the terminal, and therefore is a conservative estimate of proposed project and alternative impacts.
- Yearly equipment activity levels between the proposed project analysis years were interpolated for the proposed Project, alternatives, and NEPA baseline. Activity levels after 2026, the end of the lease, were held constant at their 2026 values. Activity levels for the Future CEQA baseline and CEQA baseline were held constant at their 2012 values for the entire 70-year period.
- For the proposed Project, alternatives, future CEQA baseline, and NEPA baseline, yearly emission factors were allowed to change with time in accordance with normal fleet turnover rates (for terminal equipment, trucks, line haul locomotives, and tugboats) and existing regulations and agreements listed in Table 3.2-3 and Table 3.2-4. For the CEQA baseline, emission factors were held constant at their 2012 values for all years.

CEQA Analysis of Health Risk Impacts in Comparison to the CEQA Baseline and the Future CEQA Baseline

The State CEQA Guidelines specify that the baseline for environmental analysis is normally “the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published” (*14 Cal. Code Regs. Section 15125: Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council*, *190 Cal.App.4th 1351*). Therefore, this document evaluates the significance of air quality impacts under CEQA in comparison with a static CEQA baseline consisting of conditions existing during the 2012 calendar year (“CEQA baseline”), as described below in Section 3.2.4.2.

However, neither CEQA nor the State CEQA Guidelines mandate a uniform rule for determination of the existing conditions baseline. Rather, a lead agency has the

[6] The 70-year emissions projection for the CEQA baseline was done for 2012 through 2081, as this is the 70-year period projected forward from the CEQA baseline year.

discretion to decide how existing physical conditions without a project can most realistically be measured. For instance, environmental conditions can vary from year to year and in some cases it may be necessary to consider conditions over a range of time periods. The *Sunnyvale West Neighborhood Association* case, and a subsequent decision, *Pfeiffer v. City of Sunnyvale City Council*, 200 Cal.App.4th 1522, indicate that CEQA review, which includes comparison to the CEQA baseline, may also include "secondary" discussions of foreseeable changes and expected future conditions, where such a secondary analysis is helpful to the intelligent understanding of the project's environmental impacts.

Therefore, in addition to comparing the proposed project HRA to the CEQA baseline, where activity levels and emission factors are held constant, this Draft EIS/EIR includes a secondary analysis that compares the proposed Project and alternatives to a Future CEQA baseline. The Future CEQA baseline incorporates emission factors that reflect the effects of existing air quality rules and regulations. This secondary analysis provides a conservative exposure scenario for the HRA because it results in a lower baseline and higher proposed project increment compared to the CEQA baseline. Therefore, comparison to both the CEQA baseline and the Future CEQA baseline is intended to better apprise the public and decision makers of the proposed Project's environmental impacts; significance is determined for both analyses.

Finally, the Future CEQA baseline differs from the No Project Alternative in that it does not include a growth factor for existing site activities and it reflects an earlier 70-year exposure period (2012 through 2081 instead of 2015 through 2084).

Particulates: Morbidity and Mortality

Of great concern to public health are particles that are small enough to be inhaled into the deepest parts of the lung. Respirable particles (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 and alternatives would emit respirable particulates during construction and operation. This analysis addresses potential health effects caused by respirable particulate emissions and discusses existing standards and thresholds developed by regulatory agencies to address health impacts.

Health Effects of PM Emissions

Epidemiological studies substantiate the correlation between the inhalation of ambient PM and increased mortality and morbidity (CARB 2010b). In 2006, CARB conducted a study to assess the potential health effects associated with exposure to air pollutants arising from ports and goods movement in the state (CARB 2006a; CARB 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 3.2-10 presents the statewide PM and ozone health effects identified by CARB (CARB 2006a).

Table 3.2-10: Annual 2005 Statewide PM and Ozone Health Effects Associated with Ports and Goods Movement in California[a]

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

Source: CARB 2006b.

Notes:

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

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

In addition, although epidemiologic studies are numerous, few toxicology studies have investigated the responses of human subjects specifically exposed to DPM, and the available epidemiologic studies have not measured the DPM content of the outdoor pollution mix. CARB has made quantitative estimates of the public health impacts of DPM based on the assumption that DPM is as toxic as the general ambient PM mixture. CARB'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 2010a). Numerous new ongoing and proposed studies 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 in space and time. 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 interrelationships with each other (e.g., PM, SO_2, NO_2, CO, ozone) (CARB 2006a; CARB 2006b).

Nevertheless, various studies have been published over the past 10 years that substantiate the correlation between the inhalation of ambient PM and increased cases of premature death from heart and/or lung diseases (Pope et al. 1995; Pope et al. 2002; Jerrett et al. 2005; Krewski et al. 2001; Krewski et al. 2009). Studies such as these and studies that have followed since serve as the fundamental basis for PM air quality standards promulgated by SCAQMD, CARB, EPA, and the World Health Organization.

Quantifying Morbidity and Mortality

LAHD has developed a methodology for assessing morbidity and mortality in CEQA documents, which generally follows the approach used by CARB to estimate statewide health impacts from ports and goods movement in California (CARB 2006b), incorporating the methodology for mortality published by CARB (CARB 2010b). In the 2006 analysis, CARB focused on PM and ozone because these are the criteria pollutants for which sufficient evidence of mortality and morbidity effects exists. Modeling changes in ozone concentrations usually require information on emissions from all sources within a region (for example, the SCAB) and is therefore not considered appropriate for project-level analyses. Therefore, the methodology for project-level studies conducted for Port CEQA documents focuses on the health effects associated with changes in PM concentrations. Focusing on PM is also consistent with CARB studies of mortality and morbidity impacts from California ports (CARB 2006a, CARB 2006b, and CARB 2010b).

The SCAQMD's localized significance threshold for a 24-hour $PM_{2.5}$ concentration is 2.5 $\mu g/m^3$ for operational impacts (SCAQMD 2011b). This value is only 7% of the 24-hour NAAQS and 21% of the annual CAAQS (there is no 24-hour CAAQS for $PM_{2.5}$). This value is based on CARB guidance and epidemiological studies showing significant toxicity (resulting in mortality and morbidity) related to exposure to fine particles. Because mortality and morbidity studies represent major inputs used by CARB and EPA to set CAAQS and NAAQS, project-level mortality and morbidity are presented in LAHD CEQA documents as a further elaboration of local PM impacts that are already addressed. Therefore, mortality and morbidity are quantified only if a $PM_{2.5}$ concentration significance finding is identified as part of the air quality impact analysis. More specifically, mortality and morbidity are quantified if dispersion modeling of ambient air quality concentrations during proposed project or alternatives operation (Impact AQ-4) identifies a significant impact for 24-hour $PM_{2.5}$. The zone of influence is the 2.5 $\mu g/m^3$ isopleth identified during the dispersion modeling.

3.2.4.2 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 normally would constitute the baseline physical conditions by which the CEQA lead agency determines if an impact is significant. The NOP for the proposed Project was published in April 2013. For purposes of this Draft EIS/EIR, the CEQA baseline takes into account the throughput for the 12-month calendar year preceding NOP publication (January through December 2012) in order to provide a representative characterization of activity levels throughout the complete calendar year preceding release of the NOP. In 2012, the YTI Terminal encompassed approximately 185 acres under its long-term lease, supported 14 cranes (10 operating), and handled approximately 996,109 TEUs and 162 vessel calls. The CEQA baseline conditions are also described in Section 2.7.1 and summarized in Table 2-1.

The CEQA baseline represents the setting at a fixed point in time. The CEQA baseline differs from the No Project Alternative (Alternative 1) in that the No Project Alternative addresses what is likely to happen at the proposed project site over time, starting from the existing conditions. Therefore, the No Project Alternative allows for growth at the proposed project site that could be expected to occur without additional approvals, whereas the CEQA baseline does not. For the reasons discussed in the previous section, this document analyzes the Project's Health Risk Impacts not only in comparison against the CEQA baseline, but also in comparison against a Future CEQA baseline.

Future conditions that could be affected by rules and regulations implemented over time were not considered in this baseline. Only rules and regulations effective by December 31, 2012 were considered in the baseline for the source categories listed.[7] The methodology used to quantify baseline emissions is presented in Section 3.2.4.1, Methodology.

In 2012, the YTI Terminal was used for containerized cargo handling and operated a maintenance and repair facility and on-dock rail service. The terminal encompassed approximately 185 acres under its long-term lease, supported 14 cranes (10 operating), handled approximately 996,109 twenty-foot equivalent units (TEUs)[8], and 162 vessel calls. The CEQA baseline conditions are also described in Section 2.7.1 and summarized in Table 2-1.

The CEQA baseline included the following emission sources: container ships, tugboats, trucks, locomotives, cargo handling equipment (CHE), employee vehicles, transport refrigeration unit (TRU) engines, and indirect emissions associated with AMP electricity use. The CEQA baseline for this Project consists of 996,109 annual TEUs, 162 annual container ship calls, 907,176 annual truck trips, 725 annual on-dock train trips, and 178 annual near- and off-dock train trips. The peak day CEQA baseline consists of 3 peak day container ship transits, 3 container ships hoteling, 3,081 truck trips, 3 on-dock train trips, and 0.5 near- and off-dock train trip. The annual and peak day terminal and source activity information is presented in Table 3.2-5 for container ships, Table 3.2-6 for CHE, Table 3.2-7 for trucks, and Table 3.2-8 for trains.

Table 3.2-11 summarizes the peak daily emissions within the SCAB associated with operation of the existing terminal during the baseline year. Baseline peak daily emissions were compared to future proposed project peak daily emissions to determine CEQA significance for the proposed Project and alternatives. Peak daily emissions represent reasonable upper-bound estimates of activity levels at the terminal and would occur infrequently.

[7] In determining cancer impacts under CEQA, this Draft EIS/EIR considered both the CEQA baseline, where activity levels and emission factors are held constant, and a secondary analysis that compares the proposed Project and alternatives cancer risk to a Future CEQA baseline. The Future CEQA baseline incorporates the effects of air quality regulations that were approved at the time of this analysis on future equipment emissions. This secondary analysis provides a conservative exposure scenario for the HRA and is intended to better apprise the public and decision makers of the proposed Project's environmental impacts. The detailed discussion is presented in Section 3.2.4.1, Methodology.

[8] TEU is a unit of cargo capacity based on a standard 20-foot-long intermodal container.

Table 3.2-11: Peak Daily Operational Emissions: CEQA Baseline (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
2012 Baseline						
Ships: Transit and Anchoring	170	136	6,340	756	723	396
Ships: Hoteling	47	38	1,308	379	119	47
AMP Electricity Use	0	0	0	0	0	0
Tugboats	8	7	320	0	162	19
Trucks	104	35	864	2	246	50
Line Haul Locomotives	41	37	1,232	5	265	74
Switch Locomotives	0	0	26	0	7	1
Cargo Handling Equipment	10	9	493	1	215	37
Transportation Refrigeration Units	1	1	9	0	8	3
Worker Vehicles	9	3	9	0	81	4
2012 Baseline Total	**390**	**265**	**10,600**	**1,144**	**1,826**	**630**

Notes:
1. Emissions might not add precisely due to rounding.
2. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that were not available at the time of this document.

3.2.4.3 NEPA Baseline

For purposes of this Draft EIS/EIR, the evaluation of significance under NEPA is defined by comparing the proposed Project or other alternative to the NEPA baseline. The NEPA baseline conditions are described in Section 2.7.2 and summarized in Table 2-1. The NEPA baseline condition for determining significance of impacts includes the full range of construction and operational activities the applicant could implement and is likely to implement absent a federal action, in this case the issuance of a USACE permit.

Unlike the CEQA baseline, which is defined by conditions at a point in time, the NEPA baseline is not bound by statute to a “flat” or “no-growth” scenario. Instead, the NEPA baseline is dynamic and includes increases in operations for each study year (2015, 2016, 2017, 2020, and 2026), which are projected to occur absent a federal permit. Federal permit decisions focus on direct impacts of the proposed Project on the aquatic environment, as well as indirect and cumulative impacts in the uplands determined to be within the scope of federal control and responsibility. Significance of the proposed Project or the alternatives under NEPA is defined by comparing the proposed Project or the alternatives to the NEPA baseline.

The NEPA baseline, for purposes of this Draft EIS/EIR, is the same as the No Federal Action Alternative. Under the No Federal Action Alternative (Alternative 2), no dredging, dredged material disposal, in-water pile installation, or crane installation/extension would occur. Expansion of the TICTF and extension of the crane rail would also not occur. The No Federal Action Alternative includes only backlands improvements consisting of slurry sealing, deep cold planning, asphalt concrete overlay, restriping, and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. These activities do not change the physical or operational capacity of the existing terminal.

The NEPA baseline assumes that by 2026, the terminal would handle up to approximately 1,692,000 TEUs annually, accommodate 206 annual ship calls, generate 1,220,000 annual trucks trips, generate 1,075 annual on-dock train trips, and generate 217 annual near- and off-dock train trips without any federal action. Peak day activity is presented in Table 3.2-5 for container ships, Table 3.2-6 for CHE, Table 3.2-7 for trucks, and Table 3.2-8 for trains. Because the NEPA baseline is dynamic, it includes different levels of terminal operations at each of the study years 2017, 2020, and 2026.

Table 3.2-12 presents the peak day criteria pollutant emissions within the SCAB associated with NEPA baseline construction.

Table 3.2-12: Peak Daily Construction Emissions—NEPA Baseline (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	3	3	61	0	55	5
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	111	36	848	1	82	22
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	1	0	0	0	0	63
Total Construction Year 2015	115	40	909	1	137	90
Construction Year 2016						
Off-road Construction Equipment Exhaust	1	1	26	0	10	2
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	13
Total Construction Year 2016	1	1	26	0	10	15

Notes:

- Emissions of PM_{10} and $PM_{2.5}$ assume that fugitive dust is controlled in accordance with SCAQMD Rule 403 by watering disturbed areas 3 times per day.
- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt off-gassing.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

The peak day operational emissions within the SCAB associated with the NEPA baseline are presented in Table 3.2-13. In addition to accounting for growth in cargo throughput and ship calls, the NEPA baseline emissions account for changes in emission factors due to existing regulations that would reduce future emissions from container ships, trucks, locomotives, and cargo handling equipment, as these sources use cleaner fuels or are replaced over time with newer equipment meeting more stringent emission standards. Peak day emissions represent upper-bound estimates of activity levels at the terminal that would occur infrequently and therefore represent a conservative set of assumptions. The future proposed project and alternatives peak day emissions are compared to the NEPA baseline peak day emissions in Table 3.2-13 to determine significance under NEPA.

Table 3.2-13: Peak Daily Operational Emissions—NEPA Baseline (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Year 2015	351	231	12,646	278	2,186	728
Year 2016						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	116	41	1,102	3	359	71
Line Haul Locomotives	32	30	1,260	1	277	56
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	3	286	2	268	36
Transportation Refrigeration Units	0	0	8	0	10	3
Worker Vehicles	10	3	7	0	69	3
Total Year 2016	352	230	12,632	278	2,216	725
Year 2017						
Ships—Transit and Anchoring	160	128	8,919	218	958	518
Ships—Hoteling	21	17	802	53	73	29
AMP Electricity Use	0	0	23	4	2	0
Tugboats	10	9	426	0	215	25
Trucks	121	43	1,136	3	381	75
Line Haul Locomotives	30	28	1,191	1	278	51
Switch Locomotives	0	0	26	0	9	1
Cargo Handling Equipment	3	3	248	2	276	35
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	10	3	7	0	65	2
Total Year 2017	357	232	12,786	282	2,267	739

Table 3.2-13: Peak Daily Operational Emissions—NEPA Baseline (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2020						
Ships—Transit and Anchoring	165	132	9,223	225	992	536
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0
Tugboats	2	1	63	0	134	6
Trucks	131	48	1,125	3	405	81
Line Haul Locomotives	24	22	1,045	1	281	40
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	3	3	193	2	303	33
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	357	226	12,388	285	2,260	726
Year 2026						
Ships—Transit and Anchoring	165	132	9,223	225	992	536
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0
Tugboats	1	1	58	0	134	6
Trucks	152	54	688	3	327	67
Line Haul Locomotives	22	20	1,021	1	394	39
Switch Locomotives	0	0	28	0	12	2
Cargo Handling Equipment	3	3	124	2	350	30
Transportation Refrigeration Units	0	0	10	0	12	1
Worker Vehicles	13	4	5	0	48	2
Total Year 2026	375	229	11,853	286	2,332	708

Notes:

- On-road vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- AMP electricity use reflects indirect emissions from regional power generation. Emissions are zero for years 2015 and 2016 because a peak day during these years would not include a vessel using AMP. In later years, as regulatory requirements increase, a peak day would include a vessel using AMP.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

3.2.4.4 Thresholds of Significance

The following thresholds were used to determine the significance of air quality impacts of the proposed Project and alternatives for CEQA and NEPA. The thresholds were based on the standards established by the City of Los Angeles in the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006). The *L.A. CEQA Thresholds Guide* incorporates, by reference, the CEQA Air Quality Handbook and associated significance thresholds developed by the SCAQMD (SCAQMD 1993, SCAQMD 2011b). For the purposes of this EIS/EIR, USACE has adopted the CEQA thresholds.

Construction Thresholds

The *L.A. CEQA Thresholds Guide* references the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993) and EPA *AP-42* for calculating and determining the significance of construction emissions. The SCAQMD significance thresholds are updated as necessary on the SCAQMD web page to address new regulations and standards (SCAQMD 2011b).

Each lead city department has the responsibility to determine the appropriate significance thresholds. The LAHD and the USACE as lead agencies on the EIR and EIS have adopted the following thresholds for this document.

Construction-related air emissions would be considered significant if:

AQ-1: The proposed Project or alternative would result in construction-related peak day emissions that exceed any of the SCAQMD thresholds of significance in Table 3.2-14.

For determining CEQA significance, these thresholds are compared to the peak day proposed Project or alternative construction emissions (because the CEQA baseline construction emissions are zero). For determining NEPA significance, these thresholds are compared to the net change in peak day proposed Project or alternative construction emissions relative to NEPA baseline construction emissions.

Table 3.2-14: 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 2011.

AQ-2: The proposed Project or alternative construction would result in offsite ambient air pollutant concentrations that exceed the SCAQMD thresholds of significance in Table 3.2-15.[9]

[9] 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 3.2-15: SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Construction

Air Pollutant[a]	Construction Ambient Concentration Threshold
Nitrogen Dioxide (NO_2)[b]	
1-hour average (federal)[c]	0.100 ppm (188 $\mu g/m^3$)
1-hour average (state)	0.18 ppm (338 $\mu g/m^3$)
Annual average (federal)	0.0534 ppm (100 $\mu g/m^3$)
Annual average (state)	0.030 ppm (57 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	
1-hour average (federal)[d]	0.075 ppm (197 $\mu g/m^3$)
1-hour average (state)	0.250 ppm (655 $\mu g/m^3$)
24-hour average	0.040 ppm (105 $\mu g/m^3$)
Carbon Monoxide (CO)	
1-hour average	20 ppm (23,000 $\mu g/m^3$)
8-hour average	9.0 ppm (10,000 $\mu g/m^3$)
Particulates (PM_{10} or $PM_{2.5}$)[e]	
24-hour average (PM_{10} and $PM_{2.5}$)	10.4 $\mu g/m^3$
Annual average (PM_{10} only)	1.0 $\mu g/m^3$

Notes:

[a] The SCAQMD has also established concentration thresholds for sulfates and lead, but construction emissions of these pollutants would be negligible; thus, concentration standards would not be exceeded. The NO_2, SO_2, and CO thresholds are absolute thresholds; the maximum predicted impact from proposed Project and alternatives operations is added to the background concentration and compared to the threshold.

[b] To evaluate proposed project impacts on ambient NO_2 levels, the analysis included the use of both the current SCAQMD NO_2 threshold (0.18 ppm) and the newer, more stringent 1-hour federal ambient air quality standard (0.100 ppm). To attain the federal standard, the 3-year average of the 98th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.100 ppm.

[c] Federal 1-hour average NO_2 concentration is based on the NAAQS because it is more stringent than the SCAQMD thresholds.

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

[e] The PM_{10} and $PM_{2.5}$ thresholds are incremental thresholds; the maximum predicted impact from construction activities (without adding the background concentration) is compared to these thresholds.

Sources: SCAQMD 2011b, EPA 2013.

Operation Thresholds

The *L.A. CEQA Thresholds Guide* provides specific significance thresholds for operational air quality impacts that also are based on SCAQMD standards (City of Los Angeles 2006). For the purposes of this study, a project would create a significant impact if:

AQ-3: The proposed Project or alternative would result in operational emissions that exceed the SCAQMD peak day emission thresholds of significance in Table 3.2-16.

Construction and operational emissions overlap during certain analysis years and the combined emissions are evaluated in this document. For determining CEQA significance, these thresholds are compared to the net change in proposed Project or alternative emissions relative to CEQA baseline emissions. For determining NEPA significance, these thresholds are compared to the net change in proposed Project or alternative emissions relative to NEPA baseline emissions.

Table 3.2-16: SCAQMD Thresholds for Operational Emissions

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

Source: SCAQMD 2011b.

AQ-4: Project or alternative operations would result in offsite ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance in Table 3.2-17.[10]

Table 3.2-17: SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Operation

Air Pollutant[a]	Operation Ambient Concentration Threshold
Nitrogen Dioxide (NO_2)[b]	
1-hour average (federal)[c]	0.100 ppm (188 $\mu g/m^3$)
1-hour average (state)	0.18 ppm (338 $\mu g/m^3$)
Annual average (federal)	0.0534 ppm (100 $\mu g/m^3$)
Annual average (state)	0.030 ppm (57 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	
1-hour average (federal)[d]	0.075 ppm (197 $\mu g/m^3$)
1-hour average (state)	0.250 ppm (655 $\mu g/m^3$)
24-hour average	0.040 ppm (105 $\mu g/m^3$)

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

Table 3.2-17: SCAQMD Thresholds for Ambient Air Quality Concentrations Associated with Project Operation

Air Pollutant[a]	Operation Ambient Concentration Threshold
Carbon Monoxide (CO)	
1-hour average	20 ppm (23,000 $\mu g/m^3$)
8-hour average	9.0 ppm (10,000 $\mu g/m^3$)
Particulates (PM_{10} or $PM_{2.5}$)[e]	
24-hour average (PM_{10} and $PM_{2.5}$)	2.5 $\mu g/m^3$
Annual average (PM_{10} only)	1.0 $\mu g/m^3$

Notes:

[a] The NO_2, SO_2, and CO thresholds are absolute thresholds; the maximum predicted impact from proposed project and alternatives operations is added to the background concentration and compared to the threshold.

[b] To evaluate proposed project impacts to ambient NO_2 levels, the analysis included the use of both the current SCAQMD NO_2 threshold (0.18 ppm) and the newer, more stringent 1-hour federal ambient air quality standard (0.100 ppm). To attain the federal standard, the 3-year average of the 98th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.100 ppm.

[c] Federal 1-hour average NO_2 concentration is based on the NAAQS because it is more stringent than the SCAQMD thresholds.

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

[e] The PM_{10} and $PM_{2.5}$ thresholds are incremental thresholds; the maximum predicted impact from operational activities (without adding the background concentration) is compared to these thresholds.

Sources: SCAQMD 2011b; EPA 2013.

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

- The proposed Project or alternative causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 ppm, respectively.
- The incremental increase due to the proposed Project or alternative is equal to or greater than 1.0 ppm for the California 1-hour CO standard, or 0.45 ppm for the 8-hour CO standard.

AQ-6: The proposed Project or alternative would create an objectionable odor at the nearest sensitive receptor.

AQ-7: The proposed Project or alternative would expose receptors to significant levels of toxic air contaminants. The determination of significance will be made as follows:

- Maximum Incremental Cancer Risk is greater than or equal to 10 in 1 million.
- Cancer Burden is greater than 0.5 excess cancer cases in areas where the maximum incremental cancer risk for residential receptors is greater than 1 in one million.
- Noncancer Hazard Index is greater than or equal to 1.0 (project increment).

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

3.2.4.5 Impact Determination

Proposed Project

Impact AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.

Table 3.2-18 presents the peak day criteria pollutant emissions associated with construction of the proposed Project, before mitigation. Maximum emissions for each construction phase were determined by adding the daily emissions from those construction activities that overlap in the proposed construction schedule (Table 2-2 in Chapter 2).

The YTI terminal would continue to operate during construction of the proposed Project; construction and operational activities would overlap during this time. SCAQMD has requested that total proposed project emissions be estimated during a peak year when construction and operational activities substantially overlap. Table 3.2-19 presents the overlap of project-related construction and operations during 2015, the peak year of construction emissions.

Table 3.2-18: Peak Daily Construction Emissions without Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	41	37	971	2	479	68
Marine Source Exhaust	84	70	4,268	89	920	202
On-road Construction Vehicles	78	29	868	1	69	17
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	1	0	0	0	0	5
Total Construction Year 2015	**207**	**137**	**6,108**	**93**	**1,472**	**293**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Project Minus CEQA Baseline	207	137	6,108	93	1,472	293
Significance Threshold	150	55	100	150	550	75
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	115	40	909	1	137	90
Project Minus NEPA Baseline	91	97	5,199	91	1,335	203
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Table 3.2-18: Peak Daily Construction Emissions without Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2016						
Off-road Construction Equipment Exhaust	18	17	459	1	194	31
Marine Source Exhaust	32	28	995	0	669	80
On-road Construction Vehicles	40	16	534	1	41	10
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	0	0	0	0	0	0
Total Construction Year 2016	**91**	**61**	**1,988**	**2**	**905**	**120**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Project Minus CEQA Baseline	91	61	1,988	2	905	120
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	1	1	26	0	10	15
Project Minus NEPA Baseline	90	60	1,962	2	895	105
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt offgassing.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Emissions of PM_{10} and $PM_{2.5}$ assume that fugitive dust is controlled in accordance with SCAQMD Rule 403 by watering disturbed areas 3 times per day, for a control efficiency of 61% from uncontrolled levels.
- Emissions reflect the maximum of upland and marine emissions associated with the disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions are emissions presented in Peak Daily Construction Emissions—NEPA Baseline, Table 3.2-12.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Table 3.2-19: Peak Daily Combined Construction and Operational Emissions without Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction 2015						
Off-road Construction Equipment Exhaust	41	37	971	2	479	68
Marine Source Exhaust	84	70	4,268	89	920	202
On-road Construction Vehicles	78	29	868	1	69	17
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	1	0	0	0	0	5
Operation 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Construction and Operation Year 2015	**558**	**368**	**18,753**	**371**	**3,659**	**1,020**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	168	103	8,153	-774	1,833	391
Significance Threshold	150	55	100	150	550	75
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	466	271	13,555	279	2,324	818
Project Minus NEPA Baseline	91	97	5,199	91	1,335	203
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of maximum daily emissions for each source category. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the SCAB.
- AMP electricity use reflects indirect emissions from regional power generation. Emissions are zero in 2015 because a peak day during this year would not include a vessel using AMP.
- Emissions reflect the maximum of upland and marine emissions associated with the disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions include the NEPA baseline construction emissions plus the NEPA baseline operational emissions, presented in Table 3.2-12 and Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

CEQA Impact Determination

Table 3.2-18 shows that unmitigated peak daily construction emissions would exceed the SCAQMD daily emission thresholds for PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC, under CEQA during the 2015 peak year of construction. Construction emissions would also exceed the SCAQMD daily emission thresholds for $PM_{2.5}$, NO_X, CO, and VOC during the 2016 construction year. Therefore, unmitigated proposed project construction emissions would be significant under CEQA for PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC prior to mitigation.

The largest contributors to peak day construction emissions are off-road construction equipment (including dredging equipment) and marine sources (including ships used to deliver cranes and tugboats used to assist dredging barges), as well as haul trucks used for pile deliveries and disposal of dredged material).

Table 3.2-19 shows that overlapping construction and operational emissions during 2015, the peak year of construction, would exceed the SCAQMD daily emission thresholds for construction for PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC. Therefore, impacts would be significant during the peak year of construction and operational overlap under CEQA.

Mitigation Measures

The following mitigation measures would reduce criteria pollutant emissions associated with proposed project construction. These mitigation measures would be implemented by the responsible parties identified in 3.2.4.7. Table 3.2-20 presents the peak day criteria pollutant emissions associated with construction of the proposed Project after the application of MM AQ-1 through MM AQ-8. Table 3.2-21 presents the peak day combined construction and operational emissions, during the time of peak construction, after the application of MM AQ-1 through MM AQ-8.

MM AQ-1: **Crane Delivery Ships Used during Construction.** All ships and barges must comply with the expanded VSRP of 12 knots between 20 nm and 40 nm from Point Fermin.

MM AQ-2: **Harbor Craft Used during Construction.** Harbor craft must utilize EPA Tier 3 or cleaner engines.

MM AQ-3: **Fleet Modernization for On-Road Trucks Used during Construction.** Trucks with a GVWR of 19,500 or greater, including import haulers and earth movers, must comply with EPA 2007 on-road emission standards.

MM AQ-4: **Fleet Modernization for Construction Equipment (except vessels, harbor craft, on-road trucks, and dredging equipment).** All diesel-powered construction equipment greater than 50 hp must meet EPA Tier 4 off-road emission standards.

MM AQ-5: **Dredging Equipment.** All dredging equipment must be electric.

MM AQ-6: **Construction Best Management Practices (BMPs).** LAHD will implement BMPs, per LAHD Sustainable Construction Guidelines, to reduce air emissions from all LAHD-sponsored construction projects. The following measures are required for construction equipment, including on-road trucks used during construction:

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

LAHD will implement a process by which to select additional BMPs to further reduce air emissions during construction. LAHD will determine the BMPs once the contractor identifies and secures a final equipment list. Because the effectiveness of this measure has not been established and includes some emission reduction technology that may already be incorporated into equipment as part of the Tier level requirement in MM AQ-3 and MM AQ-4, it is not quantified in this study.

MM AQ-7: **Additional Fugitive Dust Controls.** Contractor must apply water to disturbed surfaces at an interval of 2 hours.

MM AQ-8: **General Mitigation Measure.** For any of the above mitigation measures (MM AQ-2 through MM AQ-4), if a CARB-certified technology becomes available and is shown to be as good as or better, in terms of emissions performance, than the existing measure, the technology could replace the existing measure pending approval by LAHD. Measures will be set at the time a specific construction contract is advertised for bid.

Table 3.2-20: Peak Daily Construction Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	5	5	296	1	271	43
Marine Source Exhaust	66	54	3,766	89	566	151
On-road Construction Vehicles	73	25	237	1	67	15
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	0	0	0	0	0	5
Total Construction Year 2015	**149**	**85**	**4,300**	**92**	**909**	**215**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Project Minus CEQA Baseline	149	85	4,300	92	909	215
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Table 3.2-20: Peak Daily Construction Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
NEPA Impacts						
NEPA Baseline Emissions	115	40	909	1	137	90
Project Minus NEPA Baseline	34	45	3,391	91	772	125
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
Construction Year 2016						
Off-road Construction Equipment Exhaust	1	1	70	0	49	8
Marine Source Exhaust	14	12	473	0	301	26
On-road Construction Vehicles	39	14	163	1	47	10
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	0	0	0	0	0	0
Total Construction Year 2016	**55**	**28**	**706**	**2**	**398**	**45**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Project Minus CEQA Baseline	55	28	706	2	398	45
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
NEPA Impacts						
NEPA Baseline Emissions	1	1	26	0	10	15
Project Minus NEPA Baseline	54	27	680	2	388	30
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Notes:

- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt offgassing.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Emissions reflect the maximum of upland and marine emissions associated with the disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions are NEPA construction emissions presented in Table 3.2-12.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Table 3.2-21: Peak Daily Combined Construction and Operational Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction 2015						
Off-road Construction Equipment Exhaust	5	5	296	1	271	43
Marine Source Exhaust	66	54	3,766	89	566	151
On-road Construction Vehicles	73	25	237	1	67	15
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	0	0	0	0	0	5
Operation 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Construction and Operation Year 2015	**500**	**316**	**16,945**	**370**	**3,096**	**942**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	110	51	6,345	-775	1,270	313
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	466	271	13,555	279	2,324	818
Project Minus NEPA Baseline	34	45	3,391	91	772	125
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of maximum daily emissions for each source category. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation. Emissions are zero in 2015 because a peak day during this year would not include a vessel using AMP.
- Emissions reflect the maximum of upland and marine emissions associated with the disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions include the NEPA baseline construction emissions plus the NEPA baseline operational emissions, presented in Table 3.2-12 and Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Residual Impacts

Emissions from construction of the proposed Project would be reduced with mitigation but would remain significant and unavoidable under CEQA for $PM_{2.5}$, NO_X, CO, and VOC in 2015 and for NO_X in 2016. In addition, although emissions from overlapping construction and operation would be reduced with mitigation, they would remain significant and unavoidable under CEQA for $PM_{2.5}$, NO_X, CO, and VOC during the 2015 peak construction year.

NEPA Impact Determination

Table 3.2-18 shows that unmitigated peak daily construction emissions would exceed the SCAQMD daily thresholds for $PM_{2.5}$, NO_X, CO, and VOC under NEPA in 2015 and 2016. Therefore, unmitigated proposed project construction emissions would be significant under NEPA for $PM_{2.5}$, NO_X, CO, and VOC prior to mitigation.

Table 3.2-19 shows that overlapping construction and operational emissions during 2015, the peak year of construction, would exceed the SCAQMD daily emission thresholds for construction for $PM_{2.5}$, NO_X, CO, and VOC. Therefore, impacts would be significant during the peak year of construction and operational overlap under NEPA.

Mitigation Measures

Table 3.2-20 presents the peak day criteria pollutant emissions associated with construction of the proposed Project, after the application of MM AQ-1 through MM AQ-8. Table 3.2-21 presents the peak daily combined construction and operational emissions, during the time of peak construction, after the application of MM AQ-1 through MM AQ-8.

Residual Impacts

Emissions from construction of the proposed Project would be reduced with mitigation but would remain significant and unavoidable under NEPA for NO_X, CO, and VOC in 2015 and for NO_X in 2016. In addition, although emissions from overlapping construction and operation would be reduced, emissions would remain significant and unavoidable under NEPA for NO_X, CO, and VOC during the 2015 peak construction year.

Impact AQ-2: Proposed project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.

Dispersion modeling of onsite construction emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2. Table 3.2-22 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction without mitigation. Table 3.2-23 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ from construction without mitigation. Table 3.2-24 presents maximum offsite ground level concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations without mitigation. Table 3.2-25 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations without mitigation. The proposed project concentration increments with overlapping construction and operation (Table 3.2-24 and Table 3.2-25) are generally lower than construction alone (Table 3.2-22 and Table 3.2-23) because the change in operational concentrations relative to existing conditions is generally less than zero (i.e., a net air quality benefit).

Table 3.2-22: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Proposed Project Construction without Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Project Concentration ($\mu g/m^3$)	Total Ground-Level Concentration ($\mu g/m^3$)[d]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above Threshold?
NO_2	Federal 1-hour[a]	164	1,031	**1,195**	188	**Yes**
	State 1-hour	190	1,154	**1,344**	338	**Yes**
	Federal annual	33	31	64	100	No
	State annual	33	31	**64**	57	**Yes**
SO_2	Federal 1-hour[b]	92	7	99	197	No
	State 1-hour	139	10	149	655	No
	24-hour	42	2	44	105	No
CO	1-hour	3,055	3,082	6,137	23,000	No
	8-hour	1,757	1,516	3,273	10,000	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98^{th} percentile of the daily maximum 1-hour averages.
[b] The federal 1-hour SO_2 modeled concentration represents the 99^{th} percentile of the daily maximum 1-hour averages.
[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.
[d] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-23: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Proposed Project Construction without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above Threshold?	NEPA Concentration above Threshold?
PM_{10}	24-hour	32.9	0	12.4	**32.9**	**26.3**	10.4	**Yes**	**Yes**
	Annual	1.4	0	0.3	**1.4**	**1.4**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	29.4	0	3.5	**29.4**	**26.7**	10.4	**Yes**	**Yes**

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents the proposed Project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

[c] The NEPA increment represents the proposed Project minus NEPA baseline.

[d] The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3.2-24: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Proposed Project Combined Construction and Operation without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Project Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above Threshold?
NO_2	Federal 1-hour[a]	164	940	**1,103**	188	**Yes**
	State 1-hour	190	1040	**1,230**	338	**Yes**
	Federal annual	33	26	60	100	No
	State annual	33	26	**60**	57	**Yes**
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	2,947	6,002	23,000	No
	8-hour	1,757	1,524	3,281	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents proposed project construction plus operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold.**

Table 3.2-25: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Proposed Project Combined Construction and Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above Threshold?	NEPA Concentration above Threshold?
PM_{10}	24-hour	36.7	22.7	35.5	**29.8**	**25.7**	10.4	**Yes**	**Yes**
	Annual	10.4	10.0	10.4	**1.2**	**1.4**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	30.0	7.8	10.4	**27.6**	**26.2**	10.4	**Yes**	**Yes**

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents proposed Project minus CEQA baseline.

[c] The NEPA increment represents proposed Project minus NEPA baseline.

[d] The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

CEQA Impact Determination

Table 3.2-22 shows that the maximum offsite NO_2 (federal 1-hour, state 1-hour and state annual average) concentrations from construction activities would exceed SCAQMD thresholds. Table 3.2-23 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from construction activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the construction of the proposed Project would be significant under CEQA for NO_2 (federal 1-hour, state 1-hour, and state annual average), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).

Table 3.2-24 shows that the maximum offsite NO_2 (federal 1-hour, state 1-hour, and state annual average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Table 3.2-25 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of the proposed Project would be significant under CEQA for NO_2 (federal 1-hour, state 1-hour, and state annual average), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).

Mitigation Measures

To reduce the level of impact during construction, MM AQ-1 through MM AQ-8 would be applied. These mitigation measures would be implemented by the responsible parties identified in 3.2.4.7.

Table 3.2-26 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction with mitigation. Table 3.2-27 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ from construction with mitigation. Table 3.2-28 presents concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations with construction mitigation. Table 3.2-29 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations with construction mitigation.

Table 3.2-26: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Proposed Project Construction with Mitigation

Pollutant	Averaging Time	Background Concentration (μg/m^3)[c]	Maximum Modeled Project Concentration (μg/m^3)	Total Ground-Level Concentration (μg/m^3)[d]	SCAQMD Threshold (μg/m^3)	Concentration above Threshold?
NO_2	Federal 1-hour[a]	164	473	**636**	188	**Yes**
	State 1-hour	190	537	**727**	338	**Yes**
	Federal annual	33	14	47	100	No
	State annual	33	14	47	57	No
SO_2	Federal 1-hour[b]	92	6	98	197	No
	State 1-hour	139	9	148	655	No
	24-hour	42	1	43	105	No
CO	1-hour	3,055	954	4,009	23,000	No
	8-hour	1,757	159	1,915	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-27: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Proposed Project Construction with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above Threshold?	NEPA Concentration above Threshold?
PM_{10}	24-hour	13.7	0	12.4	**13.7**	3.3	10.4	**Yes**	No
	Annual	0.4	0	0.3	0.4	0.4	1.0	No	No
$PM_{2.5}$	24-hour	7.4	0	3.5	7.4	5.5	10.4	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents proposed project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

[c] The NEPA increment represents proposed project minus NEPA baseline.

[d] The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3.2-28: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Proposed Project Combined Construction and Operation with Mitigation

Pollutant	Averaging Time	Background Concentration (μg/m^3)[c]	Maximum Modeled Project Concentration Increment (μg/m^3)[d]	Total Ground-Level Concentration (μg/m^3)[e]	SCAQMD Threshold (μg/m^3)	Concentration above Threshold?
NO_2	Federal 1-hour[a]	164	381	**545**	188	**Yes**
	State 1-hour	190	418	**608**	338	**Yes**
	Federal annual	33	10	44	100	No
	State annual	33	10	44	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	1,000	4,055	23,000	No
	8-hour	1,757	170	1,927	10,000	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.
[d] The maximum modeled concentration increment represents proposed project construction plus operation minus 2012 terminal operations.
[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-29: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Proposed Project Combined Construction and Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (μg/m³)	Maximum Modeled Concentration of CEQA Baseline (μg/m³)	Maximum Modeled Concentration of NEPA Baseline (μg/m³)	Ground-Level Concentration CEQA Increment (μg/m³)[a,b]	Ground-Level Concentration NEPA Increment (μg/m³)[a,c]	SCAQMD Threshold (μg/m³)	CEQA Concentration above Threshold?	NEPA Concentration above Threshold?
PM_{10}	24-hour	36.1	22.7	35.5	**13.7**	2.7	10.4	**Yes**	No
	Annual	10.4	10.0	10.4	0.5	0.4	1.0	No	No
$PM_{2.5}$	24-hour	10.5	7.8	10.4	6.2	5.3	10.4	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents proposed Project minus CEQA baseline.

[c] The NEPA increment represents proposed Project minus NEPA baseline.

[d] The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

Residual Impacts

Table 3.2-26 shows that the maximum offsite state annual NO_2 concentration from construction activities would be reduced to a less-than-significant level with mitigation. The federal and state 1-hour NO_2 concentrations would be reduced with mitigation but would remain significant. Table 3.2-27 shows that the maximum offsite incremental annual PM_{10} and 24-hour $PM_{2.5}$ concentrations from construction activities would be reduced to less-than-significant levels with mitigation. The 24-hour PM_{10} concentration would be reduced with mitigation but would remain significant. Therefore, with mitigation, maximum offsite ambient pollutant concentrations associated with the construction of the proposed Project would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average) and PM_{10} (24-hour average).

Table 3.2-28 shows that the maximum offsite state annual NO_2 concentration from overlapping construction and operational activities would be reduced to a less-than-significant level with mitigation. The federal and state 1-hour NO_2 concentrations would be reduced with mitigation but would remain significant. Table 3.2-29 shows that the maximum offsite incremental annual PM_{10} and 24-hour $PM_{2.5}$ concentrations from overlapping construction and operational activities would be reduced to less-than-significant levels with mitigation. The 24-hour PM_{10} concentration would be reduced with mitigation but would remain significant. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of the proposed Project would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average) and PM_{10} (24-hour average).

NEPA Impact Determination

Table 3.2-22 shows that the maximum offsite NO_2 (federal 1-hour, state 1-hour, and state annual average) concentrations from construction activities would exceed SCAQMD thresholds. Table 3.2-23 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour) concentrations from construction activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the construction of the proposed Project would be significant under NEPA for NO_2 (federal 1-hour, state 1-hour, and state annual average), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).

Table 3.2-24 shows that the maximum offsite NO_2 (federal 1-hour, state 1-hour, and state annual average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Table 3.2-25 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of the proposed Project would be significant under NEPA for NO_2 (federal 1-hour, state 1-hour, and state annual average), PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average).

Mitigation Measures

Table 3.2-26 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction with mitigation. Table 3.2-27 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ from construction with mitigation. Table 3.2-28 presents concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations with mitigation. Table 3.2-29 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations with mitigation.

Residual Impacts

Table 3.2-26 shows that the maximum offsite state annual NO_2 concentration from construction activities would be reduced to a less-than-significant level with mitigation. The federal and state 1-hour NO_2 concentrations would be reduced with mitigation but would remain significant. Table 3.2-27 shows that the maximum offsite incremental PM_{10} and $PM_{2.5}$ concentrations from construction activities would be reduced with mitigation below the level of significance. Therefore, with mitigation, maximum offsite ambient pollutant concentrations associated with construction of the proposed Project would be significant under NEPA for NO_2 (federal 1-hour and state 1-hour average).

Table 3.2-28 shows that the maximum offsite state annual NO_2 concentration from overlapping construction and operational activities would be reduced to a less-than-significant level with mitigation. The federal and state 1-hour NO_2 concentrations would be reduced with mitigation but would remain significant. Table 3.2-29 shows that the maximum offsite incremental PM_{10} and $PM_{2.5}$ concentrations from overlapping construction and operational activities would be reduced with mitigation below the level of significance. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of the proposed Project would be significant under NEPA for NO_2 (federal 1-hour and state 1-hour).

Impact AQ-3: The proposed Project would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.

Table 3.2-30 presents unmitigated peak daily criteria pollutant emissions associated with operation of the proposed Project. Emissions were estimated for three proposed project study years: 2017, 2020, and 2026. Peak daily emissions represent upper-bound estimates of activity levels at the terminal and as such would occur infrequently. Comparisons to the CEQA and NEPA baseline emissions are presented to determine CEQA and NEPA significance, respectively.

Proposed Project source characteristics, activity levels, fuel sulfur content, emission factors, and other parameters assumed in the operational emissions are discussed in detail in Section 3.2.4.1, Methodology—Table 3.2-5 for container ships and TEU throughput, Table 3.2-6 for CHE, Table 3.2-7 for trucks, and Table 3.2-8 for trains.

Table 3.2-30: Peak Daily Operational Emissions without Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	164	131	9,117	226	976	525
Ships—Hoteling	44	36	1,820	104	165	65
AMP Electricity Use	0	0	23	4	2	0
Tugboats	10	9	426	0	215	25
Trucks	128	46	1,199	3	402	79

Table 3.2-30: Peak Daily Operational Emissions without Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Line Haul Locomotives	30	28	1,198	1	280	51
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	4	3	262	2	291	37
Transportation Refrigeration Units	0	0	9	0	11	3
Worker Vehicles	11	3	7	0	68	3
Total Year 2017	**392**	**257**	**14,089**	**340**	**2,420**	**789**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	2	(8)	3,489	(804)	595	159
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	232	12,786	282	2,267	739
Project Minus NEPA Baseline	35	25	1,302	59	154	50
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
Year 2020						
Ships—Transit and Anchoring	170	136	9,421	232	1,010	544
Ships—Hoteling	41	33	1,675	98	152	60
AMP Electricity Use	1	1	35	7	3	0
Tugboats	2	1	63	0	134	6
Trucks	147	53	1,255	3	452	90
Line Haul Locomotives	33	30	1,414	1	380	54
Switch Locomotives	0	0	31	0	10	2
Cargo Handling Equipment	4	3	215	2	338	37
Transportation Refrigeration Units	0	0	9	0	12	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**409**	**261**	**14,125**	**344**	**2,553**	**797**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	19	(4)	3,524	(801)	728	167
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	226	12,388	285	2,260	726
Project Minus NEPA Baseline	52	36	1,737	59	293	71
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**

Table 3.2-30: Peak Daily Operational Emissions without Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2026						
Ships—Transit and Anchoring	172	137	9,523	236	1,021	549
Ships—Hoteling	45	36	1,827	104	166	66
AMP Electricity Use	1	1	35	7	3	0
Tugboats	1	1	58	0	134	6
Trucks	168	60	768	4	366	75
Line Haul Locomotives	26	24	1,202	2	464	46
Switch Locomotives	0	0	31	0	13	2
Cargo Handling Equipment	4	3	139	3	395	34
Transportation Refrigeration Units	0	0	12	0	13	2
Worker Vehicles	14	4	5	0	54	2
Total Year 2026	**431**	**266**	**13,601**	**355**	**2,629**	**781**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	41	1	3,001	(789)	803	151
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	375	229	11,853	286	2,332	708
Project Minus NEPA Baseline	55	37	1,748	69	297	72
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of peak daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Discussion of Project Emissions Trends without Mitigation

Emissions would vary over the life of the proposed Project due to several factors, such as regulatory requirements, activity levels, source (container ships, tugboats, trucks, locomotives, CHE, and worker vehicles) characteristics, and emission factors. The combination of these factors can result in emissions that do not always decrease or increase consistently over time.

For the proposed Project, terminal activity would increase in each study year. However, regulatory requirements described in Section 3.2.3 and Table 3.2-4 would serve to decrease emission factors from most proposed project sources. In addition, as equipment ages, engine efficiency would decrease and emission factors would increase in comparison to brand-new equipment.

The main drivers of the operational emissions presented for the proposed Project under Impact AQ-4 are the following:

- Terminal throughput:
  - Terminal throughput would increase from a maximum of just under 1,000,000 TEUs during the 2012 CEQA baseline to a maximum of just over 1,900,000 TEUs in year 2026.
- Container ships:
  - Container ships size would increase from a maximum of 7,000 TEUs during the 2012 CEQA baseline to a maximum of 12,000 TEUs in year 2026.
  - The annual number of container ship transits would increase from 162 during the 2012 baseline to 206 by year 2026. The peak day number of container ship transits and hoteling at berth would increase from 3 during the 2012 baseline to 4 by year 2026.
  - Sulfur fuel content would decrease from 0.5% in the baseline to 0.1% in future analysis years, in compliance with CARB's ATCM for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline and MARPOL Annex VI (DieselNet 2013a and IMO 2008). The reduction in fuel sulfur content would primarily serve to decrease PM_{10}, $PM_{2.5}$, and SO_X emissions.
  - The percentage of container ships complying with LAHD's VSRP requirements is assumed not to change in future analysis years.
  - The number of AMP berths would increase from 1 during the 2012 baseline to 3 by year 2026. AMP utilization would increase to 80% by year 2026, in compliance with CARB's *Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port* (CARB 2007a).
  - The number of vessels using AMP on a peak day would increase from zero during the 2012 baseline to 2 by year 2026.
- Tugboats:
  - Tugboat activity would increase in proportion to the number of container ship visits.
  - Tugboat emission factors would decline in compliance with CARB's Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated within California Waters and 24 nm of the California Baseline (CARB 2010a).
- CHE:
  - CHE activity would increase in proportion to terminal throughput.
  - CHE emission factors would decline in compliance with CARB's *Mobile CHE at Ports and Intermodal Rail Yards.* (CARB 2012a).

- Trucks:
  - Truck activity would increase as terminal throughput increases.
  - Truck emission factors would remain close to 2012 levels because the Port's Clean Truck Program required all drayage trucks to meet 2007 EPA emission standards starting January 2012. The emission factors would increase slightly after 2012 as the truck fleet ages, followed by a gradual reduction back toward 2012 levels as the fleet begins to turn over and reach fleet age equilibrium. NO_X emission factors are predicted to decline below 2012 levels by 2023 in response to the CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation, which requires that trucks meet EPA 2010 and newer standards.
- Locomotives:
  - Locomotive activity would increase as terminal throughput increases.
  - Line haul and switch locomotive emission factors would decline as older locomotives reach the end of their useful life and are replaced by newer, cleaner locomotives that meet EPA tiered emission standards, such as the Tier 4 standards that apply to new and remanufactured locomotives starting in 2015.

CEQA Impact Determination

Table 3.2-30 shows that unmitigated peak daily operational emissions would exceed the SCAQMD daily emission thresholds and would be significant for NO_X, CO, and VOC under CEQA in all analysis years.

The largest contributors to peak daily operational emissions in all analysis years would be emissions from container ship transit. Trucks, container ship hoteling, and locomotives would be key secondary contributors. Emissions for all analyzed pollutants would increase between years 2017 and 2020 due to terminal throughput increase. Emissions would decline for NO_X and VOC from year 2020 to 2026 as regulatory requirements for trucks, locomotives, and CHE offset emissions due to terminal throughput increase.

Mitigation Measures

The following mitigation measures would reduce criteria pollutant emissions associated with proposed project operation. These mitigation measures would be implemented by the responsible parties identified in 3.2.4.7. Table 3.2-31 resents the peak daily criteria pollutant emissions associated with operation of the proposed Project, after the application of MM AQ-9 and MM AQ-10.

MM AQ-9: **Vessel Speed Reduction Program (VSRP).** Starting January 1, 2017, and thereafter, 95% of ships calling at the YTI Terminal will be required to comply with the expanded VSRP at 12 knots between 40 nm from Point Fermin and the Precautionary Area.

MM AQ-10: **Alternative Maritime Power (AMP).** By 2026, NYK Line operated ships calling at the YTI Terminal must use AMP for 95% of total hoteling hours while hoteling at the Port.

The following lease measures would also potentially reduce future emissions. These measures were not quantified in the analysis because the future technologies that may be implemented through these measures have not yet been identified.

LM AQ-1: **Periodic Review of New Technology and Regulations.** LAHD will require the tenant to review any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to LAHD. Such technology feasibility reviews will take place at the time of LAHD's consideration of any lease amendment or facility modification for the proposed project site. If the technology is determined by LAHD to be feasible in terms of cost and technical and operational feasibility, the tenant will work with LAHD to implement such technology.

Potential technologies that may further reduce emissions and/or result in cost-savings benefits for the tenant may be identified through future work on the Clean Air Action Plan (CAAP). Over the course of the lease, the tenant and LAHD will work together to identify potential new technology. Such technology will be studied for feasibility, in terms of cost, technical and operational feasibility, and emissions reduction benefits. As partial consideration for the lease amendment, the tenant will implement not less frequently than once every five years following the effective date of the permit new air quality technological advancements, subject to mutual agreement on operational feasibility and cost sharing, which will not be unreasonably withheld. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies.

LM AQ-2: **Substitution of New Technology by Tenant.** If any kind of technology becomes available and is shown to be as good as or better than the existing measure in terms of emissions reduction performance, the technology could replace the requirements of MM AQ-9 and MM AQ-10, pending approval by LAHD.

Table 3.2-31: Peak Daily Operational Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	155	124	8,444	207	945	516
Ships—Hoteling	44	36	1,820	104	165	65
AMP Electricity Use	0	0	23	4	2	0
Tugboats	10	9	426	0	215	25
Trucks	128	46	1,199	3	402	79
Line Haul Locomotives	30	28	1,198	1	280	51
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	4	3	262	2	291	37
Transportation Refrigeration Units	0	0	9	0	11	3
Worker Vehicles	11	3	7	0	68	3

Table 3.2-31: Peak Daily Operational Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Total Year 2017	**383**	**249**	**13,416**	**322**	**2,389**	**779**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	(7)	(16)	2,816	(823)	564	150
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	232	12,786	282	2,267	739
Project Minus NEPA Baseline	26	17	630	40	123	41
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
Year 2020						
Ships—Transit and Anchoring	159	127	8,674	212	976	533
Ships—Hoteling	41	33	1,675	98	152	60
AMP Electricity Use	1	1	35	7	3	0
Tugboats	2	1	63	0	134	6
Trucks	147	53	1,255	3	452	90
Line Haul Locomotives	33	30	1,414	1	380	54
Switch Locomotives	0	0	31	0	10	2
Cargo Handling Equipment	4	3	215	2	338	37
Transportation Refrigeration Units	0	0	9	0	12	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**398**	**253**	**13,377**	**323**	**2,519**	**787**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	8	(12)	2,777	(821)	693	157
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	226	12,388	285	2,260	726
Project Minus NEPA Baseline	41	27	989	38	258	60
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
Year 2026						
Ships—Transit and Anchoring	161	129	8,768	215	986	538
Ships—Hoteling	32	25	1,210	81	111	44
AMP Electricity Use	2	2	86	16	8	0
Tugboats	1	1	58	0	134	6
Trucks	168	60	768	4	366	75
Line Haul Locomotives	26	24	1,202	2	464	46

Table 3.2-31: Peak Daily Operational Emissions with Mitigation—Proposed Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Switch Locomotives	0	0	31	0	13	2
Cargo Handling Equipment	4	3	139	3	395	34
Transportation Refrigeration	0	0	12	0	13	2
Worker Vehicles	14	4	5	0	54	2
Total Year 2026	**408**	**248**	**12,280**	**321**	**2,544**	**749**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Project Minus CEQA Baseline	18	(17)	1,679	(823)	718	120
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	375	229	11,853	286	2,332	708
Project Minus NEPA Baseline	33	19	386	29	211	41
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Notes:

- Emissions assume the simultaneous occurrence of peak daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- NEPA baseline emissions reflect the NEPA baseline operational, presented in Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Residual Impacts

Table 3.2-31 shows that for years 2017 and 2020, total emissions for all pollutants would decline from unmitigated levels due to higher VSRP compliance. For a peak day, VSRP compliance in the 20nm to 40nm zone would increase from 2 container ships to 3 container ships starting in year 2017. For year 2026, total emissions for all pollutants would decline from unmitigated levels due to higher AMP compliance. For a peak day, AMP compliance would increase from 2 to 3 container ships using AMP in year 2026.

Emissions from operation of the proposed Project would be reduced with mitigation but would remain significant and unavoidable under CEQA for NO_X, CO, and VOC in all analysis years.

Mitigation measures identified for the proposed Project activities would comply with source-specific performance standards in the San Pedro Bay Ports CAAP. Table 3.2-32 details how proposed Project mitigation measures compare to those identified in the San Pedro Bay Ports CAAP.

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
HDV-1	Performance Standards for On-Road Heavy-Duty Vehicles (HDVs)	This measure requires that all trucks servicing both ports comply with 2007 EPA heavy-duty on-road emissions standards, in addition to safety and security requirements, by January 1, 2012. Incentives, grants, and financing were provided to support the required fleet turnover. This comprehensive program maximized the associated emissions reductions and greatly reduced health risk concerns associated with trucks. The measure was being implemented through port tariffs and lease agreements.	No mitigation assumed.	**HDV-1** The terminal operator is responsible for ensuring gate restrictions and tracking. HDV-1 is treated as a project element in the air quality analysis. HDV-1 is preempted by CARB requirements.
HDV-2	Alternative Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	In order to encourage use of alternative fueled trucks, the ports will support development of alternative-fuel infrastructure in the port complex.	No mitigation assumed.	**HDV-2** This measure has been implemented by the ports. A public LNG/CNG facility is operational in Wilmington.
OGV-1	OGV Vessel Speed Reduction Program (VSRP)	OGVs that call at the SPB ports shall not exceed 12 knots within 20 and 40 nm of Point Fermin.	**MM AQ-9:** Starting January 1, 2017, and thereafter, 95% of ships calling at the YTI Terminal will be required to comply with the expanded VSRP at 12 knots between 40 nm from Point Fermin and the Precautionary Area.	**MM AQ-9** complies with OGV-1, which targets a 95% compliance rate through lease provisions.
OGV-2	Reduction of At-Berth OGV Emissions	The use of shore power to reduce hoteling emissions implemented at all container and cruise terminals and one liquid bulk terminal at the Port of Los Angeles	**MM AQ-10:** NYK Line-operated container ships calling at the YTI Terminal must comply with the following AMP percentage while hoteling at the Port: 95% of total hoteling hours by 2026.	**MM AQ-10** complies with CAAP OGV-2. OGV-2 is preempted by CARB regulation.

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
OGV-3	OGV Auxiliary Engine Fuel Standards	This measure reduces emissions from the auxiliary engines and auxiliary boilers of OGVs during their approach and departure from the ports, by switching to ≤0.2% sulfur distillate fuel (MGO or MDO) within 40 nm from Point Fermin. Compliance with the CARB rule limit of ≤0.1% sulfur distillate fuel (MGO or MDO) starts on January 1, 2012.	No mitigation assumed.	OGV-3 is preempted by CARB and IMO ECA requirements.
OGV-4	OGV Main Engine Fuel Standards	This measure reduces emissions from main engines of OGVs during their approach and departure from the ports, by switching to ≤0.2% sulfur distillate (MGO or MDO) fuel within 40 nm from Point Fermin. Compliance with the CARB rule limit of ≤0.1% sulfur distillate fuel (MGO or MDO) starts on January 1, 2012.	No mitigation assumed.	OGV-3 is preempted by CARB and IMO ECA requirements.
OGV-5	Cleaner OGV Engines	Focuses on the early introduction and preferential deployment of vessels that comply with the Annex VI NO_X and SO_X standards for ECAs into the fleet that calls at the Ports of Long Beach and Los Angeles.	No mitigation assumed.	

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
OGV-6	OGV Engine Emission Reduction Technology Improvements	This measure seeks to encourage demonstration and deployment of cleaner OGV engine technologies that are validated through the Technology Advancement Program (TAP) or by the regulatory agencies. The goal of this measure is to reduce DPM and NO_X emissions of in-use vessels.	No mitigation assumed.	
CHE-1	Performance Standards for CHE	By the end of 2010, all yard tractors will meet, at a minimum, the EPA 2007 on-road or Tier 4 off-road standards. By the end of 2012, all pre-2007 on-road or pre-2004 off-road top picks, forklifts, reach stackers, RTGs, and straddle carriers <= 750 hp will meet at a minimum the EPA 2007 on-road or Tier 4 off-road engine standards. By the end of 2015, all CHE with engines >750 hp will meet at a minimum the EPA Tier 4 off-road engine standards. Until equipment is replaced with Tier 4, all CHE with engines >750 hp will be equipped with the cleanest available VDECs.	No mitigation assumed.	CHE-1 is preempted by CARB regulation, which is treated as a project element in the air quality analysis.

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
HC-1	Performance Standards for Harbor Craft	All harbor craft operating in the Ports of Long Beach and Los Angeles are required to comply with the CARB harbor craft regulation. In addition, by 2008 all harbor craft home-ported in the San Pedro Bay will meet EPA Tier 2 standards for harbor craft, or equivalent reductions. After Tier 3 engines become available between 2009 and 2014, within five years all harbor craft homebased in the San Pedro Bay will be repowered with the new engines. All tugs will use shore power while at their home port location.	No mitigation assumed.	This measure is a Port-wide measure. 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 will implement HC-1 through a Port-wide Program as described in the CAAP. The proposed project air quality analysis assumes that a portion of the Port tugboat fleet will be re-powered through the CARB Carl Moyer Program.

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
RL-1	PHL Rail Switch Engine Modernization	This measure was implemented through the second amendment to the operating agreement between the Port of Los Angeles, Port of Long Beach, and Pacific Harbor Line (PHL). By 2008, all existing switch engines in the ports were replaced with at least Tier 2 engines and will use emulsified fuels as available or other equivalently clean alternative diesel fuels. Any new switch engine acquired after the initial replacement must meet EPA Tier 3 standards or a NO_X standard of 3 g/bhp-hr and a DPM standard of 0.0225 g/bhp-hr. All switch engines will have 15-minute idling limit devices installed and operational.	No mitigation assumed.	In 2011 all PHL engines were gensets and Tier 3-plus engines. RL-1 was treated as a project element in the air quality analysis.

Table 3.2-32: Comparison between San Pedro Bay Ports 2010 CAAP Update Control Measures and Proposed Project Mitigation Measures

CAAP Measure #	CAAP Measure Name	CAAP Measure Description	EIS/EIR Mitigation Measure (MM)	Discussion
RL-2	Class 1 Line-haul and Switcher Fleet Modernization	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 ultra-low sulfur diesel (ULSD) fuels. 15-minute idle restrictors. Specifically, by 2010, all Class I locomotives will meet emissions equivalent to Tier 2 standards. By 2023, all Class I locomotives will meet emissions equivalent to Tier 3 standards.	No mitigation assumed.	RL-2 affects only existing Class 1 railroads (Class I railroads are BNSF and UP). The implementation strategy is based on the 1998 and 2005 MOUs between CARB and the Class 1 railroads and the 2008 US EPA locomotive engine standards. RL-2 was treated as a project element in the air quality analysis.
RL-3	New and Redeveloped Near-Dock 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 CAAP-RL2, utilize “clean” CHE and HDV, and utilize available “green-container” transport systems.	No mitigation assumed.	LAHD is meeting with Class I rail yards to discuss implementation of the Port wide Program under RL-3.

NEPA Impact Determination

Table 3.2-30 shows that unmitigated peak daily operational emissions would exceed the SCAQMD daily threshold for NO_X in all analysis years and for VOC in years 2020 and 2026. Therefore, unmitigated proposed project operational emissions would be significant under NEPA for NO_X and VOC prior to mitigation.

Mitigation Measures

Table 3.2-31 presents the peak daily pollutant emissions associated with operation of the proposed Project, after the application of MM AQ-9 and MM AQ-10. LM AQ-1 and LM AQ-2 are lease measures that may reduce future emissions; however, these measures were not quantified in the analysis because the future technologies that may be implemented through these measures have not yet been identified.

Residual Impacts

Emissions from operation of the proposed Project would be reduced with mitigation but would remain significant and unavoidable under NEPA for NO_X in all analysis years and for VOC in year 2020. Emissions of VOC in 2026 would be reduced to a less-than-significant level.

Figure 3.2-2 and Figure 3.2-3 plot the emission trends of NO_X and VOC, respectively, for the proposed Project CEQA and NEPA impacts, both with and without mitigation. For comparison, the SCAQMD significance threshold is also shown in the figures. Note that the CEQA and NEPA impacts are the proposed project emissions minus the CEQA or NEPA baseline emissions, respectively. Therefore, the impacts are different under CEQA and NEPA.

Figure 3.2-2: NO_X Emission Trends for the Proposed Project CEQA/NEPA Impacts

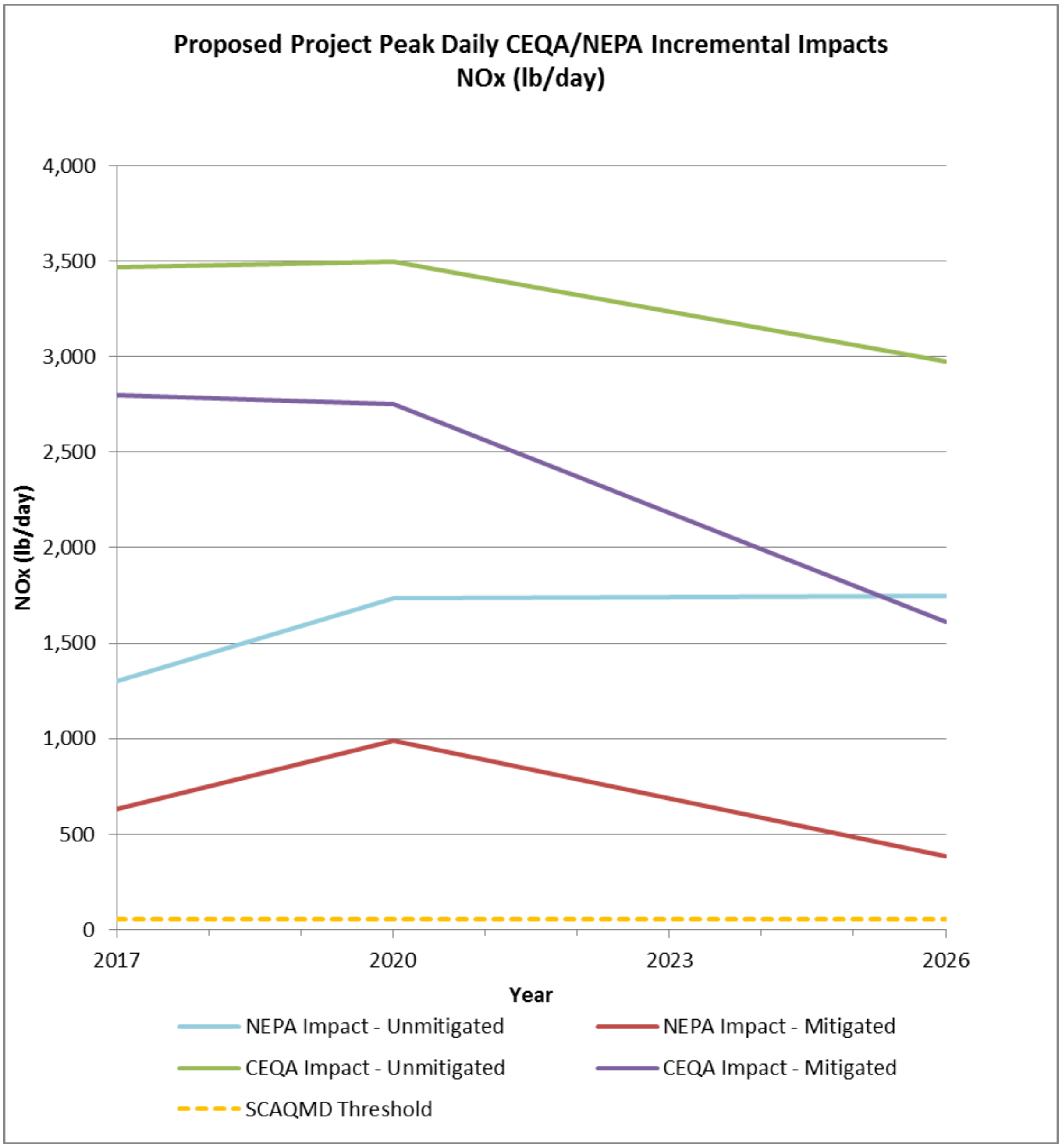
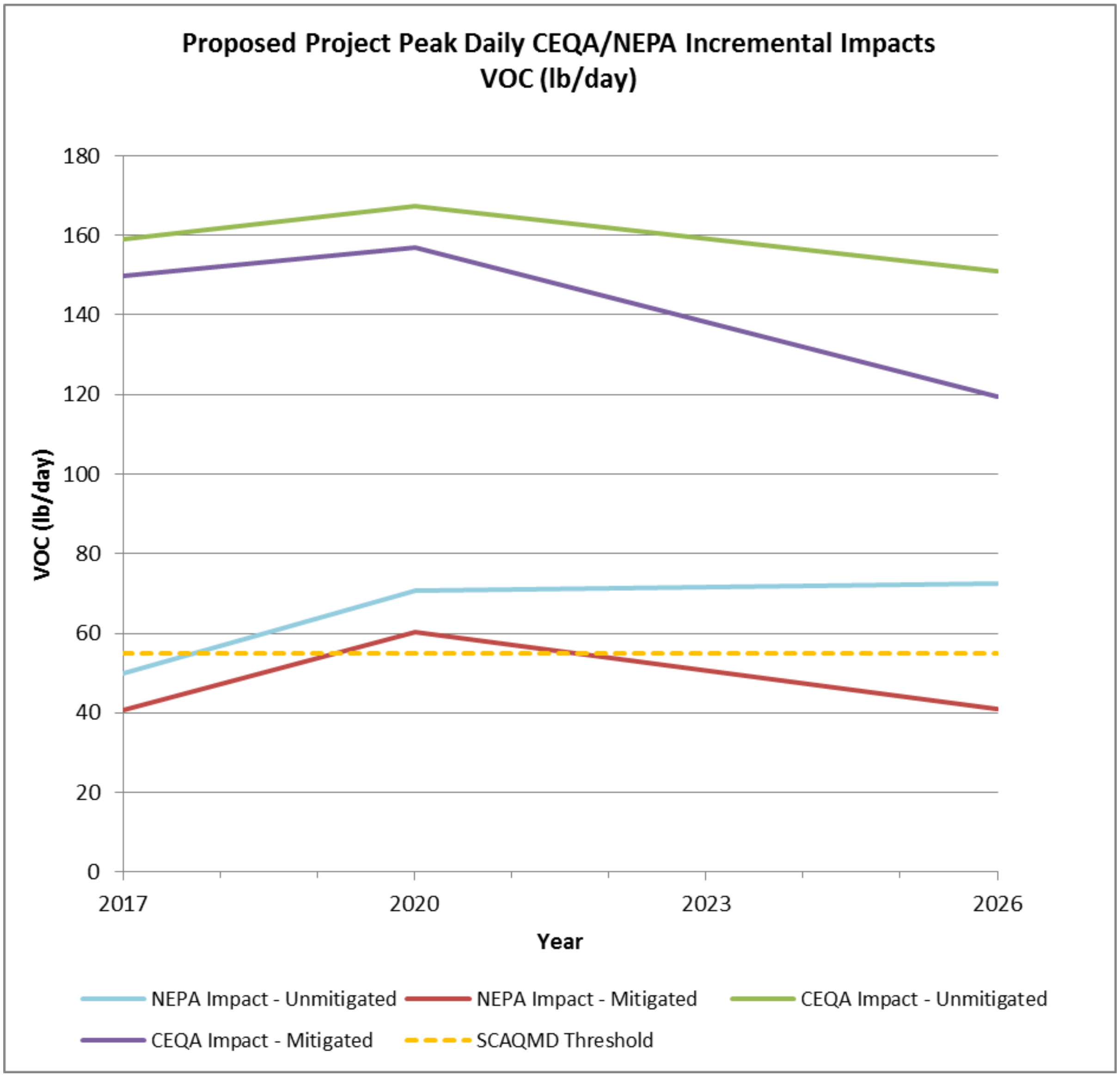


Figure 3.2-3: VOC Emission Trends for the Proposed Project CEQA/NEPA Impacts



Impact AQ-4: Proposed project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.

Dispersion modeling of onsite and offsite proposed project operational emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2. Table 3.2-33 presents the maximum offsite concentrations of NO_2, SO_2, and CO from operational activities without mitigation. Table 3.2-34 presents the maximum offsite concentrations of PM_{10} and $PM_{2.5}$ from operational activities without mitigation.

Table 3.2-33: Maximum Offsite NO_2, SO_2, and CO Concentrations—Proposed Project Operation without Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Project Concentration Increment ($\mu g/m^3$)[d]	Total Ground-Level Concentration ($\mu g/m^3$)[e]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above Threshold?
NO_2	Federal 1-hour[a]	164	36	**200**	188	**Yes**
	State 1-hour	190	43	233	338	No
	Federal annual	33	5	38	100	No
	State annual	33	5	38	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	205	3,260	23,000	No
	8-hour	1,757	141	1,897	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99^{th} percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents proposed project operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-34: Maximum Offsite PM_{10} and $PM_{2.5}$ Concentrations—Proposed Project Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above Threshold?	NEPA Concentration above Threshold?
PM_{10}	24-hour	34.0	22.7	30.6	**11.6**	**3.6**	2.5	**Yes**	**Yes**
	Annual	14.6	10.0	13.2	**4.5**	**1.3**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	9.8	7.8	8.8	2.1	1.1	2.5	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents proposed Project minus CEQA baseline.

[c] The NEPA increment represents proposed Project minus NEPA baseline.

[d] The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

CEQA Impact Determination

Table 3.2-33 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would exceed SCAQMD thresholds. Table 3.2-34 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with operation of the proposed Project would be significant under CEQA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

Mitigation Measures

To reduce the level of impact during construction, MM AQ-9 and MM AQ-10 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-35 presents the maximum offsite ground level concentrations of NO_2 with mitigation. Table 3.2-36 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ with mitigation.

Table 3.2-35: Maximum Offsite NO_2, SO_2 and CO Concentrations—Proposed Project Operation with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Project Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above Threshold?
NO_2	Federal 1-hour[a]	164	36	**200**	188	**Yes**
	State 1-hour	190	43	233	338	No
	Federal annual	33	5	38	100	No
	State annual	33	5	38	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	205	3,260	23,000	No
	8-hour	1,757	141	1,897	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents proposed project operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-36: Maximum Offsite PM_{10} and $PM_{2.5}$ Concentrations—Proposed Project Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m³)	Maximum Modeled Concentration of CEQA Baseline (µg/m³)	Maximum Modeled Concentration of NEPA Baseline (µg/m³)	Ground-Level Concentration CEQA Increment (µg/m³)[a,b]	Ground-Level Concentration NEPA Increment (µg/m³)[a,c]	SCAQMD Threshold (µg/m³)	CEQA Concentration above Threshold?	NEPA Concentration above Threshold?
PM_{10}	24-hour	34.0	22.7	30.6	**11.6**	**3.6**	2.5	**Yes**	**Yes**
	Annual	14.6	10.0	13.2	**4.5**	**1.3**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	9.8	7.8	8.8	2.1	1.1	2.5	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents proposed Project minus CEQA baseline.

[c] The NEPA increment represents proposed Project minus NEPA baseline.

[d] The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

Residual Impacts

Table 3.2-35 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would not be substantially reduced with mitigation and would remain significant under CEQA. Table 3.2-36 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would also not be substantially reduced with mitigation and would remain significant under CEQA.

NEPA Impact Determination

Table 3.2-33 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would exceed SCAQMD thresholds. Table 3.2-34 shows that that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with operation of the proposed Project would be significant under NEPA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

Mitigation Measures

To reduce the level of impact during operation, MM AQ-9 and MM AQ-10 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-35 presents the maximum offsite ground level concentration of NO_2 with mitigation. Table 3.2-36 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ with mitigation.

Residual Impacts

Table 3.2-35 shows that the maximum offsite NO_2 (federal 1-hour average) concentration would not be substantially reduced with mitigation and would remain significant under NEPA. Table 3.2-36 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would also not be substantially reduced with mitigation and would remain significant under NEPA.

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

Proposed project-generated truck and automobile trips would affect intersections predicted to operate at a poor LOS in future years. During periods of near-calm winds, heavily congested intersections can produce elevated levels of CO in their immediate vicinity. Therefore, a CO microscale modeling analysis was conducted to determine whether the proposed Project would contribute to a violation of the ambient air quality standards for CO at a local intersection. The methodology for conducting the CO analysis is provided in Section 3.2.4.1, Methodology. The following presents results of the CO microscale modeling analysis and impact determinations under CEQA and NEPA.

The intersection of Henry Ford Avenue and Anaheim Street (a.m. peak) was selected for the CO analysis. In 2026, this intersection is predicted by the traffic study (Appendix D) to operate at the highest peak hour volume, worst level of service (LOS F), and highest volume-to-capacity (V/C) ratio of any project-affected intersection included in the traffic study.

This CO hot spots analysis focused on roadway intersections instead of rail crossings because roadway intersections would produce the greater 1-hour and 8-hour localized CO impacts. Heavily congested intersections typically have near-continuous idling vehicles and slow moving traffic (both of which produce relatively high levels of CO) because the signal will always be red for one or more traffic movements. By contrast, rail crossings typically have free flowing traffic (which produces lower CO emissions) except intermittently when the rail crossing arms are down.

Table 3.2-37 presents maximum 1-hour and 8-hour CO concentrations predicted at locations three meters from the edge of the intersection. Results are presented for the 2012 baseline year, the first operational analysis year (2017), and the final operational analysis year (2026). The results show that CO concentrations would not exceed the CO standards during any proposed project study year.

Table 3.2-37: Maximum CO Concentrations at the Henry Ford Avenue and Anaheim Street Intersection—Proposed Project without Mitigation

Project Year	1-Hour Concentration (ppm)[a,d]	8-Hour Concentration (ppm)[b,c]
2012	5.4	4.1
2017	6.1	4.6
2026	5.7	4.3
Most Stringent Standard	20	9

Notes:
[a] 1-hour concentrations include a background concentration of 5.1 ppm.
[b] 8-hour concentrations include a background concentration of 3.9 ppm.
[c] A persistence factor of 0.7 was used to convert the 1-hour modeled concentration to an 8-hour concentration.
[d] CAL3QHC was run with worst case meteorological conditions of 1.0 meter per second wind speed, and stability F.

CEQA Impact Determination

Table 3.2-37 shows that CO standards would not be exceeded in the immediate vicinity of heavily congested intersections. CO impacts would therefore not be significant under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Table 3.2-37 shows that CO standards would not be exceeded in the immediate vicinity of heavily congested intersections. CO impacts would therefore not be significant under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

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

Operation of the proposed Project would increase air pollutants primarily due to the combustion of diesel fuel. Some individuals might find diesel combustion emissions to be objectionable in nature, although quantifying the odorous impacts of these emissions to the public is difficult due to the complex mixture of chemicals in diesel exhaust, the differing odor thresholds of these constituent species, and the difficulty quantifying the potential for changes in perceived odors even when air contaminant concentrations are known. Their mobile nature would serve to disperse most proposed project emissions. Additionally, the distance between proposed project emission sources and the nearest residents is expected to be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels. Furthermore, the existing industrial setting of the proposed Project represents an already complex odor environment. For example, existing nearby container terminals include freight and goods movement activities that use diesel trucks and diesel cargo-handling equipment that generate similar diesel exhaust odors as would the proposed Project. Within this context, the proposed Project would not likely result in changes to the overall odor environment in the vicinity.

CEQA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

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

Proposed project activities would emit TACs that could affect public health. An HRA was conducted to address potential public health effects from TACs generated by the proposed Project. The results of the HRA are summarized below, with impacts shown relative to the CEQA baseline, Future CEQA baseline, and NEPA baseline. The need for a CEQA analysis based on both the CEQA baseline and Future CEQA baseline is discussed in detail in Section 3.2.4.1, Methodology. Details of the analysis, including TAC emission calculations, dispersion modeling, and risk calculations, are presented in Appendix B3.

Example for Determining Maximum Risk Increment

For each receptor type, the maximum predicted impacts in the following tables often occur at different modeled receptor locations. This means that the CEQA increment cannot necessarily be determined by subtracting the displayed CEQA baseline result from the displayed proposed project result in the table. Likewise, the NEPA increment cannot necessarily be determined by subtracting the displayed NEPA baseline result from the displayed proposed project result in the table. Instead, an increment must be calculated at each of the hundreds of modeled receptors, and the receptor with the highest increment is presented in the table. The following example shows how the maximum CEQA increment for cancer risk at a land-based residential receptor (5×10^{-6}), shown in the first row of Table 3.2-38, was determined. This result is predicted to occur at modeled Receptor No. 873.

- Example—Determine CEQA Increment at Receptor No. 873:
  - Proposed Project cancer risk, Receptor No. 873 = 23.3 in a million
  - CEQA baseline cancer risk, Receptor No. 873 = 18.3 in a million
  - CEQA increment, Receptor No. 873 = 23.3–18.3 = 5.0 in a million

After performing an increment calculation similar to the above example at every modeled receptor, it was determined that Receptor No. 873 has the highest CEQA increment of any land-based residential receptor. Therefore, its CEQA increment of 5 in a million is reported in Table 3.2-38. Receptor No. 873 also happens to be the location of the highest proposed project cancer risk of any land-based residential receptor (this is not always the case). Therefore, its proposed project impact of 23 in a million is reported in Table 3.2-38. However, Receptor No. 873 is *not* the location of the highest CEQA baseline cancer risk at a land-based residential receptor; the highest value of 26 in a million occurs at Receptor No. 827. Therefore, the maximum CEQA baseline impact of 26 in a million, at Receptor No. 827, is reported in Table 3.2-38. As a result, in this example, the land-based residential cancer risk results for the proposed Project (23.3 in a million) and

CEQA baseline (26 in a million) do not subtract to equal the CEQA increment (5 in a million), although all displayed values are correct.

Although the above example shows the cancer risk increment being calculated at one modeled receptor, the complete determination of the maximum increment involves this same type of calculation at hundreds of modeled receptors. The chronic and acute noncancer hazard index increments, as well as the criteria pollutant concentration increments addressed in Impacts AQ-2 and AQ-4, are determined in the same way.

CEQA Impact Determination

The HRA indicates that approximately 99% of the cancer risk at all receptors would be caused by exposure to DPM. Table 3.2-38 presents the maximum predicted health impacts associated with the proposed Project without mitigation under CEQA. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Results are presented for the proposed Project, as well as for the CEQA and Future CEQA increments (proposed Project minus the CEQA baseline). Health impacts associated with the proposed Project would result in the following:

- Cancer Risk
    - In relation to the CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types except the occupational receptor. Cancer risk at the occupational receptor would exceed the significance threshold. Therefore, the proposed Project would result in a less-than-significant cancer risk at residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk at occupational receptors in comparison to the CEQA baseline.

      The maximum impacted occupational receptor would be located about 1,000 feet northeast of the YTI terminal truck out-gate, on industrial Port property, just north of the entry/exit road and TICTF storage tracks. Sources driving impacts at this receptor would be container trucks travelling in and out of the terminal. Figures showing the location of maximum impacted residential and occupational receptors in relation to the CEQA baseline are presented in Appendix B3, which also presents source contribution to cancer risk.

    - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types except the marina-based residential and occupational receptors. Cancer risk at the marina-based residential and occupational receptors would exceed the significance threshold. Therefore, the proposed Project would result in a less-than-significant cancer risk at land-based residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk at marina-based residential and occupational receptors in comparison to the Future CEQA baseline.

Figures 3.2-4 and 3.2-5 show contours of residential and occupational cancer risk, respectively, for the Future CEQA increment. The Future CEQA increment is shown in the figures instead of the CEQA increment because the former shows higher predicted risk.

Figure 3.2-4 shows that the maximum impacted residential receptor would be at the marina live-aboards (locations where people live on boats) in the Cerritos Channel, near Anchorage Street, just west of the Henry Ford and Schuyler Heim bridges. Cancer risk at this receptor would be driven by locomotives traveling across and beyond the Henry Ford Bridge (65%) and drayage trucks driving across and beyond the Schuyler Heim Bridge (23%).

Figure 3.2-5 shows that the maximum impacted occupational receptor would be located about 1,000 feet northeast of the YTI terminal truck out-gate, on industrial Port property, just north of the entry/exit road and TICTF storage tracks. Sources driving impacts at this receptor would be container trucks travelling in and out of the terminal.

Although live-aboard residents would be maximally impacted by the proposed Project, in general, these residents are not expected to stay in their locations for 70 years like traditional land-based residential populations considered under an HRA. Therefore, although residential cancer risk impact determinations were based on the maximum impacted receptors—in this case live-aboard residents—this analysis also identifies, for informational purposes, the impact at the maximum impacted land-side residential receptor. Figure 3.2-4 shows that the maximum impacted land-side residential receptor would occur near the intersection of Alameda Street and E. Mauretania Street, just south of Pacific Coast Highway. Cancer risk at all land-based residential receptors would be less than the significance threshold.

- Cancer Burden
  - In relation to the CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, the proposed Project would result in a less-than-significant cancer burden.
  - In relation to the Future CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, the proposed Project would result in a less-than-significant cancer burden.
- Chronic and Acute Impacts
  - Because chronic and acute hazard indices are based on annual and peak hour exposures instead of lifetime exposures like cancer risk, they are determined by comparing proposed Project-related impacts only to the CEQA baseline, which is the baseline at the time of the NOP in 2012.
  - The maximum chronic hazard index is predicted to be less than significant for all receptor types. Therefore, the proposed Project would result in a less-than-significant chronic noncancer impact.
  - The maximum acute hazard index is predicted to be less than significant for all receptor types. Therefore, the proposed Project would result in a less-than-significant acute noncancer impact.

Additional Analysis for Informational Purposes—Particulates: Morbidity and Mortality

Impact AQ-4 indicates that operation of the proposed Project would result in a maximum offsite 24-hour $PM_{2.5}$ concentration increment that would not exceed the SCAQMD significance threshold of 2.5 $\mu g/m^3$ (see Table 3.2-34). Because the operational $PM_{2.5}$ concentrations would be less than significant and would not exceed LAHD's criterion for calculating morbidity and mortality attributable to PM, potential mortality and morbidity effects were not quantified for the proposed Project.

Table 3.2-38: Maximum Incremental CEQA Health Impacts Associated with the Proposed Project without Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact: Proposed Project	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Cancer Risk	Residential: on Land	23×10^{-6} 23 in a million	26×10^{-6} 26 in a million	5×10^{-6} 5 in a million	19×10^{-6} 19 in a million	6×10^{-6} 6 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	37×10^{-6} 37 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	**11×10^{-6}** **11 in a million**	
	Occupational	94×10^{-6} 94 in a million	75×10^{-6} 75 in a million	**19×10^{-6}** **19 in a million**	63×10^{-6} 63 in a million	**31×10^{-6}** **31 in a million**	
	Sensitive	10×10^{-6} 10 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	3×10^{-6} 3 in a million	
	Student	0.7×10^{-6} 0.7 in a million	0.7×10^{-6} 0.7 in a million	0.07×10^{-6} 0.07 in a million	0.7×10^{-6} 0.7 in a million	0.07×10^{-6} 0.07 in a million	
	Recreational	17×10^{-6} 17 in a million	39×10^{-6} 39 in a million	2×10^{-6} 2 in a million	12×10^{-6} 12 in a million	5×10^{-6} 5 in a million	
Chronic Hazard Index		Proposed Project	CEQA Baseline[3]	CEQA Increment[3]			
	Residential: on Land	0.09	0.1	<0			1
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.6	0.4	0.2			
	Sensitive	0.08	0.1	<0			
	Student	0.08	0.1	<0			
	Recreational	0.1	0.2	0.004			
Acute Hazard Index	Residential: on Land	0.5	0.4	0.1			1
	Residential: in Marina	0.7	0.6	0.3			
	Occupational	1.1	0.9	0.6			
	Sensitive	0.5	0.3	0.1			
	Student	0.4	0.3	0.1			
	Recreational	0.7	0.6	0.3			

Table 3.2-38: Maximum Incremental CEQA Health Impacts Associated with the Proposed Project without Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Proposed Project	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	
Cancer Burden				CEQA Increment 0.002		Future CEQA Increment 0.20	0.5

Notes:

- Exceedances of the significance thresholds are in **bold**. The significance thresholds apply only to the increments.
- The CEQA increment represents the proposed Project minus CEQA baseline. The Future CEQA increment represents the proposed Project minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.
- Chronic and acute impacts are considered short-term impacts and are determined by comparing proposed Project-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.
- Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.
- The displayed values for the proposed project impacts and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.
- Construction emissions were modeled with the operational emissions for the determination of health impacts.
- An increment less than zero means the proposed project impact would be less than the baseline impact at all modeled receptors.

Figure 3.2-4: Isopleths of Residential Lifetime Cancer Risk: Unmitigated Proposed Project Minus Future CEQA Baseline

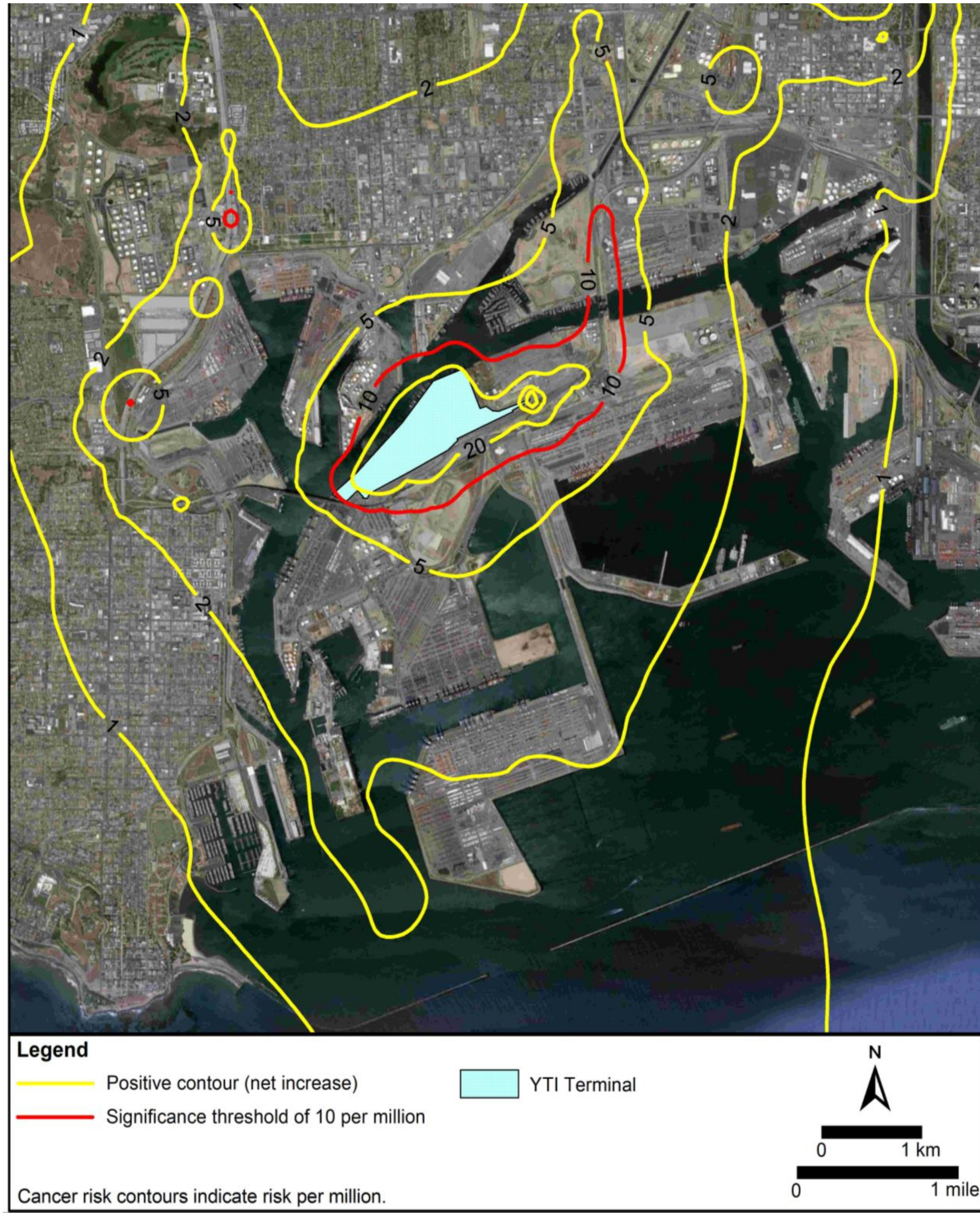
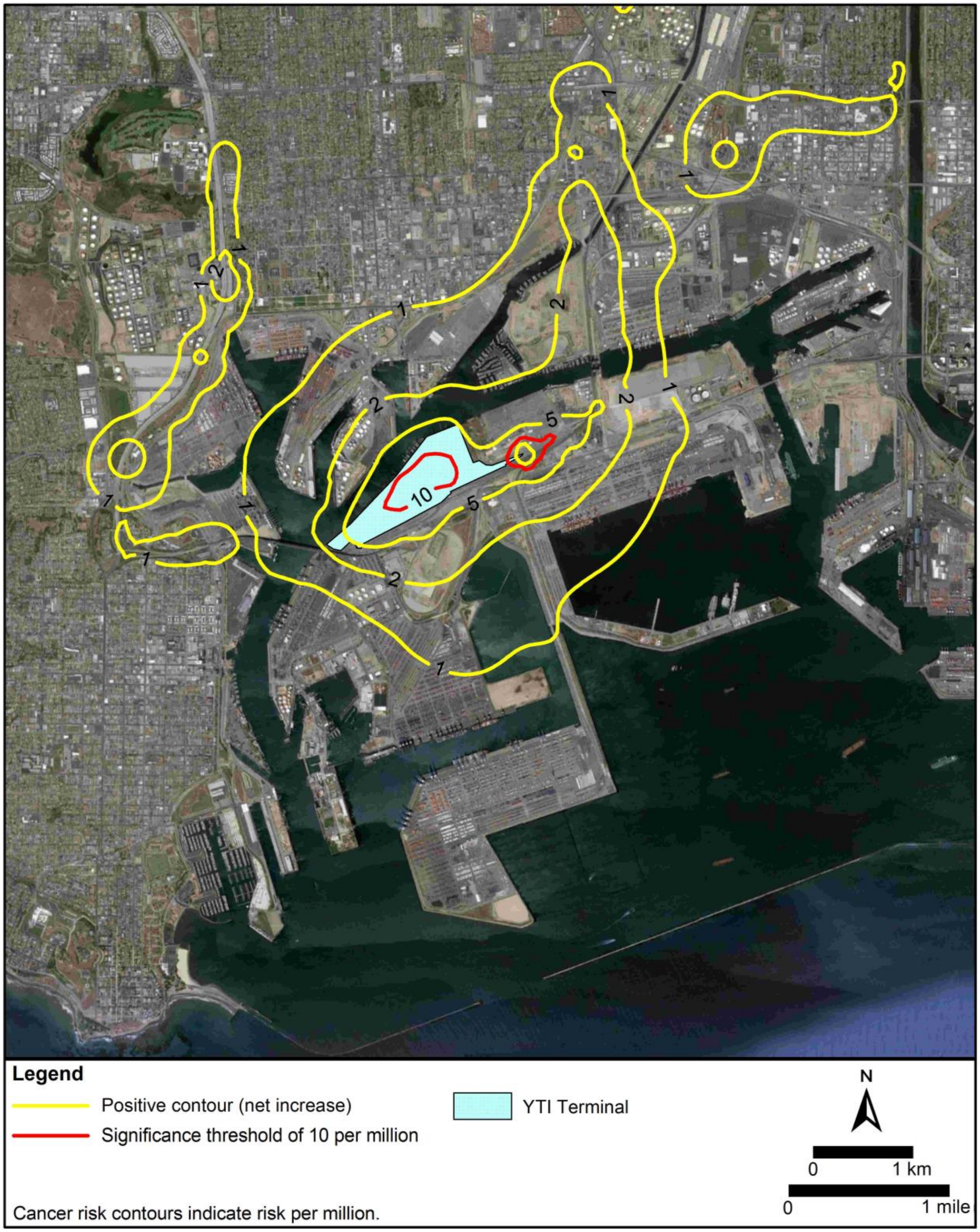


Figure 3.2-5: Isopleths of Occupational Lifetime Cancer Risk: Unmitigated Proposed Project Minus Future CEQA Baseline



Mitigation Measures

Table 3.2-39 presents the maximum predicted health impacts associated with the proposed Project after application of **MM AQ-1** through **MM AQ-8** for construction and **MM AQ-9** and **MM AQ-10** for operational sources. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

The potential for additional mitigation measures to address residential cancer risk impacts under the future baseline scenario was evaluated by the LAHD. Because, as described, one of the major sources driving cancer risk impacts at the peak marina-based residential receptor is the drayage trucks traveling on the Terminal Island Freeway to and from the YTI Terminal, the feasibility of mitigating YTI-related drayage trucks was considered. Drayage trucks operating at Port terminals are subject to the Clean Truck Program (CTP) implemented in 2008 by the Ports of Los Angeles and Long Beach. Starting January 1, 2012, all drayage trucks operating at Port terminals were required to meet EPA 2007 heavy duty truck emissions standards. In the period since the start of the CTP in 2008, more than 10,000 older drayage trucks have been replaced with EPA 2007 emissions-compliant trucks at a cost to the State of California and the two ports of more than $200 million and at a cost to private industry of more than $800 million. The result has been overall drayage truck emissions reductions of more than 90% in cancer causing DPM (LAHD 2012c).

In addition, CARB's 2011 amendment to the California On-Road Heavy-Duty In-Use Diesel Vehicles Regulation requires that by January 1, 2023, all model year 2007 class 8 drayage trucks meet NO_X and PM BACT, that is, EPA 2010+ engine standards (CARB 2011c). Analysis of health risk exposure for the proposed Project assumes full compliance with CTP requirements and CARB requirements.

To further reduce residential cancer risk caused by operation of these trucks, YTI would have to require that only trucks with DPM emissions lower than 2007-compliant trucks could operate at its terminal at the start of the project and then exceed CARB requirements by 2023, when all trucks operating in California will have to meet 2010 engine standards. In light of the more than $1 billion investment in clean drayage trucks made by the State, LAHD, and private industry in the last three years, to require that the drayage industry start replacing these trucks again right away is not considered feasible. Though no formal requirements have been approved at this time, it is expected that additional controls on drayage truck DPM emissions will be required by the State and LAHD in the coming years, thereby further reducing DPM emissions and associated residential cancer risk over the 70-year exposure period. No other feasible mitigation of DPM emissions from drayage trucks is available at this time.

Similar to drayage trucks, a locomotive fleet is not dedicated to a particular port terminal. PHL switch locomotives operate throughout both San Pedro Bay ports, and line haul locomotives are part of national Class I railroad (BNSF and UP) fleets. As a result, mitigation at the project level is not feasible for locomotives. However, as described in Section 3.2.3, much has already been done locally, regionally, and nationally to reduce locomotive emissions at the Port. Through the CAAP process, the San Pedro Bay ports are continuing to develop measures to accelerate future locomotive fleet turnover, thereby accelerating future locomotive emission reductions in the San Pedro Bay region and beyond. For example, CAAP Measure RL-2 has the goal that, by 2023, all Class 1 locomotives entering the ports will meet emissions equivalent to Tier 3 locomotive standards. Implementation of this measure will be through the requirements of the 1998 and 2005 CARB/Class I railroad agreements, voluntary commitments between CARB and the Class 1 rail operators, and implementation of the EPA rule establishing engine standards for locomotives. CAAP Measure RL-3, which applies to new and redeveloped near-dock rail yards located on port properties, has the more aggressive goal that, by 2020, accelerated turnover of the line-haul locomotive fleet will result in a state-wide fleet comprised of at least 95% Tier 4 line-haul locomotive engines. The ports will continue to work closely with regulatory agencies and rail companies to support achievement of the overall goals to maximize Tier 4 locomotives statewide, through technology development, implementation of regulatory strategies, securing incentive funding, and cooperative agreements (reference CAAP).

Residual Impacts

Table 3.2-39 shows the following health impacts associated with the proposed Project following the application of mitigation:

- Cancer Risk
  - In relation to the CEQA baseline, the maximum incremental cancer risk would remain above the significance threshold at the maximum impacted occupational receptor. Cancer risk at the occupational receptor would not change appreciably from the unmitigated scenario because cancer risk would be driven by truck exhaust, for which mitigation beyond the Clean Truck Program is not feasible. Therefore, the proposed Project would result in a less-than-significant cancer risk impact at residential, non-residential sensitive, student, and recreational receptors, but would remain significant and unavoidable at occupational receptors in comparison to the CEQA baseline.
  - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types except the marina-based residential and occupational receptors. Cancer risk at the maximum impacted marina-based residential receptor would not change appreciably from the unmitigated scenario because cancer risk at this receptor would be driven by locomotive exhaust, for which additional project-level mitigation is not feasible. Cancer risk at the maximum impacted occupational receptor would also not change appreciably from the unmitigated scenario because cancer risk at this receptor would be driven by container truck exhaust, for which mitigation beyond the Clean Truck Program is not feasible. Therefore, the proposed Project would result in a less-than-significant cancer risk at land-based residential, non-residential sensitive, student, and recreational receptors, but would result in a significant and unavoidable cancer risk impact at marina-based residential and occupational receptors in comparison to the Future CEQA baseline.

  The maximum impacted residential receptor would remain at the marina live-aboards in the Cerritos Channel, near Anchorage Street, just west of the Henry Ford and Schuyler Heim bridges. The cancer risk for land-based residential receptors would remain less than the significance threshold. The locations of the maximum residential and occupational cancer risk impacts would not change from the unmitigated scenario, as shown on Figures 3.2-6 and 3.2-7, respectively.

Table 3.2-39: Maximum Incremental CEQA Health Impacts Associated with the Proposed Project with Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Proposed Project	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	
Cancer Risk	Residential: on Land	23×10^{-6} 23 in a million	26×10^{-6} 26 in a million	5×10^{-6} 5 in a million	19×10^{-6} 19 in a million	6×10^{-6} 6 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	36×10^{-6} 36 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	**11×10^{-6}** **11 in a million**	
	Occupational	94×10^{-6} 94 in a million	75×10^{-6} 75 in a million	**19×10^{-6}** **19 in a million**	63×10^{-6} 63 in a million	**31×10^{-6}** **31 in a million**	
	Sensitive	10×10^{-6} 10 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	3×10^{-6} 3 in a million	
	Student	0.6×10^{-6} 0.6 in a million	0.7×10^{-6} 0.7 in a million	0.05×10^{-6} 0.05 in a million	0.7×10^{-6} 0.7 in a million	0.05×10^{-6} 0.05 in a million	
	Recreational	16×10^{-6} 16 in a million	39×10^{-6} 39 in a million	2×10^{-6} 2 in a million	12×10^{-6} 12 in a million	5×10^{-6} 5 in a million	
Chronic Hazard Index		Proposed Project	CEQA Baseline [3]	CEQA Increment [3]			
	Residential: on Land	0.08	0.1	<0			1
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.6	0.4	0.2			
	Sensitive	0.07	0.1	<0			
	Student	0.07	0.1	<0			
	Recreational	0.1	0.2	0.003			
Acute Hazard Index	Residential: on Land	0.5	0.4	0.1			1
	Residential: in Marina	0.6	0.6	0.2			
	Occupational	1.1	0.9	0.4			
	Sensitive	0.4	0.3	0.1			
	Student	0.3	0.3	0.1			

Table 3.2-39: Maximum Incremental CEQA Health Impacts Associated with the Proposed Project with Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact: Proposed Project	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
	Recreational	0.6	0.6	0.2			
Cancer Burden				CEQA Increment	Future CEQA Increment		0.5
				0.002	0.13		

Notes:

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

The CEQA increment represents the proposed Project minus CEQA baseline. The Future CEQA increment represents the proposed Project minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.

Chronic and acute impacts are considered short-term impacts and are determined by comparing proposed Project-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.

Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.

The displayed values for the proposed project impacts and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.

Construction emissions were modeled with the operational emissions for the determination of health impacts.

An increment less than zero means the proposed project impact would be less than the baseline impact at all modeled receptors.

Figure 3.2-6: Isopleths of Residential Lifetime Cancer Risk: Mitigated Proposed Project Minus Future CEQA Baseline

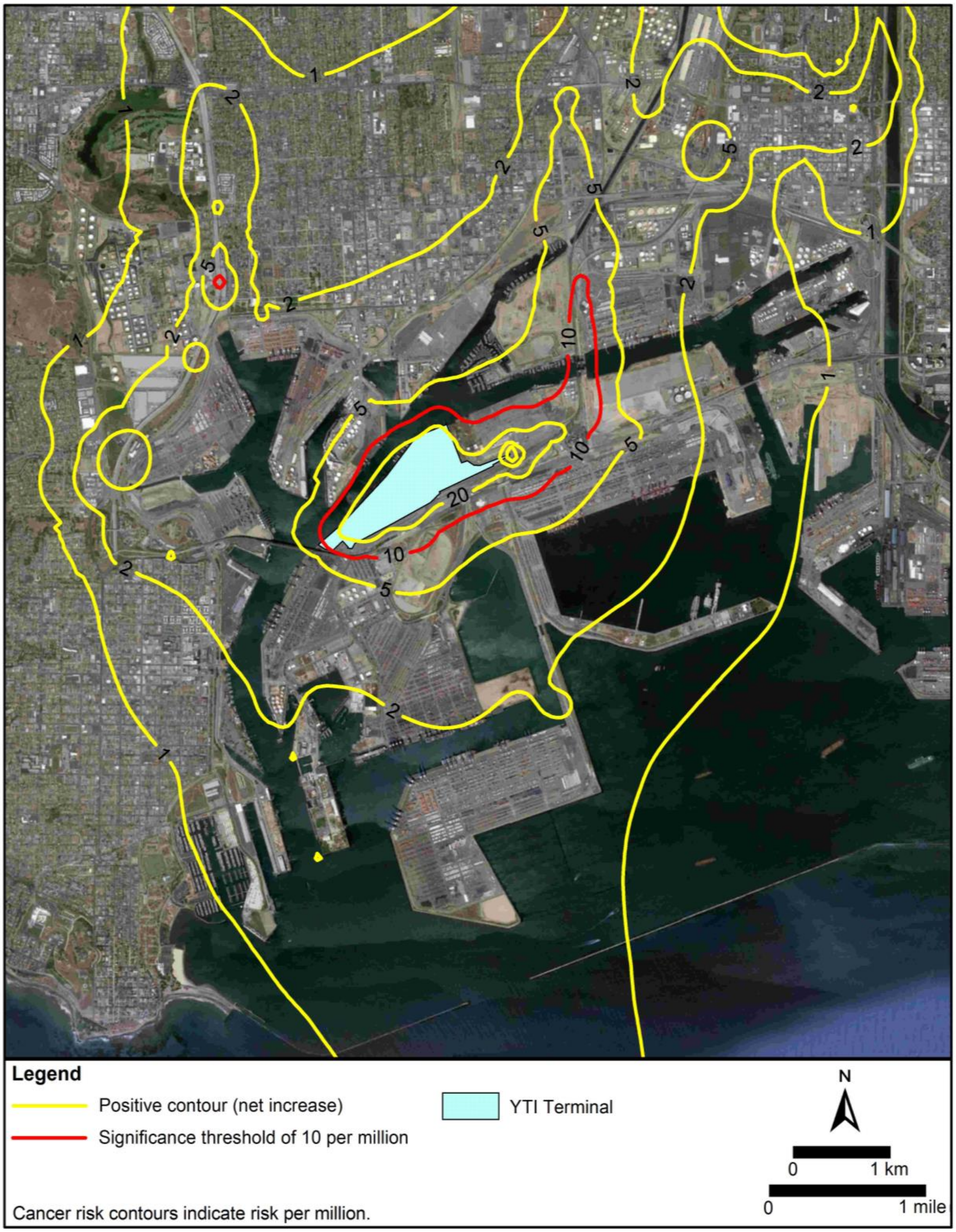
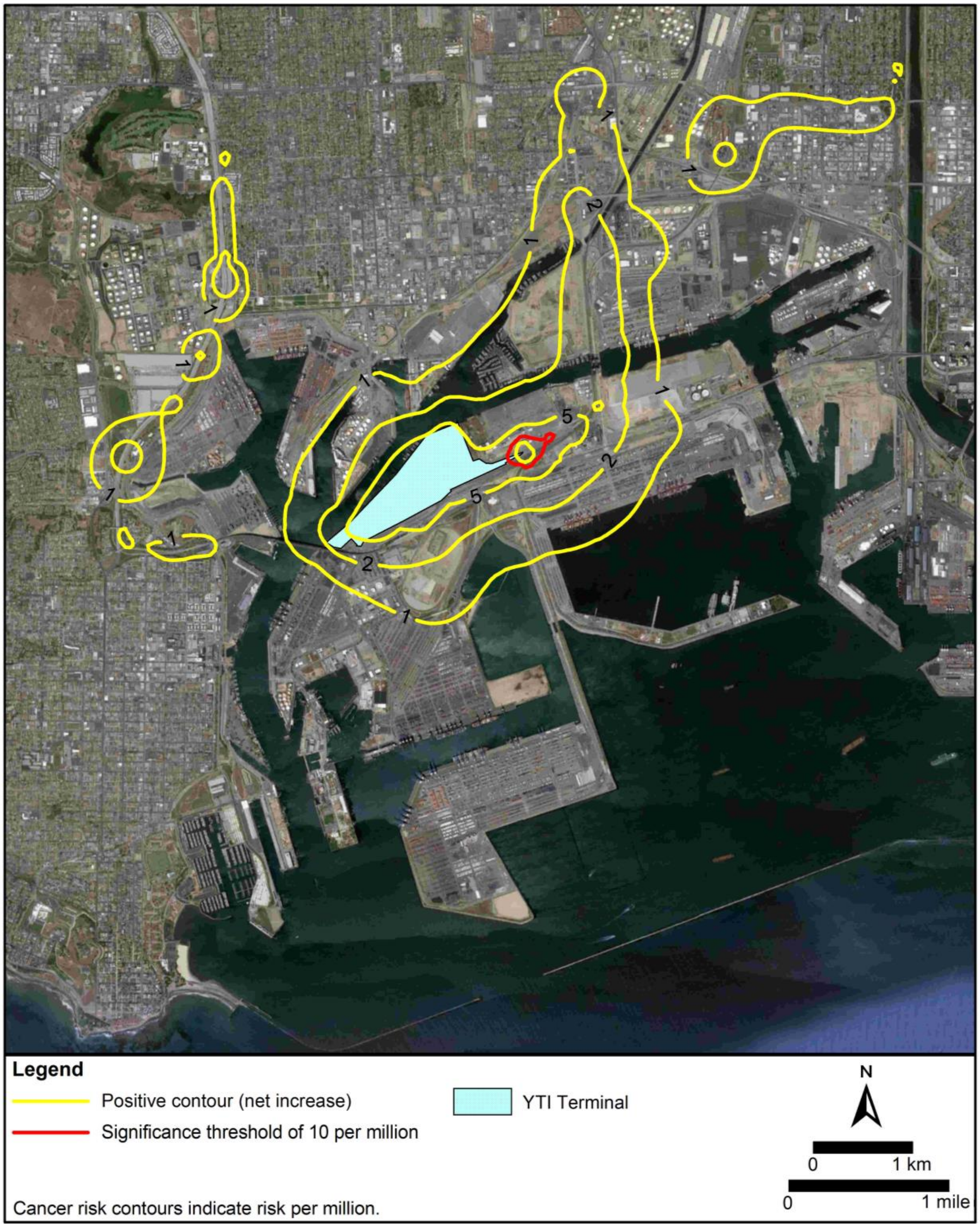


Figure 3.2-7: Isopleths of Occupational Lifetime Cancer Risk: Mitigated Proposed Project Minus Future CEQA Baseline



NEPA Impact Determination

Table 3.2-40 presents the maximum predicted health impacts associated with the proposed Project without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Residential receptors include surrounding neighborhoods and live-aboards in nearby marinas. Health impacts associated with the proposed Project would result in the following:

- Cancer Risk—The maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types. Therefore, the proposed Project would result in a less-than-significant cancer risk under NEPA. Figures 3.2-8 and 3.2-9 show locations of the maximum impacted residential and occupational receptors, respectively.
- Cancer burden—The cancer burden NEPA increment is predicted to be less than the significance threshold. Therefore, the proposed Project would result in a less-than-significant cancer burden under NEPA.
- The maximum chronic hazard index is predicted to be less than the significance threshold at all receptor types. Therefore, the proposed Project would result in a less-than-significant chronic noncancer impact under NEPA.
- The maximum acute hazard index is predicted to be less than the significance threshold at all receptor types. Therefore, the proposed Project would result in a less-than-significant acute noncancer impact under NEPA.

Table 3.2-40: Maximum Incremental NEPA Health Impacts Associated with the Proposed Project without Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact			Significance Threshold
		Proposed Project	NEPA Baseline	NEPA Increment	
Cancer Risk	Residential: on Land	23×10^{-6} 23 in a million	21×10^{-6} 21 in a million	3×10^{-6} 3 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	37×10^{-6} 37 in a million	33×10^{-6} 33 in a million	4×10^{-6} 4 in a million	
	Occupational	94×10^{-6} 94 in a million	85×10^{-6} 85 in a million	9×10^{-6} 9 in a million	
	Sensitive	10×10^{-6} 10 in a million	9×10^{-6} 9 in a million	1×10^{-6} 1 in a million	
	Student	0.7×10^{-6} 0.7 in a million	0.5×10^{-6} 0.5 in a million	0.2×10^{-6} 0.2 in a million	
	Recreational	17×10^{-6} 17 in a million	15×10^{-6} 15 in a million	2×10^{-6} 2 in a million	
Chronic Hazard Index	Residential: on Land	0.09	0.08	0.007	1
	Residential: in Marina	0.1	0.1	0.004	
	Occupational	0.6	0.5	0.2	

Table 3.2-40: Maximum Incremental NEPA Health Impacts Associated with the Proposed Project without Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact			Significance Threshold
		Proposed Project	NEPA Baseline	NEPA Increment	
	Sensitive	0.08	0.07	0.005	
	Student	0.08	0.07	0.006	
	Recreational	0.1	0.1	0.01	
Acute Hazard Index	Residential: on Land	0.5	0.4	0.1	1
	Residential: in Marina	0.7	0.6	0.3	
	Occupational	1.1	1.0	0.6	
	Sensitive	0.5	0.4	0.1	
	Student	0.4	0.3	0.1	
	Recreational	0.7	0.6	0.3	
Cancer Burden				NEPA Increment 0.04	0.5

Notes:

The NEPA increment represents the proposed Project minus NEPA baseline.

Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.

The displayed values for the proposed project impacts and baseline impacts do not necessarily subtract to equal the displayed NEPA increment because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.

Construction emissions were modeled with the operational emissions for the determination of health impacts.

An increment less than zero means the proposed project impact would be less than the baseline impact at all modeled receptors.

Figure 3.2-8: Isopleths of Residential Lifetime Cancer Risk: Unmitigated Proposed Project Minus NEPA Baseline

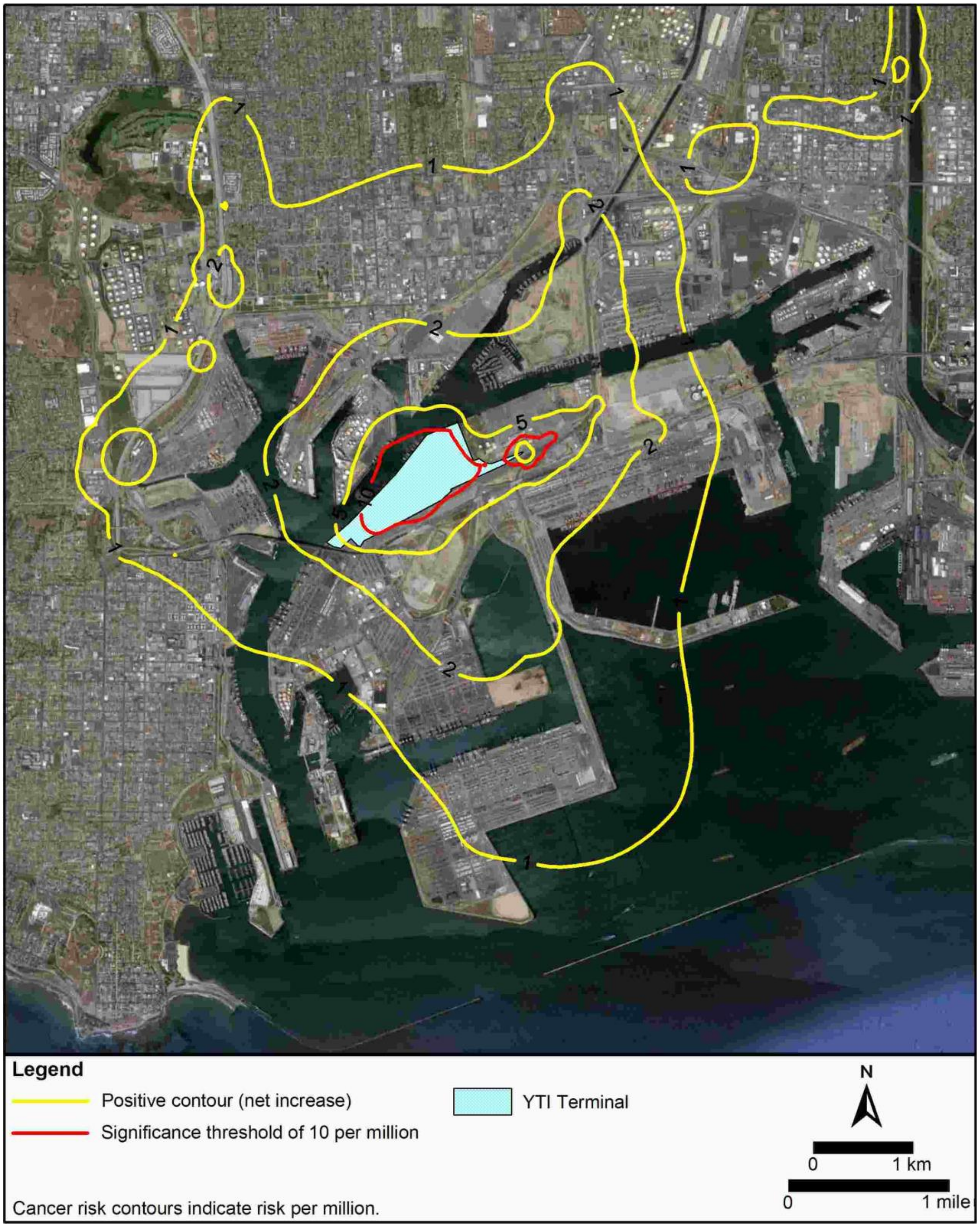
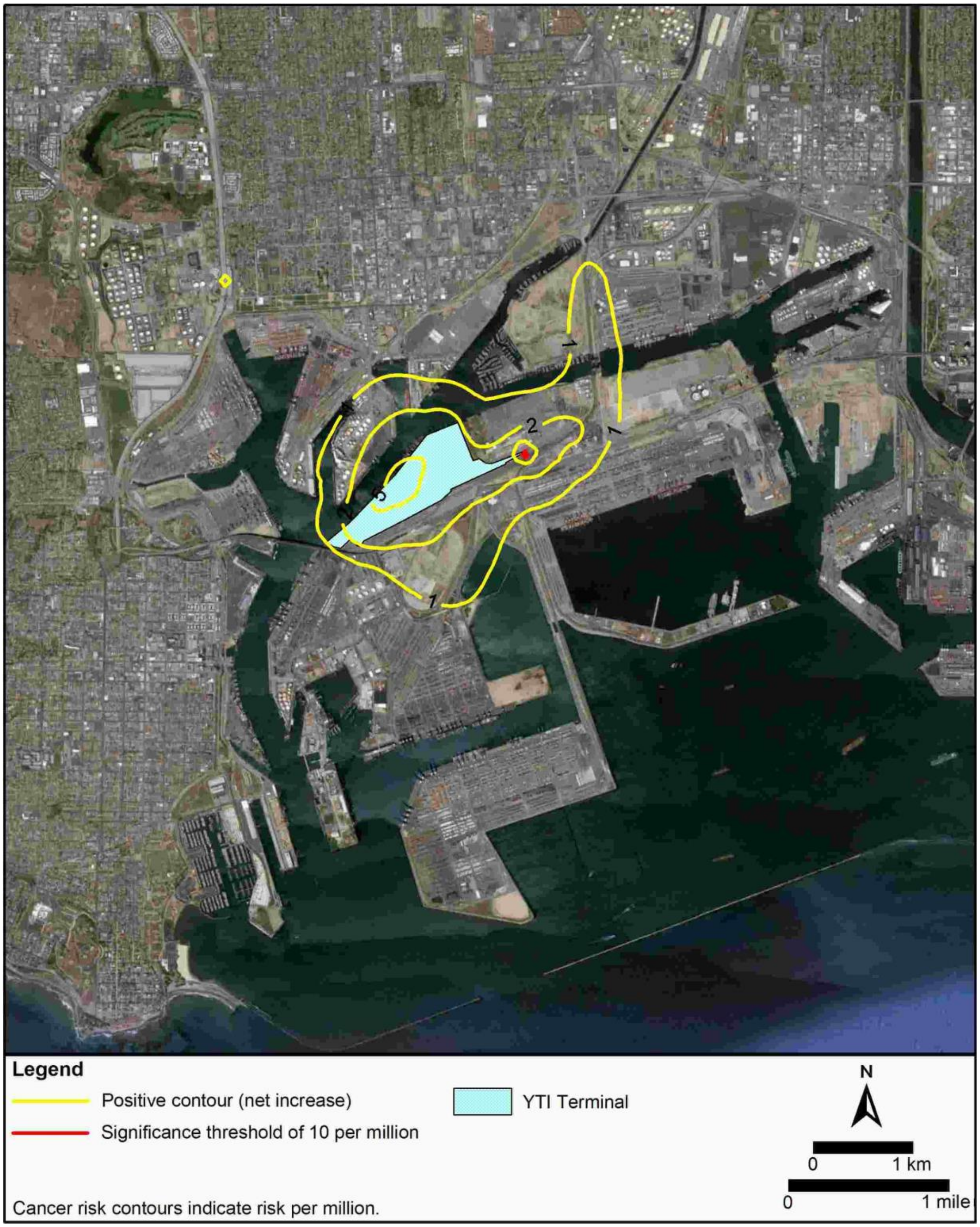


Figure 3.2-9: Isopleths of Occupational Lifetime Cancer Risk: Unmitigated Proposed Project Minus NEPA Baseline



Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

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

Project operations would produce emissions of nonattainment pollutants primarily in the form of diesel exhaust. The SCAQMD prepared AQMPs in 1997, 2003, 2007, and most recently in 2012. Each iteration of the AQMP is an update of the previous AQMP.

The 2007 AQMP and, more recently, the 2012 AQMP propose emission reduction measures that are designed to bring the SCAB into attainment of the state and national ambient air quality standards (SCAQMD 2007 and SCAQMD 2013). The attainment strategies in these plans include more stringent standards for new engines and cleanup of existing fleets, including new measures for port trucks, statewide truck fleets, ships traveling and in port, locomotives, and harbor craft that are enforced at the state and federal level on engine manufacturers and petroleum refiners and retailers; as a result, proposed project operation would comply with these control measures. The SCAQMD also adopts AQMP control measures into the SCAQMD rules and regulations, which are then used to regulate sources of air pollution in the SCAB. Therefore, compliance with these requirements would ensure that the proposed Project would not conflict with or obstruct implementation of the AQMP.

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

Furthermore, LAHD, in conjunction with the Port of Long Beach, implements the 2010 CAAP Update, which sets goals and implementation strategies that reduce air emissions and health risks from Port operations. In some cases, CAAP measures have produced emission reductions from emission sources identified in the CAAP that are greater than those forecasted in the 2012 AQMP. Operational activities associated with the proposed Project would comply with the source-specific performance standards identified in the CAAP and therefore would be consistent with emission reduction goals in the 2012 AQMP.

CEQA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

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

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Alternatives

Construction and operational impacts associated with the proposed project alternatives were evaluated for Alternatives 1 through 3.

To assist in comparing the alternatives to one another, Table 3.2-41 provides a summary of the air quality significance determinations for the proposed Project and each alternative. The table shows the results by type of impact and pollutant, both before and after mitigation. The discussions of the impacts for each alternative are provided in the following sections.

Table 3.2-41: Comparison of Air Quality Impacts Associated with Proposed Project Alternatives

	Without Mitigation				With Mitigation			
Air Quality Impact[a]	PP	Alt 1[c]	Alt 2[d]	Alt 3	PP	Alt 1[c]	Alt 2[d]	Alt 3
CEQA Impacts								
AQ-1 Construction Emissions[b]								
VOC	S	NA	S	S	S	NA	S	S
CO	S	NA	-	S	S	NA	-	S
NO_X	S	NA	S	S	S	NA	S	S
SO_X	-	NA	-	-	-	NA	-	-
PM_{10}	S	NA	-	S	-	NA	-	-
$PM_{2.5}$	S	NA	-	S	S	NA	-	-
AQ-2 Construction Concentrations								
CO	-	NA	-	-	-	NA	-	-
NO_2	S	NA	S	S	S	NA	S	S
PM_{10}	S	NA	S	S	S	NA	S	S
$PM_{2.5}$[4]	S	NA	-	S	-	NA	-	-
AQ-3 Operational Emissions								
VOC	S	S	S	S	S	S	S	S
CO	S	-	-	S	S	-	-	S
NO_X	S	S	S	S	S	S	S	S
SO_X	-	-	-	-	-	-	-	-
PM_{10}	-	-	-	-	-	-	-	-
$PM_{2.5}$	-	-	-	-	-	-	-	-
AQ-4 Operational Concentrations								
CO	-	-	-	-	-	-	-	-
NO_2	S	S	S	S	S	S	S	S
PM_{10}	S	S	S	S	S	S	S	S
$PM_{2,5}$	-	-	-	-	-	-	-	-
AQ-5 CO Hot Spots								
	-	-	-	-	-	-	-	-

Table 3.2-41: Comparison of Air Quality Impacts Associated with Proposed Project Alternatives

	Without Mitigation				With Mitigation			
Air Quality Impact[a]	PP	Alt 1[c]	Alt 2[d]	Alt 3	PP	Alt 1[c]	Alt 2[d]	Alt 3
AQ-6 Odors								
	-	-	-	-	-	-	-	-
AQ-7 Toxic Air Contaminants								
Cancer Risk—Residential or Occupational (CEQA Increment)	S	S	S	S	S	S	S	S
Cancer Risk—Residential or Occupational (Future CEQA Increment)	S	S	S	S	S	S	S	S
Cancer Burden (CEQA Increment)	-	-	-	-	-	-	-	-
Cancer Burden (Future CEQA Increment)	-	-	-	-	-	-	-	-
Chronic Hazard Index—All Receptors	-	-	-	-	-	-	-	-
Acute Hazard Index—Residential or Occupational	-	-	-	-	-	-	-	-
AQ-8 AQMP Consistency								
	-	-	-	-	-	-	-	-
NEPA Impacts								
AQ-1 Construction Emissions								
VOC	S	NA	-	S	S	NA	-	-
CO	S	NA	-	S	S	NA	-	S
NO_X	S	NA	-	S	S	NA	-	S
SO_X	-	NA	-	-	-	NA	-	-
PM_{10}	-	NA	-	-	-	NA	-	-
$PM_{2.5}$	S	NA	-	S	-	NA	-	-
AQ-2 Construction Concentrations								
CO	-	NA	-	-	-	NA	-	-
NO_2	S	NA	-	S	S	NA	-	S
PM_{10}	S	NA	-	S	-	NA	-	-
$PM_{2.5}$	S	NA	-	S	-	NA	-	-
AQ-3 Operational Emissions								
VOC	S	NA	-	S	S	NA	-	S
CO	-	NA	-	S	-	NA	-	-

Table 3.2-41: Comparison of Air Quality Impacts Associated with Proposed Project Alternatives

	Without Mitigation				With Mitigation			
Air Quality Impact[a]	PP	Alt 1[c]	Alt 2[d]	Alt 3	PP	Alt 1[c]	Alt 2[d]	Alt 3
NO_X	S	NA	-	S	S	NA	-	S
SO_X	-	NA	-	-	-	NA	-	-
PM_{10}	-	NA	-	-	-	NA	-	-
$PM_{2.5}$	-	NA	-	S	-	NA	-	-
AQ-4 Operational Concentrations								
CO	-	NA	-	-	-	NA	-	-
NO_2	S	NA	-	S	S	NA	-	S
PM_{10}	S	NA	-	S	S	NA	-	S
$PM_{2.5}$	-	NA	-	-	-	NA	-	-
AQ-5 CO Hot Spots								
	-	NA	-	-	-	NA	-	-
AQ-6 Odors								
	-	NA	-	-	-	NA	-	-
AQ-7 Toxic Air Contaminants								
Cancer Risk—All Receptors	-	NA	-	-	-	NA	-	-
Cancer Burden	-	NA	-	-	-	NA	-	-
Chronic Hazard Index—All Receptors	-	NA	-	-	-	NA	-	-
Acute Hazard Index—Residential or Occupational	-	NA	-	-	-	NA	-	-
AQ-8 AQMP Consistency								
	-	NA	-	-	-	NA	-	-

Notes:

S	=	Significant impact	PP	=	Proposed Project
-	=	Less than significant impact	Alt 1	=	Alternative 1, No Project Alternative
NA	=	Not Applicable	Alt 2	=	Alternative 2, No Federal Action Alternative
			Alt 3	=	Alternative 3, Reduced Project Alternative

[a] For all impacts, significance determinations may vary in each analysis year. An impact is designated significant if it is significant for any year, even if it is less than significant for some years.

[b] AQ-1 construction emissions represent the maximum impacts between: (1) construction impacts and (2) combined construction/operations impacts during construction.

[c] Alternative 1, the No Project Alternative:

- Has no discretionary action under CEQA or NEPA
- Has no construction

Table 3.2-41: Comparison of Air Quality Impacts Associated with Proposed Project Alternatives

	Without Mitigation				With Mitigation			
Air Quality Impact[a]	PP	Alt 1[c]	Alt 2[d]	Alt 3	PP	Alt 1[c]	Alt 2[d]	Alt 3

- Has no applicable mitigation
- Requires no Federal Action and is not assessed under NEPA

[d] Alternative 2, the No Federal Action Alternative:

- Requires no Federal Action
- Has the same actions and impacts as the NEPA baseline
- Has no mitigation under NEPA
- Has mitigation under CEQA because minor backland improvements would still occur without the Federal Action and would be mitigated under CEQA

Alternative 1—No Project

Alternative 1 addresses what is likely to happen at the site over time, starting from the existing conditions. The alternative allows for growth in activity at the YTI terminal that would occur without additional approvals.

Under Alternative 1, none of the proposed construction activities would occur in water or in waterside or backland areas. LAHD would not implement any terminal improvements. No new cranes would be added and no dredging would occur. Alternative 1 would not include the 100-foot gauge crane rail extension, expansion of the TICTF on-dock rail yard, or backland repairs.

Under Alternative 1, the existing YTI Terminal would continue to operate as an approximately 185-acre container terminal. Based on LAHD's throughput projections, the YTI Terminal is expected to operate at its existing capacity of approximately 1,692,000 TEUs with 206 ship calls by 2026. Because berths and wharfs would not be improved, container ships greater than 10,000 TEUs would not call at the terminal. Comprehensive activity information is provided in Table 3.2-5 for container ships, Table 3.2-6 for CHE, Table 3.2-7 for trucks, Table 3.2-8 for trains, and Table 3.2-9 for AMP power generation. Tugboats activity would be proportional to ship container calls. CHE activity would be proportional to terminal TEU throughput.

Alternative 1 would not preclude future improvements to the proposed project site. However, any future changes in use or new improvements with the potential to significantly impact the environment would need to be analyzed in a separate environmental document.

Impact AQ-1: Alternative 1 would not result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.

There would be no construction under Alternative 1.

CEQA Impact Determination

Alternative 1 would not generate construction emissions; there would be no impact under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact AQ-2: Alternative 1 would not result in construction-related offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.

There would be no construction under Alternative 1.

CEQA Impact Determination

Alternative 1 would not generate construction emissions; there would be no impact under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact AQ-3: Alternative 1 would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.

Table 3.2-42 presents unmitigated peak daily criteria pollutant emissions associated with operation of Alternative 1. Comparisons to the CEQA and NEPA baseline emissions are presented to determine CEQA and NEPA significance, respectively.

Alternative 1 source characteristics, activity levels, sulfur fuel content, emission factors, and other parameters assumed in the operational emissions are discussed in detail in Section 3.2.4.1, Methodology, Table 3.2-5 for container ships and TEU throughput, Table 3.2-6 for CHE, Table 3.2-7 for trucks, and Table 3.2-8 for trains. The following summarizes terminal activity under Alternative 1:

- Annual throughput of 1,692,000 TEUs by 2026;
- 206 annual container ship calls in all analysis years;
- Largest container ship would be 10,000 TEUs;
- 4 peak day container ship transits in all analysis years;

- 4 peak day container ships berthing in all analysis years;
- 2 AMP-capable berths in all analysis years;
- 1,222,000 annual truck trips by 2026;
- 4,461 peak day truck trips by 2026;
- 1,075 annual on-dock trains and 217 annual near- and off-dock trains by 2026; and
- 4 peak day on-dock trains and 0.7 peak day near- and off-dock trains by 2026.

Table 3.2-42: Peak Daily Operational Emissions—Alternative 1, No Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	160	128	8,919	218	958	518
Ships—Hoteling	21	17	802	53	73	29
AMP Electricity Use	0	0	23	4	2	0
Tugboats	10	9	426	0	215	25
Trucks	121	43	1,136	3	381	75
Line Haul Locomotives	30	28	1,191	1	278	51
Switch Locomotives	0	0	26	0	9	1
Cargo Handling Equipment	3	3	248	2	276	35
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	10	3	7	0	65	2
Total Year 2017	**357**	**232**	**12,786**	**282**	**2,267**	**739**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(33)	(33)	2,168	(865)	441	109
Significance Threshold	150	55	55	150	550	55
Significant?	No	No	**Yes**	No	No	**Yes**
Year 2020						
Ships—Transit and Anchoring	165	132	9,223	225	992	536
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0
Tugboats	2	1	63	0	134	6
Trucks	131	48	1,125	3	405	81
Line Haul Locomotives	24	22	1,045	1	281	40
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	3	3	193	2	303	33
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**357**	**226**	**12,388**	**285**	**2,260**	**726**

Table 3.2-42: Peak Daily Operational Emissions—Alternative 1, No Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(33)	(39)	1,787	(859)	435	96
Significance Threshold	150	55	55	150	550	55
Significant?	No	No	**Yes**	No	No	**Yes**
Year 2026						
Ships—Transit and Anchoring	165	132	9,223	225	992	536
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0
Tugboats	1	1	58	0	134	6
Trucks	152	54	688	3	327	67
Line Haul Locomotives	22	20	1,021	1	394	39
Switch Locomotives	0	0	28	0	12	2
Cargo Handling Equipment	3	3	124	2	350	30
Transportation Refrigeration Units	0	0	10	0	12	1
Worker Vehicles	13	4	5	0	48	2
Total Year 2026	**375**	**229**	**11,853**	**286**	**2,332**	**708**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(15)	(36)	1,253	(858)	507	78
Significance Threshold	150	55	55	150	550	55
Significant?	No	No	**Yes**	No	No	**Yes**

Notes:

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

Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.

AMP electricity use reflects indirect emissions from regional power generation.

NEPA does not require analysis of the No Project Alternative.

Emissions might not precisely add due to rounding.

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

Discussion of Emissions Trends and Comparison to Proposed Project

Emissions would vary due to several factors, such as regulatory requirements, activity, source (container ships, tugboats, trucks, locomotives, CHE, and worker vehicles) characteristics, and emission factors. The combination of these factors can result in emissions that do not always decrease or increase consistently over time.

Under Alternative 1, terminal activity would increase in each study year, although it would not reach the level of activity of the proposed Project. Regulatory requirements described in Section 3.2.3 and Table 3.2-4 would serve to decrease emission factors from emission sources. In addition, as equipment ages, engine efficiency would decrease and emission factors would increase in comparison to brand-new equipment. Furthermore, although the annual and peak daily number of container ships would be the same as under the proposed Project, the ship size would be smaller because berths would not be dredged to accommodate larger vessels.

CEQA Impact Determination

Table 3.2-42 shows that peak daily operational emissions would exceed the SCAQMD daily emission thresholds and would be significant for NO_X, and VOC under CEQA in all analysis years.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would significant and unavoidable.

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact AQ-4: Alternative 1 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.

Dispersion modeling of on- and offsite Alternative 1 operational emissions was performed to assess the impact of the Alternative on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2. Table 3.2-43 and Table 3.2-44 present the maximum offsite ground level concentrations of NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ from operation without mitigation.

Table 3.2-43: Maximum Offsite NO_2, SO_2, and CO Concentrations—Alternative 1 Operation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 1 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	28	**192**	188	**Yes**
	State 1-hour	190	31	221	338	No
	Federal annual	33	3	36	100	No
	State annual	33	3	36	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	149	3,204	23,000	No
	8-hour	1,757	96	1,853	10,000	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
[c] The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
[d] The maximum modeled concentration increment represents Alternative 1 operation minus 2012 terminal operations.
[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-44: Maximum Offsite PM_{10} and $PM_{2.5}$ Concentrations—Alternative 1 Operation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 1 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?
PM_{10}	24-hour	30.6	22.7	**8.1**	2.5	**Yes**
	Annual	13.2	10.0	**3.2**	1.0	**Yes**
$PM_{2.5}$	24-hour	8.8	7.8	1.3	2.5	No

Notes:
[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
[b] The CEQA increment represents Alternative 1 minus the CEQA baseline.
[c] The maximum modeled Alternative 1 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 1 and baseline concentrations in the table may not necessarily subtract to equal the increment.

CEQA Impact Determination

Table 3.2-43 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would exceed SCAQMD thresholds. Table 3.2-44 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed SCAQMD thresholds. Therefore, maximum offsite ambient pollutant concentrations associated with the operation of Alternative 1 would be significant under CEQA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be significant and unavoidable for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

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

Alternative 1 would not generate a greater number of truck trips or have a greater impact on intersection LOS than the analysis done for the proposed Project in Section 3.2.4.5, Impact AQ-5. Because the proposed project analysis would not exceed CO standards at any intersection, traffic-related impacts for Alternative 1 would also not exceed CO concentration standards at any intersection.

CEQA Impact Determination

CO standards would not be exceeded in the immediate vicinity of heavily congested intersections. CO impacts would therefore be less than significant under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact AQ-6: Alternative 1 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with Alternative 1 would serve to disperse emissions. Additionally, the distance between Alternative 1 emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels.

CEQA Impact Determination

The potential is low for the Alternative 1 to produce objectionable odors that would affect a sensitive receptor, and significant odor impacts under CEQA, therefore, are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact AQ-7: Alternative 1 would expose receptors to significant levels of TACs.

Alternative 1 activities would emit TACs that could affect public health. The main source of TACs from Alternative 1 would be DPM emissions from container ships, trucks, trains, and CHE. Similar to the HRA for the proposed Project, PM_{10} and VOC emissions were projected over a 70-year period, from 2015 through 2084.

CEQA Impact Determination

The HRA indicates that approximately 99% of the cancer risk at all receptors would be caused by exposure to DPM. Table 3.2-45 presents the maximum predicted health impacts associated with Alternative 1. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Results are presented for Alternative 1, as well as for the CEQA and Future

CEQA increments (Alternative 1 minus the CEQA baseline). Health impacts associated with Alternative 1 would result in the following:

- Cancer Risk
  - In relation to the CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types, except at the occupational receptor. Cancer risk at the occupational receptor would equal the significance threshold. Therefore, Alternative 1 would result in a less-than-significant cancer risk at residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk impact at occupational receptors in comparison to the CEQA baseline.

    The maximum impacted occupational receptor would be located about 1,000 feet northeast of the YTI terminal truck out-gate, on industrial Port property, just north of the entry/exit road and TICTF storage tracks.

  - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types, except at the occupational receptor. Cancer risk at the occupational receptor would exceed the significance threshold. Therefore, Alternative 1 would result in a less-than-significant cancer risk at residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk at occupational receptors in comparison to the Future CEQA baseline.

    The maximum impacted occupational receptor would be in the same location as described above for the CEQA Increment.

  - Cancer risk impacts under Alternative 1 would be the less than impacts under the proposed Project.
- Cancer Burden
  - In relation to the CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 1 would result in a less-than-significant cancer burden.
  - In relation to the Future CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 1 would result in a less-than-significant cancer burden.
- Chronic and Acute Impacts
  - The maximum chronic hazard index is predicted to be less than significant for all receptor types. Moreover, the Alternative 1 impact would be less than the baseline at the residential, non-residential sensitive, and student receptors. Therefore, Alternative 1 would result in a less-than-significant noncancer chronic impact.
  - The acute hazard index is predicted to be less than significant at all receptor types. Therefore, Alternative 1 would result in a less-than-significant acute impact.

Additional Analysis for Informational Purposes—Particulates: Morbidity and Mortality

A mortality and morbidity analysis was not required because, per LAHD policy, the maximum offsite $PM_{2.5}$ concentration associated with Alternative 1 would not exceed the significance threshold (Impact AQ-4).

Table 3.2-45: Maximum Incremental CEQA Health Impacts Associated with Alternative 1, No Project

		Maximum Predicted Impact					
Health Impact	Receptor Type	No Project	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Cancer Risk	Residential: on Land	21×10^{-6} 21 in a million	26×10^{-6} 26 in a million	2×10^{-6} 2 in a million	19×10^{-6} 19 in a million	5×10^{-6} 5 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	33×10^{-6} 33 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	7×10^{-6} 7 in a million	
	Occupational	85×10^{-6} 85 in a million	75×10^{-6} 75 in a million	**10×10^{-6}** **10 in a million**	63×10^{-6} 63 in a million	**22×10^{-6}** **22 in a million**	
	Sensitive	9×10^{-6} 9 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	2×10^{-6} 2 in a million	
	Student	0.5×10^{-6} 0.5 in a million	0.7×10^{-6} 0.7 in a million	0.03×10^{-6} 0.03 in a million	0.7×10^{-6} 0.7 in a million	0.03×10^{-6} 0.03 in a million	
	Recreational	15×10^{-6} 15 in a million	39×10^{-6} 39 in a million	1×10^{-6} 1 in a million	12×10^{-6} 12 in a million	3×10^{-6} 3 in a million	
Chronic Hazard Index		No Project	CEQA Baseline [3]	CEQA Increment [3]			
	Residential: on Land	0.08	0.1	<0			1
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.5	0.4	0.1			
	Sensitive	0.07	0.1	<0			
	Student	0.07	0.1	<0			
	Recreational	0.1	0.2	0.00008			
Acute Hazard Index	Residential: on Land	0.4	0.4	0.05			1
	Residential: in Marina	0.6	0.6	0.06			
	Occupational	0.9	0.9	0.08			
	Sensitive	0.4	0.3	0.05			
	Student	0.3	0.3	0.03			

Table 3.2-45: Maximum Incremental CEQA Health Impacts Associated with Alternative 1, No Project

Health Impact	Receptor Type	Maximum Predicted Impact: No Project	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
	Recreational	0.6	0.6	0.06			
Cancer Burden				CEQA Increment 0.0005		Future CEQA Increment 0.07	0.5

Notes:

- Exceedances of the significance thresholds are in **bold**. The significance thresholds apply only to the increments.
- The CEQA increment represents the No Project minus the CEQA baselines. The Future CEQA increment represents the No Project baseline minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.
- Chronic and acute impacts are considered short-term impacts and are determined by comparing Alternative 1-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.
- Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.
- The displayed values for the No Project and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.
- An increment less than zero means the No Project impact would be less than the baseline impact at all modeled receptors.

Mitigation Measures

No mitigation is required.

Residual Impacts

Alternative 1 would result in a significant and unavoidable cancer risk impact for occupational receptors in comparison to the CEQA baseline and the Future CEQA baseline.

NEPA Impact Determination

NEPA does not require analysis of Alternative 1, the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact AQ-8: Alternative 1 would not conflict with or obstruct implementation of an applicable AQMP.

This alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts. Thus, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

Alternative 1 would not conflict with or obstruct implementation of the AQMP. Therefore, significant impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

NEPA does not require analysis of the No Project Alternative. NEPA requires the analysis of a No Federal Action Alternative (see Alternative 2 in this document).

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Alternative 2—No Federal Action

Alternative 2 is a NEPA-required no-action alternative for purposes of this Draft EIS/EIR. This alternative includes the activities that would occur absent a USACE permit and could include improvements that require a local permit. Absent a USACE permit, no dredging, dredged material disposal, in-water pile installation, or crane installation/extension would occur. Expansion of the TICTF and extension of the crane rail also would not occur. The No Federal Action Alternative includes only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. These activities would not change the capacity of the existing terminal.

The site would continue to operate as an approximately 185-acre container terminal where cargo containers are loaded to/from vessels, temporarily stored on backlands, and transferred to/from trucks or on-dock rail. Based on the throughput projections, the YTI Terminal is expected to operate at its existing maximum throughput capacity of approximately 1,692,000 TEUs with 206 ship calls by 2026. Because berths and wharfs would not be improved, container ships greater than 10,000 TEUs would not call at the terminal. Comprehensive activity information is provided in Table 3.2-5 for container ships, Table 3.2-6 for CHE, Table 3.2-7 for trucks, Table 3.2-8 for trains, and Table 3.2-9 for AMP power generation. Tugboats activity would be proportional to ship container calls. CHE activity would be proportional to terminal TEU throughput.

The No Federal Action Alternative would be the same as the NEPA baseline, and, as such, there would be no incremental difference between Alternative 2 without mitigation and the NEPA baseline.

Impact AQ-1: Alternative 2 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.

Table 3.2-46 presents the peak daily emissions associated with construction activities of Alternative 2. Construction activities would be only those that would occur in the absence of federal action and would consist of minor upland improvements. Because Alternative 2 is the same as the NEPA baseline, construction emissions are the same as those presented for the NEPA baseline in Section 3.2.4.3, Table 3.2-12.

The YTI terminal would continue to operate during construction of Alternative 2; construction and operational activities would overlap during this time. SCAQMD has requested that total emissions be estimated during a peak year when construction and operational activities substantially overlap. Table 3.2-47 presents overlapping construction and operational emissions of Alternative 2 during 2015, the peak year of Alternative 2 construction. Because Alternative 2 is the same as the NEPA baseline, operational emissions are the same as those presented for the NEPA operations baseline in Section 3.2.4.3, Table 3.2-13.

Table 3.2-46: Peak Daily Construction Emissions without Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	3	3	61	0	55	5
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	111	36	848	1	82	22
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	1	0	0	0	0	63
Total Construction Year 2015	**115**	**40**	**909**	**1**	**137**	**90**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative Minus CEQA Baseline	115	40	**909**	1	137	**90**
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	**Yes**	No	No	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	115	40	909	1	137	90
Alternative Minus NEPA Baseline	0	0	0	0	0	0
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	No	No	No	No
Construction Year 2016						
Off-road Construction Equipment Exhaust	1	1	26	0	10	2
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	13
Total Construction Year 2016	**1**	**1**	**26**	**0**	**10**	**15**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative Minus CEQA Baseline	1	1	26	0	10	15
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	No	No	No	No

Table 3.2-46: Peak Daily Construction Emissions without Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
NEPA Impacts						
NEPA Baseline Emissions	1	1	26	0	10	15
Alternative Minus NEPA Baseline	0	0	0	0	0	0
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	No	No	No	No

Notes:

- Emissions of PM_{10} and $PM_{2.5}$ assume that fugitive dust is controlled in accordance with SCAQMD Rule 403 by watering disturbed areas 3 times per day.
- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt offgassing.
- NEPA construction baseline is from Table 3.2-12.
- Incremental NEPA impacts are zero because NEPA baseline is the same as the No Federal Action for this EIS/EIR.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

Table 3.2-47: Peak Daily Combined Construction and Operational Emissions without Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction 2015						
Off-road Construction Equipment Exhaust	3	3	61	0	55	5
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	111	36	848	1	82	22
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	1	0	0	0	0	63
Operation 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Reefer Ship Refrigeration Losses	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Construction and Operation Year 2015	**466**	**271**	**13,555**	**279**	**2,324**	**818**

Table 3.2-47: Peak Daily Combined Construction and Operational Emissions without Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	76	6	**2,954**	-865	498	**188**
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	**Yes**	No	No	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	466	271	13,555	279	2,324	818
Alternative Minus NEPA Baseline	0	0	0	0	0	0
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	No	No	No	No

Notes:

- Emissions assume the simultaneous occurrence of maximum daily emissions for each source category. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- NEPA baseline emissions include the NEPA baseline construction emissions plus the NEPA baseline operational emissions, presented in Table 3.2-12 and Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

CEQA Impact Determination

Table 3.2-46 shows that unmitigated peak daily construction emissions would exceed the SCAQMD daily emission thresholds for NO_X and VOC under CEQA during the 2015 peak year of construction. Therefore, unmitigated Alternative 2 construction emissions would be significant under CEQA for NO_X and VOC prior to mitigation. The largest contributors to peak daily construction emissions are haul and material delivery trucks used for hauling of soil, concrete/base material/asphalt delivery.

Table 3.2-47 shows that overlapping construction and operational emissions during 2015, the peak year of construction, would exceed the SCAQMD daily emission thresholds for construction for NO_X and VOC. Therefore, impacts would be significant during the peak year of construction and operational overlap under CEQA.

Mitigation Measures

To reduce the level of impact during construction, MM AQ-1 through MM AQ-8 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8. Table 3.2-48 presents the peak daily construction emissions of Alternative 2, after the application of MM AQ-1 through MM AQ-8. Table 3.2-49 presents the peak daily combined construction and operational emissions, during the time of peak construction, after the application of MM AQ-1 through MM AQ-8.

Table 3.2-48: Peak Daily Construction Emissions with Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	0	0	27	0	32	5
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	106	32	245	1	82	19
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	1	0	0	0	0	63
Total Year 2015	**107**	**32**	**271**	**1**	**115**	**87**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative Minus CEQA Baseline	107	32	271	1	115	87
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	**Yes**	No	No	**Yes**
Construction Year 2016						
Off-road Construction Equipment Exhaust	0	0	13	0	10	2
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	0	0	0	0	0	0
Worker Vehicles	0	0	0	0	0	0
Fugitive Emissions	0	0	0	0	0	13
Total Construction Year 2016	**0**	**0**	**13**	**0**	**10**	**15**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative Minus CEQA Baseline	0	0	13	0	10	15
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	No	No	No	No

Notes:

- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt offgassing.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Mitigation is not required for NEPA under the No Federal Action Alternative.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Table 3.2-49: Peak Daily Combined Construction and Operational Emissions with Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction 2015						
Off-road Construction Equipment Exhaust	0	0	27	0	32	5
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	106	32	245	1	82	19
Worker Vehicles	1	0	0	0	1	0
Fugitive Emissions	1	0	0	0	0	63
Operation 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Construction and Operation Year 2015	**458**	**264**	**12,917**	**279**	**2,301**	**815**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	68	-1	2,317	-865	476	185
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	**Yes**	No	No	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of maximum daily emissions for each source category. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- Mitigation is not required for NEPA under the No Federal Action Alternative.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Residual Impacts

Emissions from construction of Alternative 2 would be reduced with mitigation but would remain significant and unavoidable under CEQA for NO_X and VOC in 2015. In addition, although emissions from overlapping construction and operation would be reduced, they would remain significant and unavoidable under CEQA for NO_X and VOC during the 2015 peak construction year.

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no incremental impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-2: Alternative 2 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.

Dispersion modeling of onsite Alternative 2 construction emissions was performed to assess the impact of Alternative 2 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2. Table 3.2-50 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction. Table 3.2-51 presents the maximum offsite ground level concentrations of PM_{10}, and $PM_{2.5}$ from construction. Table 3.2-52 presents maximum offsite ground level concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations. Table 3.2-53 presents maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations.

Table 3.2-50: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 2 Construction without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m³)[c]	Maximum Modeled Alternative 2 Concentration (µg/m³)	Total Ground-Level Concentration (µg/m³)[d]	SCAQMD Threshold (µg/m³)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	181	**345**	188	**Yes**
	State 1-hour	190	194	**384**	338	**Yes**
	Federal annual	33	4	37	100	No
	State annual	33	4	37	57	No
SO_2	Federal 1-hour[b]	92	0.4	92	197	No
	State 1-hour	139	0.5	139	655	No
	24-hour	42	0.1	42	105	No
CO	1-hour	3,055	176	3,231	23,000	No
	8-hour	1,757	43	1,799	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.

[d] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-51: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 2 Construction without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 (µg/m³)	Ground-Level Concentration CEQA Increment (µg/m³)[a,b]	SCAQMD Threshold (µg/m³)	CEQA Concentration above threshold?
PM_{10}	24-hour	12.4	**12.4**	10.4	**Yes**
	Annual	0.3	0.3	1.0	No
$PM_{2.5}$	24-hour	3.5	3.5	10.4	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 2 minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

Table 3.2-52: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 2 Construction and Operation without Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Alternative 2 Concentration Increment ($\mu g/m^3$)[d]	Total Ground-Level Concentration ($\mu g/m^3$)[e]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	31	**195**	188	**Yes**
	State 1-hour	190	46	236	338	No
	Federal annual	33	3	36	100	No
	State annual	33	3	36	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	227	3,282	23,000	No
	8-hour	1,757	63	1,820	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents Alternative 2 construction plus operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-53: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 2 Construction and Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 (µg/m³)	Maximum Modeled Concentration of CEQA Baseline (µg/m³)	Maximum Modeled Concentration of NEPA Baseline (µg/m³)	Ground-Level Concentration CEQA Increment (µg/m³)[a,b]	Ground-Level Concentration NEPA Increment (µg/m³)[a,c]	SCAQMD Threshold (µg/m³)	CEQA Concentration above threshold?
PM_{10}	24-hour	35.5	22.7	35.5	**13.0**	0	10.4	**Yes**
	Annual	10.4	10.0	10.4	0.5	0	1.0	No
$PM_{2.5}$	24-hour	10.4	7.8	10.4	2.7	0	10.4	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 2 minus CEQA baseline.

[c] The NEPA increment represents Alternative 2 minus NEPA baseline.

[d] The maximum modeled Alternative 2 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 2 and baseline concentrations in the table may not necessarily subtract to equal the increment.

CEQA Impact Determination

Table 3.2-50 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would exceed SCAQMD thresholds. Table 3.2-51 shows that the maximum offsite incremental PM_{10} (24-hour average) concentration would exceed the SCAQMD threshold. Therefore, maximum offsite ambient pollutant concentrations associated with the construction of Alternative 2 would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average) and PM_{10} (24-hour average).

Table 3.2-52 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from overlapping construction and operational activities would exceed the SCAQMD threshold. Table 3.2-53 shows that the maximum offsite incremental PM_{10} (24-hour average) concentration from overlapping construction and operational activities would exceed the SCAQMD threshold. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of Alternative 2 would be significant under CEQA for NO_2 (federal 1-hour average) and PM_{10} (24-hour average).

Mitigation Measures

To reduce the level of impact during construction, MM AQ-1 through MM AQ-8 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-54 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO during construction with mitigation. Table 3.2-55 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ during construction with mitigation. Table 3.2-56 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations with mitigation. Table 3.2-57 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations with mitigation.

Table 3.2-54: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 2 Construction with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 2 Concentration (µg/m^3)	Total Ground-Level Concentration (µg/m^3)[d]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	128	**292**	188	**Yes**
	State 1-hour	190	154	**344**	338	**Yes**
	Federal annual	33	4	37	100	No
	State annual	33	4	37	57	No
SO_2	Federal 1-hour[b]	92	0.4	92	197	No
	State 1-hour	139	0.5	139	655	No
	24-hour	42	0.1	42	105	No
CO	1-hour	3,055	134	3,189	23,000	No
	8-hour	1,757	37	1,793	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-55: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 2 Construction with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 (μg/m^3)	Ground-Level Concentration CEQA Increment (μg/m^3)[a,b]	SCAQMD Threshold (μg/m^3)	CEQA Concentration above threshold?
PM_{10}	24-hour	11.9	**11.9**	10.4	**Yes**
	Annual	0.3	0.3	1.0	No
$PM_{2.5}$	24-hour	3.0	3.0	10.4	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 2 minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

Table 3.2-56: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 2 Construction and Operation with Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Alternative 2 Concentration Increment ($\mu g/m^3$)[d]	Total Ground-Level Concentration ($\mu g/m^3$)[e]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	22	185	188	No
	State 1-hour	190	30	220	338	No
	Federal annual	33	3	36	100	No
	State annual	33	3	36	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	185	3,240	23,000	No
	8-hour	1,757	53	1,810	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents Alternative 2 construction plus operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-57: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 2 Construction and Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?
PM_{10}	24-hour	35.0	22.7	35.0	**12.5**	0	10.4	**Yes**
	Annual	10.4	10.0	10.4	0.5	0	1.0	No
$PM_{2.5}$	24-hour	10.0	7.8	10.0	2.3	0	10.4	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 2 minus CEQA baseline.

[c] The NEPA increment represents Alternative 2 minus NEPA baseline.

[d] The maximum modeled Alternative 2 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 2 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Residual Impacts

Table 3.2-54 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would be reduced with mitigation but would remain significant. Table 3.2-55 shows that the maximum offsite incremental PM_{10} (24-hour average) concentration from construction activities would be reduced with mitigation but would remain significant. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with construction of Alternative 2 would be significant under CEQA for NO_2 (federal 1-hour federal and state 1-hour average) and PM_{10} (24-hour average).

Table 3.2-56 shows that the maximum offsite NO_2 concentrations from overlapping construction and operational activities would be reduced below the level of significance with mitigation. Table 3.2-57 shows that the maximum offsite incremental PM_{10} (24-hour average) concentration from overlapping construction and operational activities would be reduced with mitigation but would remain significant. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of Alternative 2 would be significant under CEQA for PM_{10} (24-hour average).

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-3: Alternative 2 would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.

Table 3.2-58 presents unmitigated peak daily criteria pollutant emissions associated with operation of Alternative 2. Comparisons to the CEQA and NEPA baseline emissions are presented to determine CEQA and NEPA significance, respectively.

Alternative 2 source characteristics, activity levels, sulfur fuel content, emission factors, and other parameters assumed in the operational emissions are discussed in detail in Section 3.2.4.1, Methodology, Table 3.2-5 (container ships and TEU throughput), Table 3.2-6 (CHE), Table 3.2-7 (trucks), and Table 3.2-8 (trains). Terminal activity under Alternative 2 would be the same as activity under Alternative 1.

Table 3.2-58: Peak Daily Operational Emissions without Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	160	128	8,919	218	958	518
Ships—Hoteling	21	17	802	53	73	29
AMP Electricity Use	0	0	23	4	2	0
Tugboats	10	9	426	0	215	25
Trucks	121	43	1,136	3	381	75
Line Haul Locomotives	30	28	1,191	1	278	51
Switch Locomotives	0	0	26	0	9	1
Cargo Handling Equipment	3	3	248	2	276	35
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	10	3	7	0	65	2
Total Year 2017	**357**	**232**	**12,786**	**282**	**2,267**	**739**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(33)	(33)	2,186	(863)	441	109
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	232	12,786	282	2,267	739
Alternative Minus NEPA Baseline	0	0	0	0	0	0
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Year 2020						
Ships—Transit and Anchoring	165	132	9,223	225	992	536
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0
Tugboats	2	1	63	0	134	6
Trucks	131	48	1,125	3	405	81
Line Haul Locomotives	24	22	1,045	1	281	40
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	3	3	193	2	303	33
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**357**	**226**	**12,388**	**285**	**2,260**	**726**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(33)	(39)	1,787	(859)	435	96
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**

Table 3.2-58: Peak Daily Operational Emissions without Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
NEPA Impacts						
NEPA Baseline Emissions	357	226	12,388	285	2,260	726
Alternative Minus NEPA Baseline	0	0	0	0	0	0
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Year 2026						
Ships—Transit and Anchoring	165	132	9,223	225	992	536
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0
Tugboats	1	1	58	0	134	6
Trucks	152	54	688	3	327	67
Line Haul Locomotives	22	20	1,021	1	394	39
Switch Locomotives	0	0	28	0	12	2
Cargo Handling Equipment	3	3	124	2	350	30
Transportation Refrigeration Units	0	0	10	0	12	1
Worker Vehicles	13	4	5	0	48	2
Total Year 2026	**375**	**229**	**11,853**	**286**	**2,332**	**708**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(15)	(36)	1,253	(858)	507	78
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	375	229	11,853	286	2,332	708
Alternative Minus NEPA Baseline	0	0	0	0	0	0
Significance Threshold	150	55	55	150	550	55
Significant?	No	No	No	No	No	No

Notes:

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

Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.

AMP electricity use reflects indirect emissions from regional power generation.

NEPA baseline impacts are the same as the No Federal Action Alternative impacts and the incremental difference is zero.

Emissions might not precisely add due to rounding.

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

Discussion of Emissions Trends and Comparison to Proposed Project

Emissions would vary due to several factors, such as regulatory requirements, activity, source (container ships, tugboats, trucks, locomotives, CHE, and worker vehicles) characteristics, and emission factors. The combination of these factors can result in emissions that do not always decrease or increase consistently over time.

Under Alternative 2, terminal activity would increase in each study year, although it would not reach the level of activity of the proposed Project. Regulatory requirements described in Section 3.2.3, Applicable Regulations, and Table 3.2-4 would serve to decrease emission factors from emission sources. In addition, as equipment ages, engine efficiency would decrease and emission factors would increase in comparison to brand-new equipment. Furthermore, although the annual and peak daily number of container ships would be the same as under the proposed Project, the ship size would be smaller because berths would not be dredged to accommodate larger vessels.

CEQA Impact Determination

Table 3.2-58 shows that unmitigated peak daily operational emissions would exceed the SCAQMD daily emission thresholds and would be significant for NO_X and VOC under CEQA in all analysis years.

Mitigation Measures

Table 3.2-59 presents the peak daily operational emissions of Alternative 2, after the application of MM AQ-9 and MM AQ-10.

Table 3.2-59: Peak Daily Operational Emissions with Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	150	120	8,246	199	927	508
Ships—Hoteling	21	17	802	53	73	29
AMP Electricity Use	0	0	23	4	2	0
Tugboats	10	9	426	0	215	25
Trucks	121	43	1,136	3	381	75
Line Haul Locomotives	30	28	1,191	1	278	51
Switch Locomotives	0	0	26	0	9	1
Cargo Handling Equipment	3	3	248	2	276	35
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	10	3	7	0	65	2
Total Year 2017	**347**	**224**	**12,114**	**263**	**2,236**	**729**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(43)	(41)	1,513	(881)	410	100
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
Year 2020						
Ships—Transit and Anchoring	155	124	8,476	204	957	526
Ships—Hoteling	18	14	660	48	60	24
AMP Electricity Use	1	1	35	7	3	0

Table 3.2-59: Peak Daily Operational Emissions with Mitigation—Alternative 2, No Federal Action (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Tugboats	2	1	63	0	134	6
Trucks	131	48	1,125	3	405	81
Line Haul Locomotives	24	22	1,045	1	281	40
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	3	3	193	2	303	33
Transportation Refrigeration Units	0	0	8	0	10	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**347**	**217**	**11,640**	**264**	**2,226**	**716**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(44)	(48)	1,040	(880)	400	86
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
Year 2026						
Ships—Transit and Anchoring	155	124	8,476	204	957	526
Ships—Hoteling	12	10	397	38	37	15
AMP Electricity Use	1	1	56	11	5	0
Tugboats	1	1	58	0	134	6
Trucks	152	54	688	3	327	67
Line Haul Locomotives	22	20	1,021	1	394	39
Switch Locomotives	0	0	28	0	12	2
Cargo Handling Equipment	3	3	124	2	350	30
Transportation Refrigeration Units	0	0	10	0	12	1
Worker Vehicles	13	4	5	0	48	2
Total Year 2026	**360**	**217**	**10,864**	**260**	**2,276**	**689**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(30)	(48)	264	(884)	451	59
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of peak daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- Mitigation is not required for NEPA under the No Federal Action Alternative.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Residual Impacts

Table 3.2-59 shows that emissions from operation of Alternative 2 would be reduced with mitigation but would remain significant and unavoidable under CEQA for NO_X and VOC in all analysis years. Impacts would be significant and unavoidable.

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-4: Alternative 2 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.

Dispersion modeling of on- and offsite operational emissions was performed to assess the impact of Alternative 2 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2.

Alternative 2 would have the same operational activities as Alternative 1. Therefore, Table 3.2-43 and Table 3.2-44, presented under Alternative 1, also represent the maximum offsite ground level concentrations of NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ from operation of Alternative 2 without mitigation.

CEQA Impact Determination

Table 3.2-43 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would exceed SCAQMD thresholds. Table 3.2-44 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed SCAQMD thresholds. Therefore, maximum offsite ambient pollutant concentrations associated with the operation of Alternative 2 would be significant under CEQA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

Mitigation Measures

Table 3.2-60 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO after the application of MM AQ-9 and MM AQ-10. Table 3.2-61 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ after the application of the same mitigation measures. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-60: Maximum Offsite NO_2, SO_2 and CO Concentrations Associated with Operation of Alternative 2 with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 2 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	28	**192**	188	**Yes**
	State 1-hour	190	31	221	338	No
	Federal annual	33	3	36	100	No
	State annual	33	3	36	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	149	3,204	23,000	No
	8-hour	1,757	96	1,853	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents Alternative 2 operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-61: Maximum Offsite PM_{10} and $PM_{2.5}$ Concentrations Associated with Operation of Alternative 2 with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 ($\mu g/m^3$)	Maximum Modeled Concentration of CEQA Baseline ($\mu g/m^3$)	Maximum Modeled Concentration of NEPA Baseline ($\mu g/m^3$)	Ground-Level Concentration CEQA Increment ($\mu g/m^3$)[a,b]	Ground-Level Concentration NEPA Increment ($\mu g/m^3$)[a,c]	SCAQMD Threshold ($\mu g/m^3$)	CEQA Concentration above threshold?
PM_{10}	24-hour	30.6	22.7	30.6	**8.1**	0	2.5	**Yes**
	Annual	13.2	10.0	13.2	**3.2**	0	1.0	**Yes**
$PM_{2.5}$	24-hour	8.8	7.8	8.8	1.3	0	2.5	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 2 minus CEQA baseline.

[c] The NEPA increment represents Alternative 2 impacts minus NEPA baseline.

[d] The maximum modeled Alternative 2 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 2 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Residual Impacts

Table 3.2-60 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would be reduced with mitigation but would remain significant. Table 3.2-61 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would be reduced with mitigation but would remain significant. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with operation of Alternative 2 would be significant under CEQA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-5: Alternative 2 would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

Alternative 2 would not generate a greater number of truck trips or have a greater impact on intersection LOS than the analysis done for the proposed Project in Section 3.2.4.5, Impact AQ-5. Because the proposed project analysis would not exceed CO standards at any intersection, traffic-related impacts for Alternative 2 would also not exceed CO concentration standards at any intersection.

CEQA Impact Determination

CO standards would not be exceeded in the immediate vicinity of heavily congested intersections. CO impacts would therefore not be significant under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-6: Alternative 2 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with Alternative 2 would serve to disperse emissions. Additionally, the distance between Alternative 2 emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels.

CEQA Impact Determination

The potential is low for the Alternative 2 to produce objectionable odors that would affect a sensitive receptor; and significant odor impacts under CEQA, therefore, are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-7: Alternative 2 would expose receptors to significant levels of TACs.

Alternative 2 activities would emit TACs that could affect public health. The main source of TACs from Alternative 2 would be DPM emissions from container ships, trucks, trains, and CHE. Similar to the HRA for the proposed Project, PM_{10} and VOC emissions were projected over a 70-year period, from 2015 through 2084.

CEQA Impact Determination

The HRA indicates that approximately 99% of the cancer risk at all receptors would be caused by exposure to DPM. Table 3.2-62 presents the maximum predicted health impacts associated with Alternative 2 without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Results are presented for Alternative 2, as well as for the CEQA and Future CEQA increments (Alternative 2 minus CEQA baseline). Health impacts associated with Alternative 2 would result in the following:

- Cancer Risk
  - In relation to the CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types, except at the occupational receptor. Cancer risk at the occupational receptor would equal the significance threshold. Therefore, Alternative 2 would result in a less-than-significant cancer risk at residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk impact at occupational receptors in comparison to the CEQA baseline.

    The maximum impacted occupational receptor would be located about 1,000 feet northeast of the YTI terminal truck out-gate, on industrial Port property, just north of the entry/exit road and TICTF storage tracks.

  - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types, except at the occupational receptor. Cancer risk at the occupational receptor would exceed the significance threshold. Therefore, Alternative 2 would result in a less-than-significant cancer risk impact for residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk impact at occupational receptors in comparison to the Future CEQA baseline.

    The maximum impacted occupational receptor would be in the same location as described above for the CEQA Increment.

  - Cancer risk impacts under Alternative 2 would be the same as under Alternative 1 and less than under the proposed Project.

- Cancer Burden
  - In relation to the CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 2 would result in a less-than-significant cancer burden.
  - In relation to the Future CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 2 would result in a less-than-significant cancer burden.
- Chronic and Acute Impacts
  - The maximum chronic hazard index is predicted to be less than significant at all receptor types. Moreover, the Alternative 2 impact would be less than the baseline at the residential, non-residential sensitive, and student receptors. Therefore, Alternative 2 would result in a less-than-significant noncancer chronic impact.
  - The acute hazard index is predicted to be less than significant at all receptor types. Therefore, Alternative 2 would result in a less-than-significant acute impact.

Additional Analysis for Informational Purposes—Particulates: Morbidity and Mortality

A mortality and morbidity analysis was not required because, per LAHD policy, the maximum offsite $PM_{2.5}$ concentration associated with Alternative 2 would not exceed the significance threshold (Impact AQ-4).

Table 3.2-62: Maximum Incremental CEQA Health Impacts Associated with Alternative 2, No Federal Action without Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Alternative 2	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	
Cancer Risk	Residential: on Land	21×10^{-6} 21 in a million	26×10^{-6} 26 in a million	2×10^{-6} 2 in a million	19×10^{-6} 19 in a million	5×10^{-6} 5 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	33×10^{-6} 33 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	7×10^{-6} 7 in a million	
	Occupational	85×10^{-6} 85 in a million	75×10^{-6} 75 in a million	**10×10^{-6}** **10 in a million**	63×10^{-6} 63 in a million	**22×10^{-6}** **22 in a million**	
	Sensitive	9×10^{-6} 9 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	2×10^{-6} 2 in a million	
	Student	0.5×10^{-6} 0.5 in a million	0.7×10^{-6} 0.7 in a million	0.03×10^{-6} 0.03 in a million	0.7×10^{-6} 0.7 in a million	0.03×10^{-6} 0.03 in a million	
	Recreational	15×10^{-6} 15 in a million	39×10^{-6} 39 in a million	1×10^{-6} 1 in a million	12×10^{-6} 12 in a million	3×10^{-6} 3 in a million	
Chronic Hazard Index		Alternative 2	CEQA Baseline [3]	CEQA Increment [3]			
	Residential: on Land	0.08	0.1	<0			1
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.5	0.4	0.1			
	Sensitive	0.07	0.1	<0			
	Student	0.07	0.1	<0			
	Recreational	0.1	0.2	0.00009			

Table 3.2-62: Maximum Incremental CEQA Health Impacts Associated with Alternative 2, No Federal Action without Mitigation

		Maximum Predicted Impact					
Health Impact	Receptor Type	Alternative 2	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Acute Hazard Index	Residential: on Land	0.4	0.4	0.06			1
	Residential: in Marina	0.6	0.6	0.07			
	Occupational	1.0	0.9	0.1			
	Sensitive	0.4	0.3	0.06			
	Student	0.3	0.3	0.04			
	Recreational	0.6	0.6	0.08			
Cancer Burden				CEQA Increment 0.0005	Future CEQA Increment 0.07		0.5

Notes:

- Exceedances of the significance thresholds are in **bold**. The significance thresholds apply only to the increments.
- The CEQA increment represents the Alternative 2 minus CEQA baseline. The Future CEQA increment represents the Alternative 2 minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.
- Chronic and acute impacts are considered short-term impacts and are determined by comparing project-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.
- Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.
- The displayed values for the Alternative 2 and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.
- Construction emissions were modeled with the operational emissions for the determination of health impacts.
- An increment less than zero means the Alternative 2 impact would be less than the baseline impact at all modeled receptors.

Mitigation Measures

The only discretionary action subject to CEQA under Alternative 2 is minor improvements to the upland (cold plane, slurry seal, etc.). Table 3.2-63 presents the maximum predicted health impacts associated with Alternative 2 after application of MM AQ-1 through MM AQ-8 for construction and MM AQ-9 and MM AQ-10 for operational sources. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Residual Impacts

Table 3.2-63 shows the following health impacts associated with Alternative 2 following the application of mitigation:

- Cancer Risk
  - In relation to the CEQA baseline, the maximum incremental cancer risk would remain equal to the significance threshold at the maximum impacted occupational receptor. Cancer risk at the occupational receptor would not change appreciably from the unmitigated scenario because cancer risk would be driven by container truck exhaust, for which mitigation beyond the Clean Truck Program is not feasible. Therefore, Alternative 2 would result in a less-than-significant cancer risk impact at residential, non-residential sensitive, student, and recreational receptors, but would remain significant and unavoidable at occupational receptors in comparison to the CEQA baseline.
  - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types, except at the occupational receptor. Cancer risk at the occupational receptor would not change appreciably from the unmitigated scenario because cancer risk would be driven by container truck exhaust, for which mitigation beyond the Clean Truck Program is not feasible. Therefore, Alternative 2 would result in a less-than-significant cancer risk at residential, non-residential sensitive, student, and recreational receptors, but would result in a significant and unavoidable cancer risk at occupational receptors in comparison to the Future CEQA baseline.
  - Cancer risk impacts under Alternative 2 would be the less than impacts under the proposed Project.

Table 3.2-63: Maximum Incremental CEQA Health Impacts Associated with Alternative 2, No Federal Action with Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact					Significance Threshold
		Alternative 2	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	
Cancer Risk	Residential: on Land	21×10^{-6} 21 in a million	26×10^{-6} 26 in a million	2×10^{-6} 2 in a million	19×10^{-6} 19 in a million	4×10^{-6} 4 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	32×10^{-6} 32 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	7×10^{-6} 7 in a million	
	Occupational	85×10^{-6} 85 in a million	75×10^{-6} 75 in a million	**10×10^{-6}** **10 in a million**	63×10^{-6} 63 in a million	**22×10^{-6}** **22 in a million**	
	Sensitive	9×10^{-6} 9 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	2×10^{-6} 2 in a million	
	Student	0.5×10^{-6} 0.5 in a million	0.7×10^{-6} 0.7 in a million	0.03×10^{-6} 0.03 in a million	0.7×10^{-6} 0.7 in a million	0.03×10^{-6} 0.03 in a million	
	Recreational	15×10^{-6} 15 in a million	39×10^{-6} 39 in a million	1×10^{-6} 1 in a million	12×10^{-6} 12 in a million	3×10^{-6} 3 in a million	
Chronic Hazard Index		Alternative 2	CEQA Baseline [3]	CEQA Increment [3]			
	Residential: on Land	0.08	0.1	<0			1
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.5	0.4	0.1			
	Sensitive	0.07	0.1	<0			
	Student	0.07	0.1	<0			
	Recreational	0.1	0.2	0.00007			

Table 3.2-63: Maximum Incremental CEQA Health Impacts Associated with Alternative 2, No Federal Action with Mitigation

		Maximum Predicted Impact					
Health Impact	Receptor Type	Alternative 2	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Acute Hazard Index	Residential: on Land	0.4	0.4	0.06			1
	Residential: in Marina	0.6	0.6	0.07			
	Occupational	1.0	0.9	0.1			
	Sensitive	0.4	0.3	0.06			
	Student	0.3	0.3	0.04			
	Recreational	0.6	0.6	0.08			
Cancer Burden				CEQA Increment 0.0004	Future CEQA Increment 0.03		0.5

Notes:

- Exceedances of the significance thresholds are in **bold**. The significance thresholds apply only to the increments.
- The CEQA increment represents the Alternative 2 minus CEQA baseline. The Future CEQA increment represents the Alternative 2 minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.
- Chronic and acute impacts are considered short-term impacts and are determined by comparing project-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.
- Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.
- The displayed values for the Alternative 2 and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.
- Construction emissions were modeled with the operational emissions for the determination of health impacts.
- An increment less than zero means the Alternative 2 impact would be less than the baseline impact at all modeled receptors.

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Impact AQ-8: Alternative 2 would not conflict with or obstruct implementation of an applicable AQMP.

This alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts. Thus, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

Alternative 2 would not conflict with or obstruct implementation of the AQMP; therefore, impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Alternative 2 would include only backlands improvements consisting of slurry sealing; deep cold planing; asphalt concrete overlay; restriping; and removal, relocation, or modification of any underground conduits and pipes necessary to complete repairs. No construction of in-water or over-water features would occur under Alternative 2. The No Federal Action Alternative would involve the same construction activities as would occur under the NEPA baseline. Therefore, there would be no incremental difference between Alternative 2 and the NEPA baseline. As a consequence, Alternative 2 would result in no impact under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

No impact would occur.

Alternative 3—Reduced Project: Improve Berths 217–220 Only

Alternative 3 includes all components of the proposed Project except dredging and pile driving at Berths 214–216. The following components of the proposed Project are unchanged under this alternative:

- modifying up to six existing cranes;
- replacing up to four existing non-operating cranes;
- dredging 6,000 cy from a depth of -45 to -47 feet MLLW (with an additional 2 feet of overdredge depth, for a total depth of -49 feet MLLW), and installing 1,200 linear feet of sheet piles and king piles to support and stabilize the existing wharf structure at Berths 217–220;
- disposing of dredged material at LA-2, the Berths 243–245 CDF, or another approved upland location;
- extending the existing 100-foot gauge landside crane rail through Berths 217–220;
- performing ground repairs and maintenance activities in the backlands area; and
- expanding the TICTF on-dock rail by adding a single rail loading track.

Under this alternative, there would be three operating berths after construction, similar to the proposed Project, but Berths 214–216 would remain at their existing depth. This alternative would require less dredging (by approximately 21,000 cy) and pile driving and a shorter construction period than the proposed Project. Based on the throughput projections, this alternative is expected to operate at its capacity of approximately 1,913,000 TEUs by 2026, similar to the proposed Project. However, while the terminal could handle similar levels of cargo, the reduced project alternative would not achieve the same level of efficient operations as achieved by the proposed Project. This alternative would not accommodate the largest vessels (13,000 TEUs). The depth achieved at Berths 217–220 would only be capable of handling vessels up to 11,000 TEUs, requiring additional vessels to call on the terminal to meet future growth projections up to the capacity of the terminal. Therefore, under this alternative, 232 vessels would call on the terminal in 2020 and 2026, compared to 206 vessels for the proposed Project. Additionally, because of the higher number of annual vessel calls, this alternative would result in a maximum of five peak day ship calls (over a 24-hour period) compared to four for the proposed Project.

Comprehensive activity information is provided in Table 3.2-5 for container ships, Table 3.2-6 for CHE, Table 3.2-7 for trucks, Table 3.2-8 for trains, and Table 3.2-9 for AMP power generation. Tugboats activity would be proportional to ship container calls. CHE activity would be proportional to terminal TEU throughput.

Impact AQ-1: Alternative 3 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.

Table 3.2-64 presents the peak daily criteria pollutant emissions associated with construction of Alternative 3, before mitigation. Maximum emissions for each construction phase were determined by adding the daily emissions from those construction activities that overlap in the construction schedule (Table 2-4 in Chapter 2).

The YTI terminal would continue to operate during construction of Alternative 3; construction and operational activities would overlap during this time. SCAQMD has requested that total emissions be estimated during a peak year when construction and operational activities substantially overlap. Table 3.2-65 presents the overlap of construction and operations during 2015, the peak year of construction emissions.

Table 3.2-64: Peak Daily Construction Emissions without Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	41	37	971	2	479	68
Marine Source Exhaust	84	70	4,268	89	920	202
On-road Construction Vehicles	78	29	868	1	69	17
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	1	0	0	0	0	5
Total Construction Year 2015	**207**	**137**	**6,108**	**93**	**1,472**	**293**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative 3 Minus CEQA Baseline	207	137	6,108	93	1,472	293
Significance Threshold	150	55	100	150	550	75
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	115	40	909	1	137	90
Alternative 3 Minus NEPA Baseline	91	97	5,199	91	1,335	203
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Construction Year 2016						
Off-road Construction Equipment Exhaust	20	18	439	1	252	32
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	36	12	265	0	22	6
Worker Vehicles	3	1	0	0	4	0
Fugitive Emissions	1	0	0	0	0	18
Total Construction Year 2016	**60**	**31**	**704**	**1**	**277**	**56**

Table 3.2-64: Peak Daily Construction Emissions without Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative 3 Minus CEQA Baseline	60	31	704	1	277	56
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
NEPA Impacts						
NEPA Baseline Emissions	1	1	26	0	10	15
Alternative 3 Minus NEPA Baseline	58	30	678	1	267	41
Significance Threshold	150	55	100	150	550	75
Significant?	No	No	Yes	No	No	No

Notes:

- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt offgassing.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Emissions of PM_{10} and $PM_{2.5}$ assume that fugitive dust is controlled in accordance with SCAQMD Rule 403 by watering disturbed areas three times per day, for a control efficiency of 61% from uncontrolled levels.
- Emissions reflect the largest emissions between upland and marine disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions are emissions presented in Peak Daily Construction Emissions—NEPA Baseline, Table 3.2-12.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Table 3.2-65: Peak Daily Combined Construction and Operational Emissions without Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction 2015						
Off-road Construction Equipment Exhaust	41	37	971	2	479	68
Marine Source Exhaust	84	70	4,268	89	920	202
On-road Construction Vehicles	78	29	868	1	69	17
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	1	0	0	0	0	5
Operation 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1

Table 3.2-65: Peak Daily Combined Construction and Operational Emissions without Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Construction and Operation Year 2015	558	368	18,753	371	3,659	1,020
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative 3 Minus CEQA Baseline	168	103	8,153	-774	1,833	391
Significance Threshold	150	55	100	150	550	75
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	466	271	13,555	279	2,324	818
Alternative 3 Minus NEPA Baseline	91	97	5,199	91	1,335	203
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of maximum daily emissions for each source category. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- Construction emissions reflect the largest emissions between upland and marine disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions include the NEPA baseline construction emissions plus the NEPA baseline operational emissions, presented in Table 3.2-12 and Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

CEQA Impact Determination

Table 3.2-64 shows that unmitigated peak daily construction emissions would exceed the SCAQMD daily emission thresholds for PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC under CEQA during the 2015 peak year of construction. Construction emissions would also exceed the SCAQMD daily emission thresholds for NO_X during the 2016 construction year. Therefore, unmitigated Alternative 3 construction emissions would be significant under CEQA for PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC prior to mitigation. The largest contributors to peak daily construction emissions are off-road construction equipment (including dredging equipment) and marine sources (including tugboats used to assist dredging barges), as well as haul trucks used for pile deliveries and disposal of dredged material.

Table 3.2-65 shows that overlapping construction and operational emissions during 2015, the peak year of construction, would exceed the SCAQMD daily emission thresholds for construction for PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC. Therefore, impacts would be significant during the peak year of construction and operational overlap under CEQA.

Mitigation Measures

To reduce the level of impact during construction, MM AQ-1 through MM AQ-8 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8. Table 3.2-66 presents the peak daily criteria pollutant emissions associated with the construction of Alternative 3, after the application of MM AQ-1 through MM AQ-8. Table 3.2-67 presents the peak daily combined construction and operational emissions, during the time of peak construction, after the application of the same mitigation measures.

Table 3.2-66: Peak Daily Construction Emissions with Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction Year 2015						
Off-road Construction Equipment Exhaust	5	5	296	1	271	43
Marine Source Exhaust	66	54	3,766	89	566	151
On-road Construction Vehicles	73	25	237	1	67	15
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	0	0	0	0	0	5
Total Construction Year 2015	**149**	**85**	**4,300**	**92**	**909**	**215**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative 3 Minus CEQA Baseline	149	85	4,300	92	909	215
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	115	40	909	1	137	90
Alternative 3 Minus NEPA Baseline	34	45	3,391	91	772	125
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
Construction Year 2016						
Off-road Construction Equipment Exhaust	4	3	206	1	193	31
Marine Source Exhaust	0	0	0	0	0	0
On-road Construction Vehicles	35	11	73	0	22	5
Worker Vehicles	3	1	0	0	4	0
Fugitive Emissions	0	0	0	0	0	18
Total Construction Year 2016	**42**	**15**	**280**	**1**	**218**	**55**
CEQA Impacts						
CEQA Baseline Emissions	0	0	0	0	0	0
Alternative 3 Minus CEQA Baseline	42	15	280	1	218	55
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Table 3.2-66: Peak Daily Construction Emissions with Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
NEPA Impacts						
NEPA Baseline Emissions	1	1	26	0	10	15
Alternative 3 Minus NEPA Baseline	41	14	254	1	208	40
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**

Notes:

- On-road Construction Vehicle emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Fugitive emissions include construction dust and asphalt offgassing.
- Worker vehicles emissions include exhaust, road dust, tire wear, and brake wear emissions.
- Emissions reflect the largest emissions between upland and marine disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions are NEPA construction emissions presented in Table 3.2-12.
- Emissions might not add precisely due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Table 3.2-67: Peak Daily Combined Construction and Operational Emissions with Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Construction 2015						
Off-road Construction Equipment Exhaust	5	5	296	1	271	43
Marine Source Exhaust	66	54	3,766	89	566	151
On-road Construction Vehicles	73	25	237	1	67	15
Worker Vehicles	4	1	0	0	5	1
Fugitive Emissions	0	0	0	0	0	5
Operation 2015						
Ships—Transit and Anchoring	152	121	8,412	207	909	491
Ships—Hoteling	27	22	1,105	65	101	40
AMP Electricity Use	0	0	0	0	0	0
Tugboats	10	9	426	0	215	25
Trucks	112	39	1,053	3	335	66
Line Haul Locomotives	35	32	1,286	1	276	62
Switch Locomotives	0	0	25	0	8	1
Cargo Handling Equipment	4	4	321	2	260	36
Transportation Refrigeration Units	0	0	9	0	10	3
Worker Vehicles	10	3	8	0	73	3
Total Construction and Operation Year 2015	**500**	**316**	**16,945**	**370**	**3,096**	**942**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative 3 Minus CEQA Baseline	110	51	6,345	-775	1,270	313
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	466	271	13,555	279	2,324	818
Alternative 3 Minus NEPA Baseline	34	45	3,391	91	772	125
Significance Threshold	150	55	100	150	550	75
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of maximum daily emissions for each source category. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- Construction emissions reflect the largest emissions between upland and marine disposal of dredged materials (see Section 3.2.4.1, Methodology).
- NEPA baseline emissions include the NEPA baseline construction emissions plus the NEPA baseline operational emissions, presented in Table 3.2-12 and Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Residual Impacts

Emissions from construction of Alternative 3 would be reduced with mitigation but would remain significant and unavoidable under CEQA for $PM_{2.5}$, NO_X, CO and VOC in 2015 and for NO_X in 2016. In addition, although emissions from overlapping construction and operation would be reduced with mitigation, they would remain significant and unavoidable under CEQA for NO_X, CO, and VOC during the 2015 peak construction year.

NEPA Impact Determination

Table 3.2-64 shows that unmitigated peak daily construction emissions would exceed the SCAQMD daily thresholds for $PM_{2.5}$, NO_X, CO, and VOC under NEPA in 2015 and for NO_X in 2016. Therefore, unmitigated Alternative 3 construction emissions would be significant under NEPA for $PM_{2.5}$, NO_X, CO and VOC prior to mitigation.

Table 3.2-65 shows that overlapping construction and operational emissions during 2015, the peak year of construction, would exceed the SCAQMD daily emission thresholds for construction for $PM_{2.5}$, NO_X, CO, and VOC. Therefore, impacts would be significant during the peak year of construction and operational overlap under NEPA.

Mitigation Measures

Table 3.2-66 presents the peak daily criteria pollutant emissions associated with construction of Alternative 3, after the application of MM AQ-1 through MM AQ-8. Table 3.2-67 presents the peak daily combined construction and operational emissions, during the time of peak construction, after the application of the same mitigation measures.

Residual Impacts

Emissions from construction of Alternative 3 would be reduced with mitigation but would remain significant and unavoidable under NEPA for NO_X, CO, and VOC in 2015 and for NO_X in 2016. In addition, although emissions from overlapping construction and operation would be reduced, impacts would remain significant and unavoidable under NEPA for NO_X, CO, and VOC during the 2015 peak construction year.

Impact AQ-2: Alternative 3 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.

Dispersion modeling of onsite construction emissions was performed to assess the impact of Alternative 3 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2. Table 3.2-68 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction. Table 3.2-69 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ from construction. Table 3.2-70 presents maximum offsite ground level concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations. Table 3.2-71 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations without mitigation.

Table 3.2-68: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 3 Construction without Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Alternative 3 Concentration ($\mu g/m^3$)	Total Ground-Level Concentration ($\mu g/m^3$)[d]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	659	**823**	188	**Yes**
	State 1-hour	190	727	**917**	338	**Yes**
	Federal annual	33	28	61	100	No
	State annual	33	28	**61**	57	**Yes**
SO_2	Federal 1-hour[b]	92	7	99	197	No
	State 1-hour	139	10	149	655	No
	24-hour	42	2	44	105	No
CO	1-hour	3,055	1,760	4,815	23,000	No
	8-hour	1,757	1,016	2,773	10,000	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.
[d] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-69: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 3 Construction without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	33.2	0	12.4	**33.2**	**26.4**	10.4	**Yes**	**Yes**
	Annual	1.2	0	0.3	**1.2**	**1.2**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	29.4	0	3.5	**29.4**	**26.7**	10.4	**Yes**	**Yes**

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 3 minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

[c] The NEPA increment represents Alternative 3 minus NEPA baseline.

[d] The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3.2-70: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 3 Construction and Operation without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	581	**745**	188	**Yes**
	State 1-hour	190	632	**822**	338	**Yes**
	Federal annual	33	23	56	100	No
	State annual	33	23	56	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	1,748	4,803	23,000	No
	8-hour	1,757	1,028	2,784	10,000	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.
[d] The maximum modeled concentration increment represents Alternative 3 construction plus operation minus 2012 terminal operations.
[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-71: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 3 Construction and Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (μg/m^3)	Maximum Modeled Concentration of CEQA Baseline (μg/m^3)	Maximum Modeled Concentration of NEPA Baseline (μg/m^3)	Ground-Level Concentration CEQA Increment (μg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (μg/m^3)[a,c]	SCAQMD Threshold (μg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	36.6	22.7	35.5	**30.1**	**25.8**	10.4	**Yes**	**Yes**
	Annual	10.4	10.0	10.4	**1.1**	**1.2**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	30.1	7.8	10.4	**27.7**	**26.2**	10.4	**Yes**	**Yes**

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 3 minus CEQA baseline.

[c] The NEPA increment represents Alternative 3 minus NEPA baseline.

[d] The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

CEQA Impact Determination

Table 3.2-68 shows that the maximum offsite NO_2 (federal 1-hour, state 1-hour and state annual average) concentrations from construction activities would exceed SCAQMD thresholds. Table 3.2-69 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour) concentrations from construction activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the construction of Alternative 3 would be significant under CEQA for NO_2 (federal 1-hour, state 1-hour and state annual average), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).

Table 3.2-70 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Table 3.2-71 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of Alternative 3 would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).

Mitigation Measures

To reduce the level of impact during construction, MM AQ-1 through MM AQ-8 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-72 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction with mitigation. Table 3.2-73 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ from construction with mitigation. Table 3.2-74 presents concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations with construction mitigation. Table 3.2-75 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations with construction mitigation.

Table 3.2-72: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 3 Construction with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration (µg/m^3)	Total Ground-Level Concentration (µg/m^3)[d]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	264	**428**	188	**Yes**
	State 1-hour	190	344	**534**	338	**Yes**
	Federal annual	33	12	45	100	No
	State annual	33	12	45	57	No
SO_2	Federal 1-hour[b]	92	6	98	197	No
	State 1-hour	139	9	148	655	No
	24-hour	42	1	43	105	No
CO	1-hour	3,055	904	3,959	23,000	No
	8-hour	1,757	159	1,915	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-73: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 3 Construction with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	13.0	0	12.4	**13.0**	3.4	10.4	**Yes**	No
	Annual	0.4	0	0.3	0.4	0.4	1.0	No	No
$PM_{2.5}$	24-hour	7.5	0	3.5	7.5	5.5	10.4	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

[c] The NEPA increment represents project minus NEPA Baseline.

[d] The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3.2-74: Maximum Offsite Ambient NO_2, SO_2, and CO Concentrations—Alternative 3 Construction and Operation with Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Alternative 3 Concentration Increment ($\mu g/m^3$)[d]	Total Ground-Level Concentration ($\mu g/m^3$)[e]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	190	**354**	188	**Yes**
	State 1-hour	190	241	**431**	338	**Yes**
	Federal annual	33	9	43	100	No
	State annual	33	9	43	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	920	3,975	23,000	No
	8-hour	1,757	170	1,927	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents Alternative 3 construction plus operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-75: Maximum Offsite Ambient PM_{10} and $PM_{2.5}$ Concentrations—Alternative 3 Construction and Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	36.0	22.7	35.5	**13.5**	2.8	10.4	**Yes**	No
	Annual	10.4	10.0	10.4	0.5	0.4	1.0	No	No
$PM_{2.5}$	24-hour	10.3	7.8	10.4	6.2	5.4	10.4	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 3 minus CEQA baseline.

[c] The NEPA increment represents Alternative 3 minus NEPA baseline.

[d] The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Residual Impacts

Table 3.2-2 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would be reduced with mitigation but would remain significant. The maximum state annual NO_2 concentration would be reduced to less than significant. Table 3.2-73 shows that the maximum offsite incremental PM_{10} (24-hour average) concentration from construction activities would be reduced with mitigation but would remain significant. The maximum annual PM_{10} and 24-hour $PM_{2.5}$ concentrations would be reduced to less than significant. Therefore, with mitigation, maximum offsite ambient pollutant concentrations associated with the construction of Alternative 3 would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average) and PM_{10} (24-hour average).

Table 3.2-74 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from overlapping construction and operational activities would be reduced with mitigation but would remain significant. Table 3.2-75 shows that the maximum offsite incremental PM_{10} (24-hour average) concentration from overlapping construction and operational activities would be reduced with mitigation but would remain significant. The maximum annual PM_{10} and 24-hour $PM_{2.5}$ concentrations would be reduced to less than significant. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of Alternative 3 would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average) and PM_{10} (24-hour average).

NEPA Impact Determination

Table 3.2-68 shows that the maximum offsite NO_2 (federal 1-hour, state 1-hour and state annual average) concentrations from construction activities would exceed SCAQMD thresholds. Table 3.2-69 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from construction activities would exceed the SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the construction of Alternative 3 would be significant under NEPA for NO_2 (federal 1-hour, state 1-hour and state annual average), PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average).

Table 3.2-70 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Table 3.2-71 shows that the maximum offsite incremental PM_{10} (24-hour an annual average) and $PM_{2.5}$ (24-hour average) concentration from overlapping construction and operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of Alternative 3 would be significant under CEQA for NO_2 (federal 1-hour and state 1-hour average), PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average).

Mitigation Measures

To reduce the level of impact during construction, MM AQ-1 through MM AQ-8 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-72 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO from construction with mitigation. Table 3.2-73 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ from construction with mitigation. Table 3.2-74 presents concentrations of NO_2, SO_2, and CO when peak construction activity would overlap with terminal operations with construction mitigation. Table 3.2-75 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ when peak construction activity would overlap with terminal operations with construction mitigation.

Residual Impacts

Table 3.2-72 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would be reduced with mitigation but would remain significant. The maximum state annual NO_2 concentration would be reduced to less than significant. Table 3.2-73 shows that the maximum offsite incremental PM_{10} and $PM_{2.5}$ concentration from construction activities would be reduced with mitigation below the level of significance. Therefore, with mitigation, maximum offsite ambient pollutant concentrations associated with the construction of Alternative 3 would be significant under NEPA for NO_2 (federal 1-hour and state 1-hour average).

Table 3.2-74 shows that the maximum offsite NO_2 (federal 1-hour and state 1-hour average) concentrations from overlapping construction and operational activities would be reduced with mitigation but would remain significant. Table 3.2-75 shows that the maximum offsite incremental PM_{10} and $PM_{2.5}$ concentrations from overlapping construction and operational activities would be reduced with mitigation below the level of significance. Therefore, following mitigation, maximum offsite ambient pollutant concentrations associated with the combined construction and operation of Alternative 3 would be significant under NEPA for NO_2 (federal 1-hour and state 1-hour average).

Impact AQ-3: Alternative 3 would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.

Table 3.2-76 presents unmitigated peak daily criteria pollutant emissions associated with operation of Alternative 3. Comparisons to the CEQA and NEPA baseline emissions are presented to determine CEQA and NEPA significance, respectively.

Alternative 3 source characteristics, activity levels, sulfur fuel content, emission factors, and other parameters assumed in the operational emissions are discussed in detail in Section 3.2.4.1, Methodology, Table 3.2-5 for container ships and TEU throughput, Table 3.2-6 for CHE, Table 3.2-7 for trucks, and Table 3.2-8 for trains. The following is a summary of terminal activity under Alternative 3:

- Annual throughput of 1,913,000 TEUs by 2026;
- 232 annual container ship calls in all analysis years;
- Largest container ship would be 11,000 TEUs;
- 4 peak day container ship transits in analysis year 2017; 5 peak day container ship transits in analysis years 2020 and 2026;
- 3 AMP-capable berths in all analysis years;
- 1,348,000 annual truck trips by 2026;
- 4,918 peak day truck trips by 2026;

- 1,269 annual on-dock trains and 189 near- and off-dock trains by 2026; and
- 5 peak day on-dock trains and 0.6 near- and off-dock trains by 2026.

Table 3.2-76: Peak Daily Operational Emissions without Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	162	130	9,028	222	968	522
Ships—Hoteling	34	27	1,306	84	119	48
AMP Electricity Use	1	1	35	7	3	0
Tugboats	10	9	426	0	215	25
Trucks	128	46	1,199	3	402	79
Line Haul Locomotives	30	28	1,198	1	280	51
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	4	3	262	2	291	37
Transportation Refrigeration Units	0	0	9	0	11	3
Worker Vehicles	11	3	7	0	68	3
Total Year 2017	**379**	**247**	**13,497**	**319**	**2,367**	**768**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(11)	(18)	2,897	(826)	542	139
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	232	12,786	282	2,267	739
Alternative Minus NEPA Baseline	23	15	711	37	100	30
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**No**
Year 2020						
Ships—Transit and Anchoring	220	176	12,192	296	1,322	721
Ships—Hoteling	23	19	816	67	75	31
AMP Electricity Use	1	1	74	14	7	0
Tugboats	2	2	79	0	168	7
Trucks	147	53	1,255	3	452	90
Line Haul Locomotives	33	30	1,414	1	380	54
Switch Locomotives	0	0	31	0	10	2
Cargo Handling Equipment	4	3	215	2	338	37
Transportation Refrigeration Units	0	0	9	0	12	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**442**	**288**	**16,093**	**384**	**2,825**	**947**

Table 3.2-76: Peak Daily Operational Emissions without Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	52	23	5,492	(760)	1,000	317
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	226	12,388	285	2,260	726
Alternative Minus NEPA Baseline	85	63	3,705	99	565	220
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Year 2026						
Ships—Transit and Anchoring	222	177	12,294	299	1,333	726
Ships—Hoteling	25	20	900	70	83	34
AMP Electricity Use	1	1	74	14	7	0
Tugboats	2	1	73	0	168	7
Trucks	168	60	768	4	366	75
Line Haul Locomotives	26	24	1,202	2	464	46
Switch Locomotives	0	0	31	0	13	2
Cargo Handling Equipment	4	3	139	3	395	34
Transportation Refrigeration Units	0	0	12	0	13	2
Worker Vehicles	14	4	5	0	54	2
Total Year 2026	**462**	**292**	**15,499**	**392**	**2,895**	**928**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	72	27	4,899	(752)	1,069	298
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	375	229	11,853	286	2,332	708
Alternative Minus NEPA Baseline	87	62	3,646	106	563	220
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

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

Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.

AMP electricity use reflects indirect emissions from regional power generation.

Emissions might not precisely add due to rounding.

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

Discussion of Emissions Trends and Comparison to Proposed Project

Emissions would vary due to several factors, such as regulatory requirements, activity levels, source (container ships, tugboats, trucks, locomotives, CHE, and worker vehicles) characteristics, and emission factors. The combination of these factors can result in emissions that do not always decrease or increase consistently over time.

Under Alternative 3, terminal activity would increase in each study year and would reach the same level of activity as the proposed Project in 2026. Regulatory requirements described in Section 3.2.3, Applicable Regulations, and Table 3.2-4would serve to decrease emission factors from most emission sources. In addition, as equipment ages, engine efficiency would decrease and emission factors would increase in comparison to brand-new equipment.

Although the terminal would handle similar levels of cargo, Alternative 3 would not achieve the same level of efficient operations as would be achieved by the proposed Project, and more annual container ship calls would be required. The higher number of annual vessel calls would result in a maximum of five peak day ship calls (over a 24-hour period), compared to four for the proposed Project.

CEQA Impact Determination

Table 3.2-76 shows that peak daily operational emissions would exceed the SCAQMD daily emission thresholds and would be significant for NO_X and VOC in all analysis years and for CO in 2020 and 2026 under CEQA.

Mitigation Measures

Table 3.2-77 presents peak daily operational emissions associated with Alternative 3, following the application of MM AQ-9 and MM AQ-10.

Table 3.2-77: Peak Daily Operational Emissions with Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
Year 2017						
Ships—Transit and Anchoring	153	122	8,355	203	938	513
Ships—Hoteling	34	27	1,306	84	119	48
AMP Electricity Use	1	1	35	7	3	0
Tugboats	10	9	426	0	215	25
Trucks	128	46	1,199	3	402	79
Line Haul Locomotives	30	28	1,198	1	280	51
Switch Locomotives	0	0	28	0	9	1
Cargo Handling Equipment	4	3	262	2	291	37
Transportation Refrigeration Units	0	0	9	0	11	3
Worker Vehicles	11	3	7	0	68	3
Total Year 2017	**370**	**239**	**12,824**	**300**	**2,336**	**759**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	(20)	(26)	2,224	(844)	511	129
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	357	232	12,786	282	2,267	739
Alternative Minus NEPA Baseline	13	7	38	18	70	21
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Year 2020						
Ships—Transit and Anchoring	199	159	10,772	256	1,257	702
Ships—Hoteling	23	19	816	67	75	31
AMP Electricity Use	1	1	74	14	7	0
Tugboats	2	2	79	0	168	7
Trucks	147	53	1,255	3	452	90
Line Haul Locomotives	33	30	1,414	1	380	54
Switch Locomotives	0	0	31	0	10	2
Cargo Handling Equipment	4	3	215	2	338	37
Transportation Refrigeration Units	0	0	9	0	12	2
Worker Vehicles	12	3	6	0	61	2
Total Year 2020	**422**	**272**	**14,672**	**344**	**2,760**	**927**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	32	7	4,072	(800)	934	297
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**

Table 3.2-77: Peak Daily Operational Emissions with Mitigation—Alternative 3, Reduced Project (lbs/day)

Source Category	PM_{10}	$PM_{2.5}$	NO_X	SO_X	CO	VOC
NEPA Impacts						
NEPA Baseline Emissions	357	226	12,388	285	2,260	726
Alternative Minus NEPA Baseline	65	47	2,285	59	500	201
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**
Year 2026						
Ships—Transit and Anchoring	201	161	10,866	260	1,267	707
Ships—Hoteling	18	15	560	58	52	22
AMP Electricity Use	2	2	103	19	10	0
Tugboats	2	1	73	0	168	7
Trucks	168	60	768	4	366	75
Line Haul Locomotives	26	24	1,202	2	464	46
Switch Locomotives	0	0	31	0	13	2
Cargo Handling Equipment	4	3	139	3	395	34
Transportation Refrigeration Units	0	0	12	0	13	2
Worker Vehicles	14	4	5	0	54	2
Total Year 2026	**436**	**270**	**13,758**	**345**	**2,801**	**897**
CEQA Impacts						
CEQA Baseline Emissions	390	265	10,600	1,144	1,826	630
Alternative Minus CEQA Baseline	45	5	3,158	(799)	976	267
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
NEPA Impacts						
NEPA Baseline Emissions	375	229	11,853	286	2,332	708
Alternative Minus NEPA Baseline	60	41	1,905	59	469	188
Significance Threshold	150	55	55	150	550	55
Significant?	**No**	**No**	**Yes**	**No**	**No**	**Yes**

Notes:

- Emissions assume the simultaneous occurrence of peak daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.
- Truck, train, ship, and worker commute emissions include transport within the South Coast Air Basin.
- AMP electricity use reflects indirect emissions from regional power generation.
- NEPA baseline emissions reflect the NEPA baseline operational, presented in Table 3.2-13.
- Emissions might not precisely add due to rounding.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Residual Impacts

Table 3.2-77 shows that for years 2017 and 2020, total emissions for all pollutants would decline from unmitigated levels due to higher VSRP compliance. For a peak day, VSRP compliance in the 20-nm to 40-nm zone would increase from two container ships to three container ships starting in year 2017 and from two to four starting in year 2020. For year 2026, total emissions for all pollutants would decline from unmitigated levels due to higher AMP compliance. For a peak day, AMP compliance would increase from three AMP hoteling container ships to four.

Emissions from operation of Alternative 3 would be reduced with mitigation but would remain significant and unavoidable under CEQA for NO_X and VOC in all analysis years and for CO in 2020 and 2026.

NEPA Impact Determination

Table 3.2-76 shows that unmitigated peak daily operational emissions would exceed the SCAQMD daily thresholds for NO_X in all analysis years and for $PM_{2.5}$, CO, and VOC in years 2020 and 2026. Therefore, unmitigated Alternative 3 operational emissions would be significant under NEPA for $PM_{2.5}$, NO_X, CO, and VOC prior to mitigation.

Mitigation Measures

Table 3.2-77 presents the peak daily pollutant emissions associated with operation of Alternative 3, after the application of MM AQ-9 and MM AQ-10. LM AQ-1 and LM AQ-2 are lease measures that may reduce future emissions; however, because implementation may change over the life of the leases, these measures were not included in emissions calculations.

Residual Impacts

Table 3.2-77 shows that emissions from operation of Alternative 3 would be reduced with mitigation but would remain significant and unavoidable under NEPA for NO_X and VOC in 2020 and 2026.

Impact AQ-4: Alternative 3 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.

Dispersion modeling of on- and offsite Alternative 3 operational emissions was performed to assess the impact of Alternative 3 on local ambient air concentrations. A summary of the dispersion modeling results is presented here; the complete dispersion modeling report is included in Appendix B2. Table 3.2-78 presents the maximum offsite concentrations of NO_2, SO_2, and CO from operational activities without mitigation. Table 3.2-79 presents the maximum offsite concentrations of PM_{10} and $PM_{2.5}$ from operational activities without mitigation.

Table 3.2-78: Maximum Offsite NO_2, SO_2, and CO Concentrations—Alternative 3 Operation without Mitigation

Pollutant	Averaging Time	Background Concentration ($\mu g/m^3$)[c]	Maximum Modeled Alternative 3 Concentration Increment ($\mu g/m^3$)[d]	Total Ground-Level Concentration ($\mu g/m^3$)[e]	SCAQMD Threshold ($\mu g/m^3$)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	65	**229**	188	**Yes**
	State 1-hour	190	72	262	338	No
	Federal annual	33	5	38	100	No
	State annual	33	5	38	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	215	3,269	23,000	No
	8-hour	1,757	141	1,897	10,000	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.
[d] The maximum modeled concentration increment represents Alternative 3 operation minus 2012 terminal operations.
[e] Exceedances of the thresholds are indicated in **bold.**

Table 3.2-79: Maximum Offsite PM_{10} and $PM_{2.5}$ Concentrations—Alternative 3 Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m³)	Maximum Modeled Concentration of CEQA Baseline (µg/m³)	Maximum Modeled Concentration of NEPA Baseline (µg/m³)	Ground-Level Concentration CEQA Increment (µg/m³)[a,b]	Ground-Level Concentration NEPA Increment (µg/m³)[a,c]	SCAQMD Threshold (µg/m³)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	33.9	22.7	30.6	**11.5**	**3.5**	2.5	**Yes**	**Yes**
	Annual	14.6	10.0	13.2	**4.5**	**1.3**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	9.7	7.8	8.8	2.1	1.0	2.5	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents Alternative 3 minus CEQA baseline.

[c] The NEPA increment represents Alternative 3 minus NEPA baseline.

[d] The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

CEQA Impact Determination

Table 3.2-78 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would exceed the SCAQMD threshold. Table 3.2-79 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the construction of Alternative 3 would be significant under CEQA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

Mitigation Measures

To reduce the level of impact during operation, MM AQ-9 and MM AQ-10 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-80 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO with mitigation. Table 3.2-81 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ with mitigation.

Table 3.2-80: Maximum Offsite NO_2, SO_2 and CO Concentrations—Alternative 3 Operation with Mitigation

Pollutant	Averaging Time	Background Concentration (μg/m³)[c]	Maximum Modeled Alternative 3 Concentration Increment (μg/m³)[d]	Total Ground-Level Concentration (μg/m³)[e]	SCAQMD Threshold (μg/m³)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	65	**229**	188	**Yes**
	State 1-hour	190	72	262	338	No
	Federal annual	33	5	38	100	No
	State annual	33	5	38	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	215	3,269	23,000	No
	8-hour	1,757	141	1,897	10,000	No

Notes:

[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.

[b] The federal 1-hour SO_2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.

[c] The background concentrations for NO_2, SO_2, and CO were obtained from the TITP station.

[d] The maximum modeled concentration increment represents Alternative 3 operation minus 2012 terminal operations.

[e] Exceedances of the thresholds are indicated in **bold**.

Table 3.2-81: Maximum Offsite PM_{10} and $PM_{2.5}$ Concentrations—Alternative 3 Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	33.9	22.7	30.6	**11.5**	**3.5**	2.5	**Yes**	**Yes**
	Annual	14.6	10.0	13.2	**4.5**	**1.3**	1.0	**Yes**	**Yes**
$PM_{2.5}$	24-hour	9.7	7.8	8.8	2.1	1.0	2.5	No	No

Notes:

[a] Exceedances of the threshold are indicated in **bold**. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.

[b] The CEQA increment represents project minus CEQA baseline.

[c] The NEPA increment represents Alternative 3 minus NEPA baseline.

[d] The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Residual Impacts

Table 3.2-80 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would not be substantially reduced with mitigation and would remain significant under CEQA. Table 3.2-81 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would not be substantially reduced with mitigation and would remain significant under CEQA.

NEPA Impact Determination

Table 3.2-78 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would exceed the SCAQMD threshold. Table 3.2-79 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed SCAQMD thresholds. Therefore, without mitigation, maximum offsite ambient pollutant concentrations associated with the operation of Alternative 3 would be significant under NEPA for NO_2 (federal 1-hour average) and PM_{10} (24-hour and annual average).

Mitigation Measures

To reduce the level of impact during operation, MM AQ-9 and MM AQ-10 would be applied. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Table 3.2-80 presents the maximum offsite ground level concentrations of NO_2, SO_2, and CO with mitigation. Table 3.2-81 presents the maximum offsite ground level concentrations of PM_{10} and $PM_{2.5}$ with mitigation.

Residual Impacts

Table 3.2-80 shows that the maximum offsite NO_2 (federal 1-hour average) concentration from operational activities would not be substantially reduced with mitigation and would remain significant under NEPA. Table 3.2-81 shows that the maximum offsite incremental PM_{10} (24-hour and annual average) concentrations from operational activities would also not be substantially reduced with mitigation and would remain significant under NEPA.

Impact AQ-5: Alternative 3 would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

Alternative 3 would not generate a greater number of truck trips or have a greater impact on intersection LOS than the analysis done for the proposed Project done in Section 3.2.4.5, Impact AQ-5. Because the proposed Project analysis would not exceed CO standards at any intersection, traffic-related impacts for Alternative 3 would also not exceed CO concentration standards at any intersection.

CEQA Impact Determination

CO standards would not be exceeded in the immediate vicinity of heavily congested intersections. CO impacts would therefore not be significant under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

CO standards would not be exceeded in the immediate vicinity of heavily congested intersections. CO impacts would therefore not be significant under NEPA.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-6: Alternative 3 would not create an objectionable odor at the nearest sensitive receptor.

Similar to the proposed Project, the mobile nature of the emission sources associated with Alternative 3 would serve to disperse emissions. Additionally, the distance between Alternative 3 emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels.

CEQA Impact Determination

The potential is low for the Alternative 3 to produce objectionable odors that would affect a sensitive receptor; and significant odor impacts under CEQA, therefore, are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

The potential is low for the Alternative 3 to produce objectionable odors that would affect a sensitive receptor; and significant odor impacts under NEPA, therefore, are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-7: Alternative 3 would expose receptors to significant levels of TACs.

Alternative 3 activities would emit TACs that could affect public health. The main source of TACs from Alternative 3 would be DPM emissions from container ships, trucks, trains, and CHE. Similar to the HRA for the proposed Project, PM_{10} and VOC emissions were projected over a 70-year period, from 2015 through 2084.

CEQA Impact Determination

The HRA indicates that approximately 99% of the cancer risk at all receptors would be caused by exposure to DPM. Table 3.2-82 presents the maximum predicted health impacts associated with Alternative 3 without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Results are presented for Alternative 3, as well as for the CEQA and Future CEQA increments (Alternative 3 minus CEQA baseline). Health impacts associated with the Alternative 3 would result in the following:

- Cancer Risk
  - In relation to the CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types except the occupational receptor. Cancer risk at the occupational receptor would exceed the significance threshold. Therefore, Alternative 3 would result in a less-than-significant cancer risk at residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk impact at occupational receptors in comparison to the CEQA baseline.

    The maximum impacted occupational receptor would be located about 1,000 feet northeast of the YTI terminal truck out-gate, on industrial Port property, just north of the entry/exit road and TICTF storage tracks.

  - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types except the marina-based residential and the occupational receptors. The cancer risk increment at the marina-based residential and occupational receptors would exceed the significance threshold. Therefore, Alternative 3 would result in a less-than-significant cancer risk impact at land-based residential, non-residential sensitive, student, and recreational receptors, but would result in a significant cancer risk impact at marina-based residential and occupational receptors in comparison to the Future CEQA baseline.

    The maximum impacted residential receptor would be located at the marina live-aboards (locations where people live on boats) in the Cerritos Channel, near Anchorage Street, just west of the Henry Ford and Schuyler Heim bridges.

    The maximum impacted occupational receptor would be located about 1,000 feet northeast of the YTI terminal truck out-gate, on industrial Port property, just north of the entry/exit road and TICTF storage tracks.

Although live-aboard residents would be maximally impacted by Alternative 3, in general, live-aboard residents are not expected to stay in their locations for 70 years like traditional land-based residential populations considered under an HRA. Therefore, although residential cancer risk impact determinations were based on the maximum impacted receptors—in this case live-aboard residents—this analysis also identifies, for informational purposes, the impact at the maximum impacted land-side residential receptor. The maximum impacted land-side residential receptor would occur near the intersection of Alameda Street and E. Mauretania Street, just south of Pacific Coast Highway. Cancer risk at all land-based residential receptors would be less than the significance threshold.

  - Cancer risk impacts under Alternative 3 would be nearly the same as under the proposed Project because cancer risk impacts would be driven by truck and locomotive activities, which would be the same as under the proposed Project.
- Cancer Burden
  - In relation to the CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 3 would result in a less-than-significant cancer burden.
  - In relation to the Future CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 3 would result in a less-than-significant cancer burden.
- Chronic and Acute Impacts
  - The maximum chronic hazard index is predicted to be less than significant at all receptor types. Therefore, Alternative 3 would result in a less-than-significant chronic noncancer impact.
  - The maximum acute hazard index is predicted to be less than significant at all receptor types. Therefore, Alternative 3 would result in a less-than-significant acute noncancer impact.

Additional Analysis for Informational Purposes—Particulates: Morbidity and Mortality

A mortality and morbidity analysis was not required because, per LAHD policy, the maximum offsite 24-hour $PM_{2.5}$ concentration increment associated with Alternative 3 would not exceed the significance threshold in Impact AQ-4.

Table 3.2-82: Maximum Incremental CEQA Health Impacts Associated with Alternative 3, Reduced Project without Mitigation

		Maximum Predicted Impact					
Health Impact	Receptor Type	Alternative 3	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Cancer Risk	Residential: on Land	23×10^{-6} 23 in a million	26×10^{-6} 26 in a million	5×10^{-6} 5 in a million	19×10^{-6} 19 in a million	6×10^{-6} 6 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	37×10^{-6} 37 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	**11×10^{-6}** **11 in a million**	
	Occupational	94×10^{-6} 94 in a million	75×10^{-6} 75 in a million	**19×10^{-6}** **19 in a million**	63×10^{-6} 63 in a million	**31×10^{-6}** **31 in a million**	
	Sensitive	11×10^{-6} 11 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	3×10^{-6} 3 in a million	
	Student	0.7×10^{-6} 0.7 in a million	0.7×10^{-6} 0.7 in a million	0.07×10^{-6} 0.07 in a million	0.7×10^{-6} 0.7 in a million	0.07×10^{-6} 0.07 in a million	
	Recreational	17×10^{-6} 17 in a million	39×10^{-6} 39 in a million	2×10^{-6} 2 in a million	12×10^{-6} 12 in a million	5×10^{-6} 5 in a million	
Chronic Hazard Index		Alternative 3	CEQA Baseline [3]	CEQA Increment [3]			1
	Residential: on Land	0.09	0.1	0.001			
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.6	0.4	0.2			
	Sensitive	0.08	0.1	<0			
	Student	0.08	0.1	<0			
	Recreational	0.1	0.2	0.005			

Table 3.2-82: Maximum Incremental CEQA Health Impacts Associated with Alternative 3, Reduced Project without Mitigation

		Maximum Predicted Impact					
Health Impact	Receptor Type	Alternative 3	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Acute Hazard Index	Residential: on Land	0.6	0.4	0.2			1
	Residential: in Marina	0.6	0.6	0.2			
	Occupational	1.1	0.9	0.6			
	Sensitive	0.5	0.3	0.2			
	Student	0.4	0.3	0.2			
	Recreational	0.6	0.6	0.3			
Cancer Burden				CEQA Increment	Future CEQA Increment		
				0.002	0.23		0.5

Notes:

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

The CEQA increment represents Alternative 3 minus CEQA baseline. The Future CEQA increment represents Alternative 3 minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.

Chronic and acute impacts are considered short-term impacts and are determined by comparing Alternative 3-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.

Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.

The displayed values for the Alternative 3 and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.

Construction emissions were modeled with the operational emissions for the determination of health impacts.

An increment less than zero means the Alternative 3 impact would be less than the baseline impact at all modeled receptors.

Mitigation Measures

Table 3.2-83 presents the maximum predicted health impacts associated with Alternative 3 after application of MM AQ-1 through MM AQ-8 for construction and MM AQ-9 and MM AQ-10 for operational sources. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.8.

Residual Impacts

Table 3.2-83 shows the following health impacts associated with Alternative 3 following the application of mitigation:

- Cancer Risk
  - In relation to the CEQA baseline, the maximum incremental cancer risk would remain above the significance threshold at the maximum impacted occupational receptor. Cancer risk at the occupational receptor would not change appreciably from the unmitigated scenario because cancer risk would be driven by truck exhaust, for which mitigation beyond the Clean Truck Program is not feasible. Therefore, Alternative 3 would result in a less-than-significant cancer risk impact at residential, non-residential sensitive, student, and recreational receptors, but would remain significant and unavoidable at occupational receptors in comparison to the CEQA baseline.
  - In relation to the Future CEQA baseline, the maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types except the marina-based residential and occupational receptors. Cancer risk at the maximum impacted marina-based residential receptor would not change appreciably from the unmitigated scenario because cancer risk at this receptor would be driven by locomotive exhaust, for which additional project-level mitigation is not feasible. Cancer risk at the maximum impacted occupational receptor would also not change appreciably from the unmitigated scenario because cancer risk would be driven by container truck exhaust, for which mitigation beyond the Clean Truck Program is not feasible. Therefore, Alternative 3 would result in a less-than-significant cancer risk impact at land-based residential, non-residential sensitive, student, and recreational receptors, but would result in a significant and unavoidable cancer risk impact at marina-based residential and occupational receptors in comparison to the Future CEQA baseline.
- Cancer Burden
  - In relation to the CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 3 with mitigation would result in a less-than-significant cancer burden.
  - In relation to the Future CEQA baseline, the cancer burden increment is predicted to be less than the significance threshold. Therefore, Alternative 3 with mitigation would result in a less-than-significant cancer burden.
- Chronic and Acute Impacts
  - The maximum chronic hazard index is predicted to be less than significant at all receptor types. Therefore, Alternative 3 with mitigation would result in a less-than-significant chronic noncancer impact.

- The maximum acute hazard index would be less than significant at all receptor types. Therefore, Alternative 3 with mitigation would result in a less-than-significant acute noncancer impact.

Additional Analysis for Informational Purposes—Particulates: Morbidity and Mortality

A mortality and morbidity analysis was not required because, per LAHD policy, the maximum 24-hour $PM_{2.5}$ concentration increment associated with Alternative 3 would not exceed the significance threshold in Impact AQ-4.

Table 3.2-83: Maximum Incremental CEQA Health Impacts Associated with Alternative 3, Reduced Project with Mitigation

		Maximum Predicted Impact					
Health Impact	Receptor Type	Alternative 3	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
Cancer Risk	Residential: on Land	23×10^{-6} 23 in a million	26×10^{-6} 26 in a million	5×10^{-6} 5 in a million	19×10^{-6} 19 in a million	6×10^{-6} 6 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	36×10^{-6} 36 in a million	85×10^{-6} 85 in a million	<0	25×10^{-6} 25 in a million	**11×10^{-6}** **11 in a million**	
	Occupational	94×10^{-6} 94 in a million	75×10^{-6} 75 in a million	**19×10^{-6}** **19 in a million**	63×10^{-6} 63 in a million	**31×10^{-6}** **31 in a million**	
	Sensitive	10×10^{-6} 10 in a million	23×10^{-6} 23 in a million	<0	8×10^{-6} 8 in a million	3×10^{-6} 3 in a million	
	Student	0.6×10^{-6} 0.6 in a million	0.7×10^{-6} 0.7 in a million	0.05×10^{-6} 0.05 in a million	0.7×10^{-6} 0.7 in a million	0.05×10^{-6} 0.05 in a million	
	Recreational	17×10^{-6} 17 in a million	39×10^{-6} 39 in a million	2×10^{-6} 2 in a million	12×10^{-6} 12 in a million	5×10^{-6} 5 in a million	
Chronic Hazard Index		Alternative 3	CEQA Baseline [3]	CEQA Increment [3]			1
	Residential: on Land	0.09	0.1	0.001			
	Residential: in Marina	0.1	0.2	<0			
	Occupational	0.6	0.4	0.2			
	Sensitive	0.08	0.1	<0			
	Student	0.08	0.1	<0			
	Recreational	0.1	0.2	0.005			
Acute Hazard Index	Residential: on Land	0.5	0.4	0.2			1
	Residential: in Marina	0.6	0.6	0.2			
	Occupational	1.1	0.9	0.3			
	Sensitive	0.5	0.3	0.2			
	Student	0.4	0.3	0.1			

Table 3.2-83: Maximum Incremental CEQA Health Impacts Associated with Alternative 3, Reduced Project with Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact: Alternative 3	CEQA Baseline	CEQA Increment	Future CEQA Baseline	Future CEQA Increment	Significance Threshold
	Recreational	0.6	0.6	0.2			
Cancer Burden				CEQA Increment		Future CEQA Increment	
				0.002		0.18	0.5

Notes:

- Exceedances of the significance thresholds are in **bold**. The significance thresholds apply only to the increments.
- The CEQA increment represents Alternative 3 minus CEQA baseline. The Future CEQA increment represents Alternative 3 minus Future CEQA baseline. The Future CEQA baseline and Future CEQA increments are only applicable to cancer risk because cancer risk is based on long-term (multiple-year) exposure periods.
- Chronic and acute impacts are considered short-term impacts and are determined by comparing Alternative 3-related impacts to the CEQA baseline, the baseline at the time of the NOP in 2012.
- Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.
- The displayed values for Alternative 3 and baseline impacts do not necessarily subtract to equal the displayed CEQA increments because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.
- Construction emissions were modeled with the operational emissions for the determination of health impacts.
- An increment less than zero means the Alternative 3 impact would be less than the baseline impact at all modeled receptors.

NEPA Impact Determination

Table 3.2-84 presents the maximum predicted health impacts associated with Alternative 3 without mitigation. The table includes estimates of individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. Residential receptors include surrounding neighborhoods and live-aboards in nearby marinas. Health impacts associated with Alternative 3 would result in the following:

- Cancer Risk—The maximum incremental cancer risk is predicted to be less than the significance threshold at all receptor types. Therefore, Alternative 3 would result in a less-than-significant cancer risk impact under NEPA.
- Cancer burden—The cancer burden NEPA increment is predicted to be less than the significance threshold. Therefore, Alternative 3 would result in a less-than-significant cancer burden under NEPA.
- The maximum chronic hazard index is predicted to be less than the significance threshold at all receptor types. Therefore, Alternative 3 would result in a less-than-significant chronic noncancer impact under NEPA.
- The maximum acute hazard index is predicted to be less than the significance threshold at all receptor types. Therefore, Alternative 3 would result in a less-than-significant acute noncancer impact under NEPA.

Table 3.2-84: Maximum Incremental NEPA Health Impacts Associated with Alternative 3, Reduced Project without Mitigation

Health Impact	Receptor Type	Maximum Predicted Impact			Significance Threshold
		Alternative 3	NEPA Baseline	NEPA Increment	
Cancer Risk	Residential: on Land	23×10^{-6} 23 in a million	21×10^{-6} 21 in a million	3×10^{-6} 3 in a million	10×10^{-6} 10 in a million
	Residential: in Marina	37×10^{-6} 37 in a million	33×10^{-6} 33 in a million	4×10^{-6} 4 in a million	
	Occupational	94×10^{-6} 94 in a million	85×10^{-6} 85 in a million	9×10^{-6} 9 in a million	
	Sensitive	11×10^{-6} 11 in a million	9×10^{-6} 9 in a million	1×10^{-6} 1 in a million	
	Student	0.7×10^{-6} 0.7 in a million	0.5×10^{-6} 0.5 in a million	0.1×10^{-6} 0.1 in a million	
	Recreational	17×10^{-6} 17 in a million	15×10^{-6} 15 in a million	2×10^{-6} 2 in a million	
Chronic Hazard Index	Residential: on Land	0.09	0.08	0.01	1
	Residential: in Marina	0.1	0.1	0.008	
	Occupational	0.6	0.5	0.2	
	Sensitive	0.08	0.07	0.01	
	Student	0.08	0.07	0.01	
	Recreational	0.1	0.1	0.02	
Acute Hazard Index	Residential: on Land	0.6	0.4	0.2	1
	Residential: in Marina	0.6	0.6	0.2	
	Occupational	1.1	1.0	0.5	
	Sensitive	0.5	0.4	0.1	
	Student	0.4	0.3	0.1	
	Recreational	0.6	0.6	0.2	

Table 3.2-84: Maximum Incremental NEPA Health Impacts Associated with Alternative 3, Reduced Project without Mitigation

		Maximum Predicted Impact			
Health Impact	Receptor Type	Alternative 3	NEPA Baseline	NEPA Increment	Significance Threshold
Cancer Burden				NEPA Increment	
				0.06	0.5

Notes:

- The NEPA increment represents Alternative 3 minus NEPA baseline.
- Each result shown in the table represents the modeled receptor location with the maximum impact or increment. The impacts or increments at all other receptors would be less than the values in the table.
- The displayed values for Alternative 3 and baseline impacts do not necessarily subtract to equal the displayed NEPA increment because they may occur at different receptor locations. The example given in the text illustrates how the increments are calculated.
- Construction emissions were modeled with the operational emissions for the determination of health impacts.
- An increment less than zero means the Alternative 3 impact would be less than the baseline impact at all modeled receptors.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-8: Alternative 3 would not conflict with or obstruct implementation of an applicable AQMP.

This alternative would comply with SCAQMD rules and regulations and would be consistent with SCAG regional employment and population growth forecasts. Thus, this alternative would not conflict with or obstruct implementation of the AQMP.

CEQA Impact Determination

Alternative 3 would not conflict with or obstruct implementation of the AQMP; therefore, impacts under CEQA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Alternative 3 would not conflict with or obstruct implementation of the AQMP; therefore, impacts under NEPA are not anticipated.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

3.2.4.6 Summary of Impact Determinations

Table 3.2-85 summarizes the CEQA and NEPA impact determinations of the proposed Project and alternatives related to Air Quality and Meteorology. This table is meant to allow easy comparison of the potential impacts of the proposed Project and alternatives with respect to this resource. Identified potential impacts may be based on Federal, State, or City of Los Angeles significance criteria, LAHD criteria, and the scientific judgment of the report preparers.

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

Table 3.2-85: 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
Proposed Project	**AQ-1:** The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.	CEQA: Construction would be significant for VOC, CO, NO_X, and $PM_{2.5}$ in 2015 and 2016 and for PM_{10} in 2015. Overlapping construction and operations would be significant for VOC, CO, NO_X, and $PM_{2.5}$. NEPA: Construction would be significant for VOC, CO, NO_X, and $PM_{2.5}$ in 2015 and 2016. Overlapping construction and operations would be significant for VOC, CO, NO_X, and $PM_{2.5}$.	**MM AQ-1:** Crane Delivery Ships Used during Construction. **MM AQ-2:** Harbor Craft Used during Construction. **MM AQ-3:** Fleet Modernization for On-Road Trucks Used during Construction. **MM AQ-4:** Fleet Modernization for Construction Equipment. **MM AQ-5:** Dredging Equipment **MM AQ-6:** Construction Best Management Practices. **MM AQ-7:** Additional Fugitive Dust Controls. **MM AQ-8:** General Mitigation Measure.	CEQA: Construction would be significant and unavoidable VOC, CO, and NO_X in 2015 and NO_X in 2016. Overlapping construction and operations would be significant and unavoidable for VOC, CO, and NO_X. NEPA: Construction would be significant and unavoidable CO and NO_X in 2015 and NO_X in 2016. Overlapping construction and operations would be significant and unavoidable for CO and NO_X.
	AQ-2: Proposed Project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.	CEQA: Maximum offsite ambient air pollutant concentrations would be significant for NO_2 (federal 1-hour, state 1-hour, and state annual averages), PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average). Overlapping construction and operations would be significant for NO_2 (federal 1-hour, state 1-hour, and state annual averages), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).	**MM AQ-1 through MM AQ-8**	CEQA: Maximum offsite ambient air pollutant concentrations would be significant and unavoidable for NO_2 (federal 1-hour and state 1-hour averages) and PM_{10} (24-hour average). Overlapping construction and operations would be significant and unavoidable for NO_2 (federal 1-hour and state 1-hour averages), PM_{10} (24-hour average).

Table 3.2-85: 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
		NEPA: Maximum offsite ambient air pollutant concentrations would be significant for NO_2 (federal 1-hour, state 1-hour, and state annual averages), PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average). Overlapping construction and operations would be significant for NO_2 (federal 1-hour, state 1-hour, and state annual averages), PM_{10} (24-hour and annual average), and $PM_{2.5}$ (24-hour average).		NEPA: Maximum offsite ambient air pollutant concentrations would be significant and unavoidable for NO_2 (federal 1-hour and state 1-hour averages). Overlapping construction and operations would be significant and unavoidable for NO_2 (federal 1-hour and state 1-hour averages).
	AQ-3: The proposed Project would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.	CEQA: Operations would be significant for NO_X, CO and VOC in 2017, 2020, and 2026.	**MM AQ-9:** Vessel Speed Reduction Program (VSRP). **MM AQ-10:** Alternative Maritime Power (AMP).	CEQA: Operations would be significant and unavoidable for NO_X, CO and VOC in 2017, 2020, and 2026.
		NEPA: Operations would be significant for NO_X in 2017, 2020, and 2026, and for VOC in 2020 and 2026.	The following lease measures would also be implemented to reduce impacts: **LM AQ-1:** Periodic Review of New Technology and Regulations. **LM AQ-2:** Substitution of New Technology by Tenant.	NEPA: Operations would be significant and unavoidable for NO_X in 2017, 2020, and 2026, and for VOC in 2020.
	AQ-4: Proposed project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.	CEQA: Operations would be significant for federal 1-hour NO_2 and 24-hour and annual PM_{10}.	**MM AQ-9 and MM AQ-10**	CEQA: Operations would be significant and unavoidable for federal 1-hour NO_2 and 24-hour and annual PM_{10}.
		NEPA: Operations would be significant for federal 1-hour NO_2 and 24-hour and annual PM_{10}.		NEPA: Operations would be significant and unavoidable for federal 1-hour NO_2 and 24-hour and annual PM_{10}.

Table 3.2-85: 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
	AQ-5: The proposed Project would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant NEPA: Less than significant	No mitigation is required	CEQA: Less than significant NEPA: Less than significant
	AQ-6: The proposed Project would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant NEPA: Less than significant	No mitigation is required	CEQA: Less than significant NEPA: Less than significant
	AQ-7: The proposed Project would expose receptors to significant levels of TACs.	CEQA: The NOP cancer risk would be significant for occupational receptors. The future cancer risk would be significant for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	**MM AQ-1 and MM AQ-10**	CEQA: The NOP cancer risk would be significant and unavoidable for occupational receptors. The future cancer risk would be significant and unavoidable for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.
		NEPA: Less than significant	No mitigation is required	NEPA: Less than significant
	AQ-8: The proposed Project would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant NEPA: Less than significant	No mitigation is required	CEQA: Less than significant. NEPA: Less than significant

Table 3.2-85: 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
Alternative 1 – No Project	**AQ-1:** Alternative 1 would not result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.	CEQA: No impact NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: No impact NEPA: Not applicable
	AQ-2: Alternative 1 construction would not result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.	CEQA: No impact NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: No impact NEPA: Not applicable
	AQ-3: Alternative 1 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-16.	CEQA: Operations would be significant for NO_X and VOC in 2017, 2020, and 2026. NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: Operations would be significant and unavoidable for NO_X and VOC in 2017, 2020, and 2026. NEPA: Not applicable
	AQ-4: Alternative 1 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.	CEQA: Operations would be significant for federal 1-hour NO_2 and for 24-hour and annual PM_{10}. NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: Operations would be significant and unavoidable for federal 1-hour NO_2 and for 24-hour and annual PM_{10}. NEPA: Not applicable
	AQ-5: Alternative 1 would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: Less than significant NEPA: Not applicable
	AQ-6: Alternative 1 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: Less than significant NEPA: Not applicable

Table 3.2-85: 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
	AQ-7: Alternative 1 would expose receptors to significant levels of TACs.	CEQA: The NOP cancer risk and future cancer risk would be significant for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	No mitigation is required	CEQA: The NOP and future cancer would be significant and unavoidable for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.
		NEPA: Not applicable	Mitigation is not applicable	NEPA: Not applicable
	AQ-8: Alternative 1 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant NEPA: Not applicable	No mitigation is required Mitigation is not applicable	CEQA: Less than significant NEPA: Not applicable
Alternative 2 – No Federal Action	**AQ-1:** Alternative 2 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.	CEQA: Construction would be significant for NO_X and VOC in 2015. Overlapping construction and operations would be significant for NO_X and VOC.	**MM AQ-1 through MM AQ-8**	CEQA: Construction would be significant and unavoidable for construction NO_X and VOC in 2015. Overlapping construction and operations would be significant and unavoidable for NO_X and VOC.
		NEPA: No impact	Mitigation is not applicable	NEPA: No impact
	AQ-2: Alternative 2 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.	CEQA: Construction would be significant for construction federal 1-hour and state 1-hour NO_2 and 24-hour PM_{10}. Overlapping construction and operations would be significant for federal 1-hour NO_2 and 24-hour PM_{10}.	**MM AQ-1 through MM AQ-8**	CEQA: Construction would be significant and unavoidable for construction federal 1-hour and state 1-hour NO_2 and 24-hour PM_{10}. Overlapping construction and operations would be significant for 24-hour PM_{10}.
		NEPA: No impact.	Mitigation is not applicable	NEPA: No impact.
	AQ-3: Alternative 2 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD	CEQA: Operations would be significant for NO_X and VOC in 2017, 2020, and 2026.	**MM AQ-9 and MM AQ-10**	CEQA: Operations would be significant and unavoidable for NO_X and VOC in 2017, 2020, and 2026.

Table 3.2-85: 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
	threshold of significance in Table 3.2-16.	NEPA: No impact	Mitigation is not applicable	NEPA: No impact.
	AQ-4: Alternative 2 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.	CEQA: Operations would be significant for federal 1-hour NO_2 and for 24-hour and annual PM_{10}.	**MM AQ-9 and MM AQ-10**	CEQA: Operations would be significant and unavoidable for federal 1-hour NO_2 and for 24-hour and annual PM_{10}.
		NEPA: No impact	Mitigation is not applicable	NEPA: No impact
	AQ-5: Alternative 2 would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant	No mitigation is required	CEQA: Less than significant
		NEPA: No impact	Mitigation is not applicable	NEPA: No impact
	AQ-6: Alternative 2 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant	No mitigation is required	CEQA: Less than significant
		NEPA: No impact	Mitigation is not applicable	NEPA: No impact
	AQ-7: Alternative 2 would expose receptors to significant levels of TACs.	CEQA: The NOP and future cancer would be significant for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	**MM AQ-9 and MM AQ-10**	CEQA: The NOP and future cancer would be significant and unavoidable for occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.
		NEPA: No impact	Mitigation is not applicable	NEPA: No impact
	AQ-8: Alternative 2 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant	No mitigation is required	CEQA: Less than significant
		NEPA: Less than significant	Mitigation is not applicable	NEPA: Less than significant

Table 3.2-85: 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
Alternative 3 – Reduced Project	**AQ-1:** Alternative 3 would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14.	CEQA: Construction impacts would be significant for VOC, CO, NO_X, PM_{10}, and $PM_{2.5}$ in 2015 and for NO_X in 2016. Overlapping construction and operational impacts would be significant for VOC, CO, NO_X, and $PM_{2.5}$.	**MM AQ-1 through MM AQ-8**	CEQA: Construction impacts would be significant and unavoidable for VOC, CO and NO_X in 2015 and for NO_X in 2016. Overlapping construction and operational impacts would be significant for VOC, CO, and NO_X.
		NEPA: Construction impacts would be significant for VOC, CO, NO_X, and $PM_{2.5}$ in 2015 and for NO_X in 2016. Overlapping construction and operational impacts would be significant for VOC, CO, NO_X, and $PM_{2.5}$.		NEPA: Construction impacts would be significant and unavoidable for CO and NO_X in 2015and for NO_X in 2016. Overlapping construction and operational impacts would be significant and unavoidable for CO and NO_X.
	AQ-2: Alternative 3 construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.	CEQA: Construction would be significant for construction 1-hour federal, 1-hour state and annual NO_2, for 24-hour and annual PM_{10}, and for 24-hour $PM_{2.5}$. Overlapping construction and operations would be significant for 1-hour federal and 1-hour state NO_2, for 24-hour and annual PM_{10}, and for 24-hour $PM_{2.5}$.	**MM AQ-1 through MM AQ-8**	CEQA: Construction would be significant and unavoidable for construction 1-hour federal and 1-hour state NO_2, and for 24-hour PM_{10}. Overlapping construction and operations would be significant and unavoidable for 1-hour federal and 1-hour state NO_2 and for 24-hour PM_{10}.
		NEPA: Construction would be significant for 1-hour federal, 1-hour state and annual NO_2, for 24-hour and annual PM_{10}, and for 24-hour $PM_{2.5}$. Overlapping construction and operations would be significant for 1-hour federal and 1-hour state NO_2, for 24-hour and annual PM_{10}, and for 24-hour $PM_{2.5}$.		NEPA: Construction would be significant and unavoidable for construction 1-hour federal and 1-hour state NO_2. Overlapping construction and operations would be significant for 1-hour federal and 1-hour state NO_2.

Table 3.2-85: 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
	AQ-3: Alternative 3 would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance in Table 3.2-16.	CEQA: Operations would be significant for VOC and NO_X in 2017, 2020, and 2026 and for CO in 2020 and 2026. NEPA: Operations would be significant for NO_X in 2017, 2020, 2026, and for CO, VOC, and $PM_{2.5}$ in 2020 and 2026.	**MM AQ-9 and MM AQ-10**	CEQA: Operations would be significant and unavoidable for VOC and NO_X in 2017, 2020, and 2026 and for CO in 2020 and 2026. NEPA: Operations would be significant and unavoidable for VOC and NO_X in 2020 and 2026.
	AQ-4: Alternative 3 operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17.	CEQA: Operations would be significant for 1-hour federal NO_2, and for 24-hour and annual PM_{10}. NEPA: Operations would be significant for 1-hour federal NO_2, and for 24-hour and annual PM_{10}.	**MM AQ-9 through MM AQ-10**	CEQA: Operations would be significant and unavoidable for 1-hour federal NO_2, and for 24-hour and annual PM_{10}. NEPA: Operations would be significant and unavoidable for 1-hour federal NO_2, and for 24-hour and annual PM_{10}.
	AQ-5: Alternative 3 would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.	CEQA: Less than significant NEPA: Less than significant	No mitigation is required	CEQA: Less than significant NEPA: Less than significant
	AQ-6: Alternative 3 would not create an objectionable odor at the nearest sensitive receptor.	CEQA: Less than significant NEPA: Less than significant	No mitigation is required	CEQA: Less than significant NEPA: Less than significant

Table 3.2-85: 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
	AQ-7: Alternative 3 would expose receptors to significant levels of TACs.	CEQA: The NOP cancer risk would be significant for occupational receptors. The future cancer risk would be significant for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.	**MM AQ-9 and MM AQ-10**	CEQA: The NOP cancer risk would be significant and unavoidable for occupational receptors. The future cancer risk would be significant and unavoidable for marina-residential and occupational receptors. The chronic hazard index, the acute hazard index, and the cancer burden would be less than significant for all receptors.
		NEPA: Less than significant.	No mitigation is required	NEPA: Less than significant.
	AQ-8: Alternative 3 would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant NEPA: Less than significant	No mitigation is required	CEQA: Less than significant NEPA: Less than significant

3.2.4.7 Mitigation Monitoring

The mitigation monitoring program below is applicable to the proposed Project under CEQA and NEPA.

AQ-1: The proposed Project would result in construction-related emissions that exceed an SCAQMD threshold of significance in Table 3.2-14. (*Also applies to Impact AQ-1 for Alternatives 2 and 3)*

AQ-2: Proposed project construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-15.
(*Also applies to Impact AQ-2 for Alternatives 2 and 3)*

Mitigation Measure	**MM AQ-1. Crane Delivery Ships Used during Construction.** All ships and barges must comply with the expanded VSRP of 12 knots between 20 nm and 40 nm from Point Fermin.
Timing	During Construction Phases 1 and 2.
Methodology	LAHD will include MM AQ-1 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD and/or it's contractor(s)
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-2. Harbor Craft Used during Construction.** Harbor craft must use Tier 3 or cleaner engines.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-2 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-3. Fleet Modernization for On-Road Trucks Used during Construction** Trucks with a GVWR of 19,500 or greater, including import haulers and earth movers, must comply with EPA 2007 on-road emission standards.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-3 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-4. Fleet Modernization for Construction Equipment (except vessels, harbor craft, on-road trucks, and dredging equipment)**. All diesel-powered construction equipment greater than 50 hp must meet EPA Tier 4 off-road emission standards.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-4 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable

Mitigation Measure	**MM AQ-5. Dredging Equipment.** All dredging equipment must be electric.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-4 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-6. Construction Best Management Practices.** LAHD will implement BMPs, per LAHD Sustainable Construction Guidelines, to reduce air emissions from all LAHD-sponsored construction projects.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-6 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-7. Additional Fugitive Dust Controls.** Contractor must apply water to disturbed surfaces at an interval of 2 hours.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-7 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD
Residual Impacts	Significant and unavoidable
Mitigation Measure	**MM AQ-8. General Mitigation Measure.** For any of the above mitigation measures (MM AQ-2 through MM AQ-4), if a CARB-certified technology becomes available and is shown to be as good as or better, in terms of emissions performance, than the existing measure, the technology could replace the existing measure pending approval by LAHD. Measures will be set at the time a specific construction contract is advertised for bid.
Timing	During specified construction phases.
Methodology	LAHD will include MM AQ-8 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable

AQ-3: The proposed Project would result in operational emissions that exceed an SCAQMD threshold of significance in Table 3.2-16.
(*Also applies to Impact AQ-3 for Alternatives 2 and 3)*

AQ-7: The proposed Project would expose receptors to significant levels of TACs.
(*Also applies to Impact AQ-7 for Alternatives 2 and 3)*

Mitigation Measure	**MM AQ-9. Vessel Speed Reduction Program (VSRP).** Starting January 1, 2017, and thereafter, 95% of ships calling at the YTI Terminal will be required to comply with the expanded VSRP at 12 knots between 40 nm from Point Fermin and the Precautionary Area.
Timing	During operation.
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	YTI, LAHD.
Residual Impacts	Significant and unavoidable.

Mitigation Measure	**MM AQ-10. Alternative Maritime Power (AMP).** By 2026, NYK Line operated ships calling at the YTI Terminal must use AMP for 95% of total hoteling hours while hoteling at the Port.
Timing	During operation.
Methodology	LAHD will include this mitigation measure in lease agreements with tenants.
Responsible Parties	YTI, LAHD.
Residual Impacts	Significant and unavoidable.
Lease Measure	**LM AQ-1. Periodic Review of New Technology and Regulations.** LAHD will require the tenant to review, any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to the LAHD. Such technology feasibility reviews will take place at the time of the LAHD's consideration of any lease amendment or facility modification for the Project site. If the technology is determined by the LAHD to be feasible in terms of cost, technical and operational feasibility, the tenant will work with LAHD to implement such technology. Potential technologies that may further reduce emissions and/or result in cost-savings benefits for the tenant may be identified through future work on the Clean Air Action Plan (CAAP). Over the course of the lease, the tenant and the LAHD will work together to identify potential new technology. Such technology will be studied for feasibility, in terms of cost, technical and operational feasibility, and emissions reduction benefits. As partial consideration for the lease amendment, the tenant will implement not less frequently than once every five (5) years following the effective date of the permit, new air quality technological advancements, subject to mutual agreement on operational feasibility and cost sharing, which will not be unreasonably withheld. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies.
Timing	During operation.
Methodology	LAHD will include this lease measure in lease agreements with tenants.
Responsible Parties	YTI, LAHD.
Residual Impacts	Significant and unavoidable.
Lease Measure	**LM AQ-2. Substitution of New Technology by Tenant.** If any kind of technology becomes available and is shown to be as good as or better in terms of emissions reduction performance than the existing measure, the technology could replace the requirements of MM AQ-9 and MM AQ-10.pending approval by the LAHD.
Timing	During operation
Methodology	LAHD will include this lease measure in lease agreements with tenants.
Responsible Parties	YTI, LAHD.
Residual Impacts	Significant and unavoidable.
AQ-4: Proposed project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-17. (*Also applies to Impact AQ-4 for Alternatives 2 and 3)*	
Mitigation Measure	See Mitigation Measures MM AQ-9 through MM AQ-10 above.
Residual Impacts	Significant.

3.2.5 Significant Unavoidable Impacts

3.2.5.1 Construction Impacts

Emissions from proposed project construction would exceed significance thresholds for VOC, CO, NO_X, PM_{10}, and $PM_{2.5}$ under CEQA; after mitigation, emissions would remain significant and unavoidable for $PM_{2.5}$, VOC, CO, and NO_X. Emissions from proposed project construction would exceed significance thresholds for VOC, CO, NO_X, and $PM_{2.5}$ under NEPA; after mitigation, emissions would remain significant and unavoidable for CO and NO_X. Impact determinations would be the same for Alternative 3 as for the proposed Project.

Emissions from the proposed Project's overlapping construction and operations would exceed significance thresholds for VOC, CO, NO_X, PM_{10}, and $PM_{2.5}$ under CEQA; after mitigation, emissions would remain significant and unavoidable for VOC, CO, and NO_X. Emissions from the proposed Project's overlapping construction and operations would exceed significance thresholds for VOC, CO, NO_X, and $PM_{2.5}$ under NEPA; after mitigation, emissions would remain significant and unavoidable for VOC, CO and NO_X. Impact determinations would be the same for Alternative 3 as for the proposed Project.

Emissions from Alternative 2 construction would exceed significance thresholds for VOC and NO_X under CEQA; after mitigation, emissions would remain significant and unavoidable for VOC and NO_X. Emissions from Alternative 2 overlapping construction and operations would exceed significance thresholds for VOC and NO_X under CEQA; after mitigation, emissions would remain significant and unavoidable for VOC and NO_X. Alternative 2 would have the same conditions as the NEPA baseline; therefore, there would be no impacts under NEPA.

Construction of the proposed Project would exceed the federal 1-hour, state 1-hour and state annual NO_2, the 24-hour and annual PM_{10}, and the 24-hour $PM_{2.5}$ ambient air thresholds under CEQA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour and state 1-hour NO_2, and for 24-hour PM_{10}. Construction of the proposed Project would exceed the federal 1-hour, state 1-hour and state annual NO_2, the 24-hour and annual PM_{10}, and the 24-hour $PM_{2.5}$ ambient air thresholds under NEPA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour and state 1-hour NO_2. Impact determinations would be the same for Alternative 3 as for the proposed Project.

Overlapping construction and operations of the proposed Project would exceed the federal 1-hour, state 1-hour and state annual NO_2, the 24-hour and annual PM_{10}, and the 24-hour $PM_{2.5}$ ambient air thresholds under CEQA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour and state 1-hour NO_2, and for 24-hour PM_{10}. Overlapping construction and operations of the proposed Project would exceed the federal 1-hour, state 1-hour and state annual NO_2, the 24-hour and annual PM_{10}, and the 24-hour $PM_{2.5}$ ambient air thresholds under NEPA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour and state 1-hour NO_2. Impact determinations would be the same for Alternative 3 as for the proposed Project, except for the state annual NO_2, for which Alternative 3 would not be significant prior to mitigation under either CEQA or NEPA.

Construction of Alternative 2 would exceed the federal 1-hour and state 1-hour NO_2 and the 24-hour PM_{10} ambient air thresholds under CEQA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour and state 1-hour NO_2 and 24-hour PM_{10}. Overlapping construction and operations of Alternative 2 would exceed the federal 1-hour NO_2 and 24-hour PM_{10} ambient air thresholds under CEQA; after mitigation, impacts would remain significant for the 24-hour PM_{10}. Alternative 2 would have the same conditions as the NEPA baseline; therefore, there would be no impacts under NEPA.

3.2.5.2 Operational Impacts

Emissions from proposed project operation would exceed significance thresholds for VOC, CO, and NO_X in 2017, 2020, and 2026 under CEQA; after mitigation, emissions would remain significant and unavoidable for VOC, CO, and NO_X in 2017, 2020, and 2026. Emissions from proposed project operation would exceed significance thresholds for NO_X in 2017, 2020, and 2026 and for VOC in 2020 and 2026 under NEPA; after mitigation, emissions would remain significant and unavoidable for NO_X in 2017, 2020, and 2026 and for VOC in 2020.

Emissions from Alternative 1 operation would exceed significance thresholds for VOC and NO_X in 2017, 2020, and 2026 under CEQA. Mitigation is not required because there would be no discretionary action under CEQA for Alternative 1. Emissions would remain significant and unavoidable for VOC and NO_X in 2017, 2020, and 2026 under CEQA. Alternative 1 is not analyzed under NEPA.

Emissions from Alternative 2 operation would exceed significance thresholds for VOC and NO_X in 2017, 2020, and 2026 under CEQA; after mitigation, emissions would remain significant and unavoidable for VOC and NO_X in 2017, 2020, and 2026. Alternative 2 would have the same conditions as the NEPA baseline; therefore, there would be no impacts under NEPA.

Emissions from Alternative 3 operation would exceed significance thresholds for VOC and NO_X in 2017, 2020, and 2026 and for CO in 2020 and 2026 under CEQA; after mitigation, emissions would remain significant and unavoidable for VOC and NO_X in 2017, 2020, and 2026 and for CO in 2020 and 2026. Emissions from Alternative 3 operation would exceed significance thresholds for NO_X in 2017, 2020, and 2026 and for VOC, CO, and $PM_{2.5}$ in 2020 and 2026 under NEPA; after mitigation, emissions would remain significant and unavoidable for VOC and NO_X in 2020 and 2026.

Operation of the proposed Project would exceed the federal 1-hour NO_2 and the 24-hour and annual PM_{10} ambient air thresholds under CEQA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour NO_2 and the 24-hour and annual PM_{10}. Operation of the proposed Project would exceed the federal 1-hour NO_2 and the 24-hour and annual PM_{10} ambient air thresholds under NEPA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour NO_2 and the 24-hour and annual PM_{10}. Impact determinations would be the same for Alternative 3 as for the proposed Project.

Operation of the Alternative 1 would exceed the federal 1-hour NO_2 and the 24-hour and annual PM_{10} ambient air thresholds under CEQA. Mitigation is not required because there would be no discretionary action under CEQA for Alternative 1. Impacts would remain significant and unavoidable for the federal 1-hour NO_2 and the 24-hour and annual PM_{10}. Alternative 1 is not analyzed under NEPA.

Operation of the Alternative 2 would exceed the federal 1-hour NO_2 and the 24-hour and annual PM_{10} ambient air thresholds under CEQA; after mitigation, impacts would remain significant and unavoidable for the federal 1-hour NO_2 and 24-hour and annual PM_{10}. Alternative 2 would have the same conditions as the NEPA baseline; therefore, there would be no impacts under NEPA.

3.2.5.3 Health Impacts

The proposed Project's cancer risk would exceed the significance threshold for occupational receptors in comparison to the CEQA baseline and for marina-residential and occupational receptors in comparison to the Future CEQA baseline. Mitigation would not result in substantial reduction, and the proposed Project's cancer risk would remain significant and unavoidable for occupational receptors in comparison to the CEQA baseline and for marina-residential and occupational receptors in comparison to the Future CEQA baseline. Impact determinations would be the same for Alternative 3 as for the proposed Project.

Alternative 1 cancer risk would exceed the significance threshold for occupational receptors in comparison to the CEQA baseline and the Future CEQA baseline. Mitigation is not required because there would be no discretionary action under CEQA for Alternative 1. Alternative 1 cancer risk would remain significant and unavoidable for occupational receptors in comparison to the CEQA baseline and the Future CEQA baseline.

Alternative 2 cancer risk would exceed the significance threshold for occupational receptors in comparison to the CEQA baseline and the Future CEQA baseline. Mitigation would not result in substantial reduction and Alternative 2 cancer risk would remain significant and unavoidable for occupational receptors in comparison to the CEQA baseline and the Future CEQA baseline.