Section 3.6
Greenhouse Gas Emissions

SECTION SUMMARY

This section describes greenhouse gas (GHG) emissions associated with existing YTI terminal operation and potential impacts on GHG emissions associated with construction and operation of the proposed Project or an alternative.

Section 3.6, Greenhouse Gas Emissions, provides the following:

- a description of the existing setting as it relates to Port GHG emissions and climate change;
- a discussion on the methodology used to determine whether the proposed Project or the alternatives would result in an impact to GHG emissions and climate change;
- an impact analysis of the proposed Project and alternatives; and
- a description of mitigation measures proposed to reduce any potential impacts, as applicable.

Key Points of Section 3.6:

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. The proposed Project and all alternatives would result in significant GHG emissions impacts under CEQA. Mitigation measures, summarized below, would be applied to the proposed Project and Alternatives 2 and 3; mitigation measures would not be applied to Alternative 1 as it is the No Project Alternative.

- **MM GHG-1:** **Energy Audit.** The tenant will conduct an energy audit by a third party of its choice every five years and install innovative power-saving technology (1) where it is feasible and (2) where the amount of savings would be reasonably sufficient to cover the costs of implementation.
- **MM GHG-2:** **LED Lighting.** When existing light bulbs require replacement, all bulbs within the interior of buildings on the premises will be replaced exclusively with LED light bulbs or a technology with similar energy-saving capabilities for **ambient** lighting within all terminal buildings. The tenant will also maintain and replace any Port-supplied LED light bulbs.
- **MM GHG-3:** **Recycling.** The tenant will ensure that a minimum of 60 percent of all waste generated in all terminal buildings is recycled by 2017.

Air quality construction mitigation measures MM AQ-1 and MM AQ-5, identified in Section 3.2, Air Quality and Meteorology, and summarized below, would have the added benefit of reducing GHG emissions. Air quality operational mitigation measures MM AQ-9 and MM AQ-10, identified in Section 3.2 and summarized below, would also reduce GHG emissions.

- **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-5: Dredging Equipment.** All dredging equipment must be electric.
- **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 percent of total hoteling hours while hoteling at the Port.

LAHD's standard lease measures LM AQ-1 and LM AQ-2 would be included in the tenant lease. The measures would further reduce future GHG 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 the LAHD.

After the application of these mitigation measures, impacts would be reduced but would remain significant and unavoidable under CEQA for the proposed Project and all alternatives.

As discussed further in Section 3.6.4.5, no significance threshold under NEPA for GHG emissions has been established at this time; there are no federal or science-based GHG significance thresholds. Therefore, a NEPA significance determination for the disclosed GHG emissions is not made for the proposed Project and alternatives.

3.6.1 Introduction

This section evaluates the GHG emissions and climate change issues associated with the proposed Project and alternatives. Activities from construction and operation of the proposed Project would affect GHG emissions in the immediate proposed project area and the surrounding region. This section includes a description of the affected environment, including a discussion of the state of climate change science; the regulatory setting; predicted impacts of the proposed Project; and mitigation measures to address the impacts.

3.6.2 Environmental Setting

The proposed project site is located in the Harbor District of the City of Los Angeles in the southwest coastal area of 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 15,500 square kilometers (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.

3.6.2.1 Greenhouse Gas Pollutants

Gases that trap heat in the atmosphere are often called greenhouse gases. The term GHGs includes gases that contribute to the natural greenhouse effect, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), as well as gases that are only human-made and that are emitted through the use of modern industrial products, such as hydrofluorocarbons (HFCs), chlorinated fluorocarbons (CFCs), and sulfur hexafluoride (SF_6). These last three families of gases, while not naturally present in the atmosphere, have properties that also cause them to trap infrared radiation when they are present in the atmosphere. Together, these six gases comprise the major GHGs that are recognized by the Kyoto Accords (United Nations Framework Convention on Climate Change 1997). There are other GHGs that are not recognized by the Kyoto Accords due either to the smaller role that they play in climate change or the uncertainties surrounding their effects. Atmospheric water vapor is not recognized by the Kyoto Accords because there is not an obvious correlation between water vapor concentrations and specific human activities. Water vapor appears to act as a positive feedback mechanism; higher temperatures lead to higher water concentrations, which in turn cause more global warming (IPCC 2001).

The effect each of these gases has on global warming is a combination of the volume of their emissions and their 100-year global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas will contribute to global warming relative to how much warming would be caused by the same mass of CO_2. GWP is a unitless quantity. CH_4 and N_2O are substantially more potent than CO_2, with GWPs (100-year horizon) of 21 and 310, respectively. However, these natural GHGs are nowhere near as potent as sulfur hexafluoride and various HFCs and CFCs. Sulfur hexafluoride has a 100-year GWP of 23,900, and CFCs and HFCs have GWPs ranging from 140 to 11,700 (IPCC 1995). In emissions inventories, GHG emissions are typically reported in terms of pounds (lbs) or metric tons ("tonnes," equivalent to 1000 kilograms) of carbon dioxide equivalents (CO_2e), which are calculated as the product of the mass emitted of a given

GHG and its specific GWP. In this document, the unit "metric tons" is used to report GHG emissions.

The most important GHG in human-induced global warming is CO_2. While many gases have much higher GWPs than the naturally occurring GHGs, CO_2 is emitted in vastly higher quantities and accounts for 84% of the GWP of all GHGs emitted by the United States (EPA 2012). Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions and thus substantial increases in global atmospheric CO_2 concentrations over the last century. In 2005, the atmospheric CO_2 concentration was about 379 parts per million, over 35% higher than the pre-industrial (defined as the year 1750) concentration of about 280 parts per million (IPCC 2007). The buildup of CO_2 in the atmosphere is a result of increased emissions and its relatively long lifespan in the atmosphere of 50 to 200 years.

Concentrations of the second most prominent GHG, CH_4, have also increased due to human activities such as rice production, degradation of waste in landfills, cattle farming, and natural gas mining. In 2005, the atmospheric level of CH_4 was more than double the pre-industrial level, up to 1,774 parts per billion as compared to 715 parts per billion (IPCC 2007). CH_4 has a relatively short atmospheric lifespan of only 12 years, but it has a higher GWP potential than CO_2.

N_2O concentrations have increased from about 270 parts per billion in pre-industrial times to about 319 parts per billion by 2005 (IPCC 2007). Most of this increase can be attributed to agricultural practices (such as soil and manure management), as well as fossil-fuel combustion and the production of some acids. N_2O has a 120-year atmospheric lifespan, meaning that, in addition to its relatively large GWP, its influence is long lasting, which increases its role in global warming.

Sulfur hexafluoride (SF_6), used in the electric industry; refrigerants such as chlorinated fluorocarbons (CFCs) hydrofluorocarbons (HFCs); and tetrafluoromethane (CF_4) are present in the atmosphere in relatively small concentrations but have extremely long lifespans between 32,000 and 50,000 years, making them potent GHGs.

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers; thawing permafrost; later freezing and earlier break-up of ice on rivers, lakes, and oceans; a lengthened growing season; shifts in plant and animal ranges; and earlier flowering of trees (IPCC 2001). Other, longer term environmental impacts of global warming include sea level rise; changing weather patterns with increases in the severity of storms and droughts; changes to local and regional ecosystems, including the potential loss of species; and a reduction in winter snow pack (for example, estimates include a 30–90% reduction in snowpack in the Sierra Mountains). Current predictions suggest that in the next 25 years California will experience longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, the California Climate Action Team (CAT 2009) biennial assessment on climate change impacts and adaptation options for California predicted that California could witness the following events:

- temperature rises between 2.7-10.5°F by the 2070–2100 time period;
- 11–18 inches of sea level rise by 2050 and 23 to 55 inches of rise by 2100;
- drier (by 5% or more) than historical average precipitation, with a greater amount of drying in Southern California (with precipitation decreases in some scenarios exceeding 15%);
- a decrease in cotton, maize, sunflower, and wheat yields from 3% to 8% by 2050, with rice and tomato yields unchanged, and decreased yields for all crops except alfalfa by 2100; and
- a substantial increase in fire risk and estimated burned area increases from 57% to 169% by 2085.

Risks to public health are also summarized in the 2009 Climate Action Team assessment (CAT 2009). As stated above, climate change is predicted to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. This is likely to increase the risk of mortality and morbidity due to heat-related illness on the elderly; individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses; infants; the socially or economically disadvantaged; and those who work outdoors. The expected increase in temperatures and resulting increases in ultraviolet radiation due to climate change are likely to exacerbate existing air quality problems unless measures are taken to reduce GHGs as well as air pollutants and their precursors.

A 2008 study (Geophysical Research Letters 2008), has identified direct links between increased levels of CO_2 in the atmosphere and increases in human mortality. The study determined the amounts of ozone and airborne particles that result from temperature increases in CO_2 emissions. The effects of considering the human impact of increased CO_2 emissions showed two important effects:

- Higher temperatures due to CO_2 increased the chemical rate of ozone production in urban areas; and
- Increased water vapor due to carbon dioxide-induced higher temperatures boosted chemical ozone production even more in urban areas.

The study further indicated that the effects of carbon dioxide emissions are most pronounced in areas that already have significant pollution, such as California. Many of the plans, policies, and regulations identified in the applicable regulations section of this document are directed at reducing these impacts.

LAHD prepares several GHG inventories for reporting to state and local air agencies, including the 2010 Expanded GHG Inventory (LAHD 2011), as well as periodic GHG inventories to The Climate Registry and the California Attorney General.

3.6.3 Applicable Regulations

Climate change has only recently been widely recognized as a threat to the global climate, economy, and population. As a result, the climate change regulatory setting—federal, state, and local—is complex and evolving. This section identifies key legislation, executive orders, and seminal court cases related to climate change germane to the proposed Project.

3.6.3.1 Federal Regulations

Federal Action on Greenhouse Gas Emissions

April 2007 Supreme Court Ruling

In Massachusetts et al. v. Environmental Protection Agency et al. 549 U.S. 497, the U.S. Supreme Court ruled that GHGs were air pollutants within the meaning of the Clean Air Act and that the act authorizes the EPA to regulate CO_2 emissions from new motor vehicles, should those emissions endanger the public health or welfare. The Court did not mandate that the EPA enact regulations to reduce GHG emissions but found that the only instances where the EPA could avoid taking action were if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act.

Endangerment Finding: the EPA Administrator found that the current and projected concentrations of the six key well-mixed GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.

Cause or Contribute Finding: the EPA Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

The findings themselves did not impose any requirements on industry or other entities. However, this action was a prerequisite to finalizing the EPA's proposed GHG emissions standards for light-duty vehicles (EPA 2009).

GHG Standards for Onroad Vehicles: Corporate Average Fuel Economy (CAFE) Light Duty Vehicle Standards and GHG Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

First enacted by Congress in 1975 as part of the 1975 Energy Policy Conservation Act in response to the 1973–1974 oil crises, the purpose of CAFE standards is to reduce energy consumption by increasing the fuel economy of passenger cars and light-duty trucks. The CAFE regulation requires each car manufacturer to meet a standard for the sales-weighted fuel economy for the entire fleet of vehicles sold in the United States in each model year. Fuel economy, expressed in miles per gallon (mpg), is defined as the average mileage traveled by an automobile per gallon of gasoline or equivalent amount of other fuel. The National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation administers the CAFE program, and the EPA provides the fuel economy data. NHTSA sets fuel economy standards for passenger cars and light-duty trucks sold in the United States while the EPA calculates the average fuel economy for each manufacturer. In response to a U.S. Presidential Memorandum Regarding Fuel Efficiency Standards dated May 21, 2010, the EPA and NHTSA are taking coordinated steps to enable the production of a new generation of clean vehicles, through reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. On April 1, 2010, the EPA and NHTSA issued a Final Rule establishing new federal GHG and fuel economy standards for model years 2012–2016 passenger cars, light-duty trucks,

and medium-duty passenger vehicles. These agencies are now in the process of developing a rule to set standards for model years 2017–2025 passenger cars, light-duty trucks, and medium-duty passenger vehicles.

In addition, on August 9, 2011, EPA and NHTSA finalized regulations to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses. The regulations incorporate all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds, and the engines that power them. Under the regulations, fuel economy will be improved and GHG emissions will be reduced in model years 2014–2018.

In November 2011, NHTSA and EPA issued a supplemental Notice of Intent outlining the key elements of the upcoming proposal for CAFE and GHG emission standards for model year 2017 and beyond for light duty vehicles. EPA currently intends to propose standards that would be projected to achieve a fleet-wide average CO_2 emission level of 163 grams/mile in model year 2025 (this would be equivalent, on a mpg-equivalent basis, to 54.5 mpg if all of the CO_2 emissions reductions were achieved with fuel economy technology). NHTSA currently intends to propose standards that would be projected to require, on an average industry fleet-wide basis, 40.9 mpg in model year 2021, and 49.6 mpg in model year 2025.

Energy Independence and Security Act of 2007

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

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

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

The Renewable Fuel Standard (RFS) is of some relevance to the project as the regulations require annual increases in biofuels sold—both biodiesel and bioethanol—from the years 2010–2022. By year 2022, the RFS will require at least 74 billion gallons of biofuel to be sold in the United States, as compared to a current (2010) level of approximately 14.5 billion gallons. See discussion below on RFSs.

Reporting Requirements

Congress passed The Consolidated Appropriations Act of 2008 (HR 2764) in December 2007, which requires reporting of GHG data and other relevant information from large emission sources and suppliers in the United States. The act is referred to as 40 CFR 98, Greenhouse Gas Reporting Program. The stated purpose of the act is to collect accurate and timely GHG data to inform future policy decisions. Facilities that emit 25,000 metric tons per year (mty) or more per year of GHGs are required to submit annual reports to the

EPA. Suppliers of certain products that result in GHG emissions if released and facilities that inject CO_2 underground for geologic sequestration are also covered.

The EPA extended the deadline for reporting initial year (2010) GHG data to September 30, 2011. Second year (2011) emissions data were due on April 2, 2012, except for a number of industry sectors that were recently added to the reporting requirements. For these facilities, 2011 reports were due September 28, 2012.

Renewable Fuel Standards (RFS1 and RFS2)

Created under the Energy Policy Act of 2005, this program established the first renewable fuel volume mandate in the United States. The original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the Energy Independence and Security Act of 2007, the RFS program was expanded to include diesel and to increase the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022. In addition, it requires the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

In January 2011, the EPA established the volume requirements and associated percentage standards that apply in 2011 for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel (RFS2). The final percentage standard sets 8% of renewable fuel per total volume. The rule also announced the 2011 price for cellulosic biofuel waiver credits ($1.13 per credit) and EPA's assessment of the aggregate compliance provision for domestic feedstocks. The regulation increased the volume of fuel required to be blended into transportation fuel from 12.2 billion gallons in 2009 to 74 billion gallons by 2022; this includes 16 billion gallons for cellulosic biofuel, at least 1 billion gallons for biomass-based diesel fuel, 21 billion gallons for advanced biofuel, and 36 billion gallons for renewable fuel.

Greenhouse Gas Tailoring Rule

In January 2011, the EPA issued permitting requirements for GHG emissions subject to Prevention of Significant Deterioration (PSD) and Title V Operating Permit Programs. A determination of the best available control technology for GHGs is a requirement established by the program in the same manner as it is done for any other PSD-regulated pollutant. The Greenhouse Gas Tailoring Rule sets thresholds for GHG emissions that define when permits under the New Source Review, PSD, and Title V Operating Permit programs are required for new and existing industrial facilities. This rule establishes that first-time new construction projects that emit GHG emissions of at least 100,000 tpy are subject to PSD, while facilities that emit at least 100,000 tpy CO_2e will be subject to Title V permitting requirements. Each new source or modified emission unit subject to PSD is required to undergo a best available control technology review.

3.6.3.2 Regional Agreements

Western Regional Climate Action Initiative

The Western Regional Climate Action Initiative is a partnership among seven states, including California, and four Canadian provinces that are implementing a regional, economy-wide cap-and-trade system to reduce global warming pollution. The Western

Regional Climate Action Initiative intends to cap the region's electricity, industrial, and transportation sectors with the goal of reducing the heat-trapping emissions that cause global warming to 15% below 2005 levels by 2020. California is working with the other states and provinces to design a regional GHG reduction program that includes a cap-and-trade approach. CARB has developed a cap-and-trade program for California that will eventually link California and other member states and provinces. The initiative had been scheduled to go into effect in 2012, but elections in the few years preceding the deadline resulted in the losses of climate advocates. California's AB 32 and British Columbia's carbon tax are the only two programs that have remained part of the initiative.

3.6.3.3 State Regulations and Agreements

California Legislation

California has enacted a variety of laws that relate to climate change, many of which set aggressive goals for GHG reductions within the state. The discussion below provides a brief overview of the CARB and Office of Planning and Research documents and of the primary legislation that relates to climate change and may affect the GHG emissions associated with the proposed Project or alternative.

Assembly Bill 32 (Statewide GHG Reductions)

The California Global Warming Solutions Act of 2006, widely known as Assembly Bill (AB) 32, requires CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of the bill is the requirement that statewide GHG emissions must be reduced to 1990 levels by 2020. California needs to reduce GHG emissions by approximately 16% below business-as-usual predictions of year 2020 GHG emissions to achieve this goal. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

On December 11, 2008, CARB adopted the AB 32 Scoping Plan, which sets forth the framework for facilitating the state's goal of reducing GHG emissions to 1990 levels by 2020. On October 20, 2011, CARB adopted the final cap-and-trade regulation. As part of finalizing the regulation, CARB considered the related environmental analysis (i.e., functional equivalent document) and written responses to environmental comments. CARB also approved an adaptive management plan that will monitor progress of reductions and recommend corrective actions if progress is not as planned or there are unintended consequences in other environmental areas (e.g., concentration of local criteria pollutants).

The Scoping Plan adopted in December 2008 contained goods movement control measures relevant to the proposed Project. In August 2011 the Scoping Plan was re-approved by CARB and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. While the final scoping plan did not include goods movement control measures, a measure for ship electrification was included. CARB is currently working on an update to the 2008 Scoping Plan. The Scoping Plan Update will define

CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 goals. It will also evaluate how to align the state's "longer-term" GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

Executive Order S-3-05 (Statewide GHG Targets)

California Executive Order S-03-05 (June 1, 2005) mandates a reduction of GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. Although the 2020 target is the core of AB 32 and has been incorporated into AB 32, the 2050 target remains the goal of the Executive Order.

Low Carbon Fuel Standard

Executive Order S-01-07 (January 18, 2007) requires a 10% or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB. CARB identified the Low Carbon Fuel Standard (LCFS) as a Discrete Early Action item under AB 32, and the final resolution (09-31) was issued on April 23, 2009. In 2009, CARB approved for adoption the LCFS regulation, which became fully effective in April 2010 and is codified at 17 CFR 95480–95490. The LCFS will reduce greenhouse gas emissions by reducing the carbon intensity of transportation fuels used in California by at least 10% by 2020. Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel.

On December 29, 2011, the U.S. District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the district court's rulings preliminarily enjoined CARB from enforcing the regulation. In January 2012, CARB appealed that decision to the Ninth Circuit Court of Appeals (Ninth Circuit) and then moved to stay the injunction pending resolution of the appeal. On April 23, 2012, the Ninth Circuit granted the CARB's motion for a stay of the injunction while it continues to consider CARB's appeal of the lower court's decision.

Senate Bill 1368 (GHG Emissions Standard for Baseload Generation)

Senate Bill (SB) 1368 prohibits any retail seller of electricity in California from entering into a long-term financial commitment for baseload generation if the GHG emissions are higher than those from a combined-cycle natural gas power plant. This performance standard applies to electricity generated out-of-state as well as in-state, and to publicly owned as well as investor-owned electric utilities.

The Energy Commission has designed regulations that:

- Establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs CO_2 per megawatt-hour. This will encourage the development of power plants that meet California's growing energy needs while minimizing their GHG emissions.
- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the Energy Commission website. This will facilitate

public awareness of utility efforts to meet customer needs for energy over the long-term while meeting the state's standards for environmental impact.

- Establish a public process for determining the compliance of proposed investments with the Emission Performance Standards. This process includes the following components:
- A utility may request that the Energy Commission determine whether or not an investment under consideration is subject to or complies with the Emission Performance Standards (Request for Evaluation of a Proposed Procurement).
- A utility may request that an investment be exempted from the requirement that it meet the Emission Performance Standards if the investment is necessary to ensure reliable service to utility customers or to avoid a threat of significant financial harm (Request for Reliability or Financial Exemption) or if the utility is under a legal obligation to contribute a share of a larger investment (Request for Exemption Due to Pre-existing Multi-Party Commitment).
- A utility must submit a compliance filing upon committing to an investment that is required to meet the Emission Performance Standards (Compliance Filing).
- Any party may request that the Energy Commission conduct a complaint or investigation proceeding to determine a utility's compliance with the regulations (Request for Compliance Investigation).

Assembly Bill 1493 (Mobile Source Reductions)

AB 1493 ("the Pavley Standard") required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 through 2016. The bill also required the California Climate Action Registry to develop and adopt protocols for the reporting and certification of GHG emissions reductions from mobile sources for use by CARB in granting emission reduction credits. The bill authorizes CARB to grant emission reduction credits for reductions of GHG emissions prior to the date of enforcement of regulations, using model year 2000 as the baseline for reduction.

In 2004, CARB applied to the EPA for a waiver under the federal Clean Air Act to authorize implementation of these regulations. EPA formally denied the waiver request in December 2007 after California filed suit to prompt federal action. In January 2008, the State Attorney General filed a new lawsuit against the EPA for denying California's request for a waiver to regulate and limit GHG emissions from these vehicles. In January 2009, President Barack Obama issued a directive to the EPA to reconsider California's request for a waiver. On June 30, 2009, the EPA granted the waiver to California for its GHG emission standards for motor vehicles. As part of this waiver, EPA specified the following provision: CARB may not hold a manufacturer liable or responsible for any noncompliance caused by emission debits generated by a manufacturer for the 2009 model year. CARB has adopted a new approach to passenger vehicles—cars and light trucks—by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California.

Senate Bills 1078 and 107 (Renewables Portfolio Standard)

Established in 2002 under SB 1078 and accelerated in 2006 under SB 107, California's Renewables Portfolio Standard requires retail suppliers of electric services to increase procurement from eligible renewable energy resources by at least 1% of their retail sales annually, until they reach 20% by 2010.

Senate Bill 2 (Renewables Portfolio Standard)

On April 12, 2011, Governor Brown signed SB 2, which requires one-third of the state's electricity to come from renewable sources. The legislation increases California's current 20% renewable portfolio standard target in 2010 to a 33% renewable portfolio standard by December 31, 2020. Resolution 10-23 adopted by the CARB found that the proposed regulation to adopt the 33% renewable standard was expected to reduce GHG emissions from California's utility sector by 12 to 13 $MMTCO_2e$ per year by 2020.

Senate Bill 375 (Land Use Planning)

SB 375 provides for a new planning process to coordinate land use planning and regional transportation plans and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by Metropolitan Planning Organizations relevant to the proposed project area (including the Southern California Association of Governments)[1], to incorporate a sustainable communities strategy (SCS) in their regional transportation plans that will achieve GHG emission reduction targets set by CARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 will be implemented over the next several years.

SB 375 is similar to the Regional Blueprint Planning Program, established by the California Department of Transportation, which provides discretionary grants to fund regional transportation and land use plans voluntarily developed by Metropolitan Planning Organizations working in cooperation with Council of Governments. The scoping plan adopted by CARB in December of 2008 relies on the requirements of SB 375 to implement the carbon emissions reductions anticipated from land use decisions.

On April 4, 2012, the Regional Council of the Southern California Association of Governments (SCAG) adopted the 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): Towards a Sustainable Future. The RTP/SCS is the culmination of a multi-year effort involving stakeholders from across the SCAG Region. (SCAG 2012). The 2012–2035 RTP/SCS contains a regional commitment for the broad deployment of zero- and near-zero emission transportation technologies in the 2023–2035 timeframe and clear steps to move toward this objective. The report indicates that the RTP is critical for the goods movement system in the SCAB.

Energy Conservation Building Standards

Energy Conservation Standards for new residential and commercial buildings were originally adopted by the California Energy Resources Conservation and Development Commission in June 1977 and most recently revised in 2008 (24 CCR 6). In general,

[1] SCAG member cities: http://www.scag.ca.gov/region/index.htm

Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2006 Appliance Efficiency Regulations (20 CCR 1601–1608), dated December 2006, were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. While these regulations are now often seen as "business as usual," they do exceed the standards imposed by any other state and reduce GHG emissions by reducing energy demand.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (proposed 24 CCR 11) was adopted as part of the California Building Standards Code (24 CCR). Part 11 establishes voluntary standards on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. Some of these standards have become mandatory in the 2010 edition of 24 CCR 11.

The California Energy Commission has opened a public process and rulemaking proceeding to adopt changes to the 2013 Building Energy Efficiency Standards contained in 24 CCR 6 (also known as the California Energy Code), and associated administrative regulations in Part 1 (collectively referred to here as the Standards). The proposed amended standards will be adopted in 2014. The 2013 Building Energy Efficiency Standards are 25% more efficient than previous standards for residential construction and 30% better for nonresidential construction. The Standards, which take effect on January 1, 2014, will offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

Senate Bill 97 (CEQA Guidelines)

SB 97 required that the California Natural Resources Agency coordinate on the preparation of amendments to the CEQA Guidelines regarding feasible mitigation of GHG emissions or the effects of GHG emissions. Pursuant to SB 97, the agency adopted CEQA Guidelines amendments on December 30, 2009, and transmitted the Adopted Amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. The amendments were approved by the Office of Administrative Law on February 16, 2010, and became effective on March 18, 2010.

With respect to the significance assessment, CEQA Guidelines Section 15064.4, subdivision (b), indicates:

> (b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:
>
> (1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
>
> (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

> (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines also apply retroactively to any incomplete EIR, Negative Declaration, Mitigated Negative Declaration, or other related documents. The amendments also provide that lead agencies should consider all feasible means of mitigating GHG emissions that substantially reduce energy consumption or GHG emissions. These potential mitigation measures may include carbon sequestration. If offsite or carbon offset mitigation measure are proposed, they must be part of reasonable plan of mitigation that the agency itself is committed to implementing. No threshold of significance or any specific mitigation measures are indicated.

Among other things, the California Natural Resources Agency noted in its public notice for these changes that impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The public notice states:

> While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable.

CEQA Guidelines Section 15126.2(a)

CEQA Guidelines identify the need to evaluate potential impacts of locating development in areas vulnerable to climate change effects: The EIR "should evaluate any potentially significant impacts of locating development in other areas susceptible to hazardous conditions (e.g., floodplains, coastlines, wildfire risk areas)."

Executive Order S-13-08

On November 14, 2008, Governor Arnold Schwarzenegger signed EO S-13-08, which called on state agencies to develop a strategy for identification and preparation for expected climate change impacts in California. The resulting 2009 California Climate Adaptation Strategy report was developed by the California Natural Resources Agency in coordination with the Climate Action Team (CAT). The report presents best available science relevant to climate impacts in California and proposes a set of recommendations for California decision makers to assess vulnerability and promote resiliency in order to reduce California's vulnerability to climate change. In addition to requiring the CAT to create a Climate Adaptation Strategy, EO-S13-08 ordered the creation of a comprehensive Sea Level Rise Assessment Report, which was completed by the National Academy of Science in 2012 (NAS 2012). Guidance regarding adaptation strategies is general in nature and emphasizes incorporation of strategies into existing planning policies and processes.

EO-S-13-08 called for the California Ocean Protection Council to work with the other CAT state agencies to develop interim guidance for assessing the potential impacts of sea-level rise (SLR) due to climate change in California. In coordination with National Academy of Science efforts, the council drafted interim guidance recommending that state agencies consider a range of SLR scenarios for the years 2050 and 2100 in order to assess project vulnerability, reduce expected risks, and increase resiliency to SLR. The draft resolution and interim guidance document is consistent with the Ocean Protection Act (Division 26.5 PRC Section 35615(a)(1)), which specifically directs the California Ocean Protection Council to coordinate activities of state agencies to improve the effectiveness of state efforts to protect ocean resources.

Assembly Bill 1613 (Waste Heat and Carbon Emissions Reduction Act)

AB 1613 directed the California Energy Commission, the Public Utilities Commission (CPUC), and CARB to implement the Waste Heat and Carbon Emissions Reduction Act. This act is designed to encourage the development of new combined heat and power systems in California with a generating capacity of not more than 20 megawatts. The California Energy Commission adopted in January 2010, guidelines establishing technical criteria for eligibility of combined heat and power systems for programs to be developed by the CPUC and publicly owned utilities. The CPUC is also directed to establish (1) a standard tariff for the sale of electricity to electricity corporations for delivery to the electrical grid and (2) a "pay as you save" pilot program requiring electricity corporations to finance the installation of qualifying CHP systems by nonprofit and government entities.

Section 2843 of the act provides that the California Energy Commission's guidelines require that combined heat and power systems:

- be designed to reduce waste energy;
- have a minimum efficiency of 60%;
- have NO_X emissions of no more than 0.07 pounds per megawatt-hour;
- be sized to meet the eligible customer generation thermal load;
- operate continuously in a manner that meets the expected thermal load and optimizes the efficient use of waste heat; and
- be cost effective, technologically feasible, and environmentally beneficial.

Senate Bill X7 7 (Water Conservation Act of 2009)

The legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The state is required to make incremental progress toward this goal by reducing per capita water use by at least 10% by December 31, 2015. Reduction in water consumption directly reduces the energy necessary and the associated emissions to convene, treat, and distribute the water; it also reduces emissions from wastewater treatment.

The Department of Water Resources adopted a regulation on February 16, 2011, that sets forth criteria and methods for exclusion of industrial process water from the calculation of gross water use for purposes of urban water management planning. The regulation would apply to all urban retail water suppliers required to submit an Urban Water

Management Plan, as set forth in the Water Code, Division 6, Part 2.6, Sections 10617 and 10620.

Assembly Bill 1470 (Solar Hot Water and Efficiency Act of 2007)

AB 1470 directed the California Energy Commission to establish a 10-year, statewide incentive program to encourage the installation of 500,000 solar water heating systems to offset natural gas usage for water and space heating. The incentives were to be funded by establishing a surcharge on certain natural gas customers.

Cap and Trade Program

On October 20, 2011, CARB adopted the final cap-and-trade regulation. The program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions. The regulation includes an enforceable GHG cap that will decline over time. CARB distributed allowances, which are tradable permits, equal to the emission allowed under the cap. On May 24, 2012, CARB considered proposed amendments to the California GHG emissions cap-and-trade program and market-based compliance mechanisms to add security to the market system and help staff implement the cap-and-trade program.

Senate Bill 1018 (Mandatory Commercial Recycling)

Mandatory Commercial Recycling was one of the measures adopted in the Assembly Bill 32 Scoping Plan. The Mandatory Commercial Recycling Measure focuses on increased commercial waste diversion from landfills as a method to reduce GHG emissions. It is designed to achieve a reduction in GHG emissions of five million mty of CO_2e.

The regulation was approved by the Office of Administrative Law on May 7, 2012. On June 27, 2012 the governor signed SB 1018, which included an amendment that requires a business that generates four cubic yards or more of commercial solid waste per week to arrange for recycling services.

3.6.3.4 Local Regulations and Agreements

Local Air Quality Management District Policies

On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency. To date, the board has adopted a threshold of 10,000 mty CO_2e emissions per year to industrial projects, and the threshold has been a part of the SCAQMD Air Quality Thresholds since 2011 (SCAQMD 2011). In addition, to achieve a policy objective of capturing 90% of GHG emissions from new residential/commercial development projects and implement a "fair share" approach to reducing emission increases from each sector, SCAQMD staff proposed in September 2010 combining performance standards and screening thresholds. The performance standards suggested have primarily focused on energy efficiency measures beyond 24 CCR 6, California's building energy efficiency standards, and a screening level of 3,000 mty CO_2e based on direct operational emissions. Above this screening level, project design features designed to reduce GHGs must be implemented to reduce the impact to below a level of significance.

The SCAQMD staff is in an ongoing effort to develop GHG CEQA significance thresholds. The CEQA Significance Thresholds Working Group, which includes

government agencies implementing CEQA and representatives from various stakeholder groups, is providing input for this effort, although it has not met since September 2010. Information on the current developments of the CEQA Significance Thresholds Working Group can be found on the SCAQMD website (http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html).

Memorandum of Understanding Regarding Greenhouse Gases

On December 7, 2007, LAHD, the Mayor of the City of Los Angeles and the California Attorney General entered into a Memorandum of Understanding Creating a Partnership to Reduce Greenhouse Gases and Support the Port of Los Angeles Clean Air Action Plan. Pursuant to this, LAHD has committed to install a 10-megawatt photovoltaic solar electric system in the Port, prepare annual port-wide Greenhouse Gas Inventory, and include a discussion of the effects of global warming on California and adopt feasible mitigation to reduce project GHG emissions in its EIRs.

City of Los Angeles Policies

Green LA

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

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

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

- Heavy-duty vehicles: By the end of 2011, all trucks calling at the ports will meet or exceed the EPA's 2007 heavy-duty vehicle on-road emissions standards for particulate matter.

- Cargo-handling equipment: All yard tractors will meet at a minimum the EPA 2007 on-road or Tier IV engine emission standards.
- Railroad locomotives: For Pacific Harbor Line switch engines, Tier II engines and emulsified or other equivalently clean alternative diesel fuels available will be used. Diesel-powered Class 1 locomotives entering port facilities will be 90% controlled for particulate matter and NO_X.
- A strategic plan for the Port will be completed and will include sustainable and green growth options.
- An economic development plan for the Port will be completed and will identify opportunities to link the Port's investment in green growth to new economic opportunities in the green sector.

The specific measures for developing the Port-specific actions are included in the San Pedro Bay Ports Clean Air Action Plan discussed below.

Executive Directive No. 10

In July, 2007, Mayor Villaraigosa directed the Environmental Affairs Department, City Planning Department, Department of Building and Safety, General Services Department and Bureau of Engineering, in cooperation with the Housing Department, Fire Department, Department of Recreation and Parks, Department of Water and Power, LAHD, Los Angeles World Airports, and the Community Redevelopment Agency of Los Angeles to create and adopt a Statement of Sustainable Building Policies to guide the private sector's decision-making process for planning, construction, and renovation of buildings in the City. The principles were to cover the areas of sustainable design, energy and atmosphere, materials and resources, water efficiency, landscaping, and transportation resources and be consistent with current tenets in local and national building codes.

Port of Los Angeles Green Building Policy

In 2007, the LAHD adopted a Green Building Policy that would require certain development projects to meet criteria established by the U.S. Green Building Council for Leadership in Energy and Environmental Design (LEED). The policy stipulated the following for all buildings of new construction 7,500 square feet or greater:

- Buildings meeting the intention set forth by LEED New Construction (i.e., office buildings) will be designed to a minimum standard of LEED New Construction Gold (U.S. Green Building Council 2009).
- Buildings of the typology that was not the primary focus for LEED New Construction (i.e., marine utilitarian buildings) will be designed to a minimum standard of LEED New Construction Silver (U.S. Green Building Council 2009).
- All LAHD-owned existing buildings 7,500 square feet or greater will be inventoried and evaluated for their applicability to LEED Existing Building standards. The operation and maintenance procedures of the building will then be used to determine the priority for certification to LEED Existing Construction standards (U.S. Green Building Council 2009). All other buildings not encompassed in the above criteria will be designed and constructed to comply or be consistent with the highest practical and applicable LEED standards or their equivalent to the extent feasible for the building's purpose. In addition to

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

Port Climate Action Plan

The Green LA Plan led to LAHD's development of an individual Climate Action Plan, consistent with the goals of Green LA, to examine opportunities to reduce GHG emissions from Port operations.

In accordance with this directive, the Port's Climate Action Plan, developed in December 2007, covers GHG emissions related to the Port's municipal activities (such as Port buildings and Port workforce operations). The Climate Action Plan outlines specific steps that LAHD has taken and will take on global climate change. These steps include specific actions that will be taken for energy audits, green building policies, onsite photovoltaic solar energy, green energy procurement, tree planting, water conservation, alternative fuel vehicles, increased recycling, and green procurement. The Climate Action Plan also outlines San Pedro Bay Ports Clean Air Action Plan measures that have significant GHG reduction co-benefits, such as Vessel Speed Reduction (VSR) and Alternative Marine Power (AMP).

In addition, the June 2008 Port of Los Angeles Sustainability Assessment contains an assessment of existing programs and policies against the eight goals that were identified in the Mayor Villaraigosa's Executive Directive No. 10 on Sustainability Practices in the City of Los Angeles. LAHD also completed annual GHG inventories of the Port's municipal activities and reported these to third-party registries since 2006. LAHD's Annual Inventory of Air Emissions has also included GHG estimates for transportation activities associated with goods movement for ocean-going vessels (OGVs), harbor craft, trucks, locomotives, and cargo handling equipment since 2006. LAHD expanded the 2006–2010 GHG inventories to include an expanded geographical delineation for OGVs, trucks, and locomotives. These annual inventories and expanded inventories can be found on the Port's web site.[2]

In its 2011 Sustainability Report (Port of Los Angeles 2011), LAHD highlighted major sustainability initiatives undertaken since 2008. LAHD is leading the industry in many aspects of sustainability, particularly in addressing material issues of most importance to stakeholders: Health Risk Reduction, Air Quality, Climate Change, Water Quality, Habitat Protection, and Open Space and Urban Greening. In general, LAHD has made significant progress in developing sustainability-related programs and policies that contribute to green growth. Progress and initiatives include accelerating replacement of older, high polluting trucks with newer cleaner trucks, accelerating cargo vessels operator's use of cleaner burning fuel when arriving and departing San Pedro Bay, providing dockage credit incentives to vessels to slow to 12 knots within 20 nautical miles of the Port, allowing ships to use shore power while at birth, approving grant funding to replace or repower 334 vehicle engines, and upgrading 16 locomotives to Tier 2 engine standards.

[2] Port of Los Angeles, Studies and Reports: http://www.portoflosangeles.org/environment/studies_reports.asp

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, POLA and POLB 2010). Each individual CAAP measure is a proposed strategy for achieving these emissions reductions goals. CAAP measures are discussed in detail in Section 3.2, Air Quality and Meteorology.

Although many CAAP measures may result in GHG reductions as older technologies are replaced with newer, fuel-efficient technologies, the following CAAP measures are specifically identified in the CAAP to quantifiably reduce GHG emissions:

- CAAP Measure – SPBP-OGV1, Vessel Speed Reduction 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. Per the 2010 CAAP update, full compliance with VSR will achieve 5% reduction of CO_2e within the 20 nm zone and 10% reduction of CO_2e within the 40 nm zone.
- 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). Per the 2010 CAAP update, use of shore power at-berth will reduce hoteling emissions of CO_2e by 95% per vessel call (this estimate does not account for emissions from electrical power generation).
- 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 following represent features of the guidelines that are pertinent to GHG reduction:
  - All ships and barges used primarily to deliver construction-related materials for LAHD construction contracts will comply with the Vessel Speed Reduction Program and use low-sulfur fuel within 40 nautical miles of Point Fermin.
  - All dredging equipment will be electric.

Additional Rules, Regulations and Policies

In addition to the above rules, regulations, and policies that primarily focus on GHG emission reductions, rules, regulations and policies discussed in Section 3.2, Air Quality and Methodology, that reduce fuel consumption would have the co-benefit of reducing GHG emissions.

3.6.4 Impacts and Mitigation Measures

This section presents a discussion of the potential GHG emission impacts associated with construction and operation of the proposed Project and alternatives. Mitigation measures are also discussed in this section.

3.6.4.1 Methodology

GHG emissions were estimated for the CEQA baseline, NEPA baseline, and construction and operation of the proposed Project and alternatives. Refrigerant-loss emissions associated with refrigerated vessels and transportation refrigeration units (TRUs) were also quantified. In addition, indirect GHG emissions from electricity use during both construction and operation of the proposed Project and alternatives were estimated.

Sources contributing to GHG emissions during proposed project construction consist of:

- off-road construction equipment;
- on-road construction vehicles;
- crane delivery ship;
- harbor craft; and
- worker vehicles.

Sources contributing to GHG emissions during proposed project operation consist of:

- container ships (transit, anchoring, and hoteling);
- AMP electricity use during container ship hoteling;
- tugboats assisting container ships during harbor transit, turning, and docking;
- drayage trucks and other miscellaneous delivery trucks calling at the terminal;
- switch and line haul locomotives associated with proposed TICTF operation;
- cargo handling equipment on the terminal and TICTF;
- TRUs (engine exhaust and refrigeration loss) while on the terminal;
- on-terminal electricity use; and
- worker vehicles.

The activity data (ship calls, truck trips, etc.) used in the GHG emission calculations for baseline, construction, and operation are the same activity data used and described in Section 3.2, Air Quality and Meteorology; therefore, the activity data descriptions are not repeated here.

In brief, information about on-road and off-road equipment utilization anticipated during construction was obtained from LAHD Engineering (LAHD 2013a). Phases 1 and 2 would include dredging activities and, as such, would require the disposal of dredged material. As described in Section 3.2.4.1 (Air Quality and Meteorology, Methodology), all dredged material will 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, such as the Kettleman Landfill. 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, Water Quality, Sediments, and Oceanography, discusses test results and determinations. LAHD will 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, since the RWQCB had not issued a permit for disposal at LA-2 at the time of the air quality analysis, the analysis calculated both the emissions associated with ocean disposal and land disposal; the maximum of the emissions associated with either ocean disposal or land disposal was conservatively used for impact determination.

Information about container ships, harbor craft, cargo handling equipment, TRUs, and facility energy consumption was provided by YTI for the CEQA baseline period, and projected based on expected container throughput projections for future analysis years. Information about drayage truck trips, worker trips, and rail activity was obtained from the transportation study prepared for the EIS/EIR and included in Appendix D. Indirect GHG emissions from on-terminal electricity consumption were based on baseline electricity-consumption information provided by YTI and projected into the future based on cargo throughput projections discussed in Section 3.2, Air Quality and Meteorology.

GHG emissions associated with the CEQA baseline, NEPA baseline, and proposed Project and alternatives were calculated according to methodologies provided in The Climate Registry General Reporting Protocol (GPR), Version 2.0 (TCR 2013). Emissions and emission factors used in the analysis are presented in detail in Appendix B1 and summarized as follows:

- GHG emissions (CO_2, CH_4, and N_2O) from on-road and off-road construction equipment were based on emission factors derived from EMFAC2011 and OFFROAD2007.
- Container ship engine emissions were based on emission factors identified in the Port 2012 Emissions Inventory (LAHD 2013b).
- Harbor craft emissions were based on the California Air Resources Board (CARB) Commercial Harbor Craft Emissions Model (CARB 2011a).
- Emissions from cargo handling equipment were based on emission factors from the CARB Cargo Handling 2011 Inventory Model (CARB 2011b).
- GHG emissions from TRU exhaust were based on the CARB TRU 2011 Emissions Inventory Model (CARB 2011c).
- TRU refrigerant-loss emissions were based on the charge capacity obtained from The Climate Registry (TCR 2008) and the operating-loss emissions factor obtained from United Nations Environment Programmed (United Nations Environment Programmed 2010).

- Diesel drayage truck emissions were based on the Port of Los Angeles fleet mix (Starcrest 2013) and EMFAC2011 emission factors developed for the Port's 2012 Emissions Inventory (LAHD 2013b).
- GHG emission factors for LNG-fueled drayage trucks, which comprised about 10% of the Port truck calls in 2012 (Starcrest 2013), were obtained from The Climate Registry (TCR 2013).
- Locomotive emissions were based on GHG emission factors identified in the Port's 2012 Emissions Inventory (LAHD 2013b).
- Direct GHG emissions were accrued within the California state boundary.
- Indirect GHG emissions from electricity consumption on-site and from container ships using AMP while at berth were calculated based on the terminal's energy consumption and container ship engine activity, as provided by YTI, as well as The Climate Registry emission factors (TCR 2013).

In addition to evaluating the GHG emissions from the proposed Project and alternatives, the potential impact of SLR resulting from global climate change on the proposed Project was also considered. The methodology focused on a review of currently available documentation for the Los Angeles coastline (Pacific Institute 2009; Lempert et al. 2012). Lempert et al. (2012) used the Port as a case study and considers a broader range of potential SLR scenarios (up to 30 centimeters higher) than the two previous studies.

3.6.4.2 Geographic Boundaries

For the purpose of assessing GHG impacts under CEQA, proposed project and alternatives GHG emissions were calculated to the California border. For the purposes of assessing GHG impacts under NEPA, the analysis conservatively reflects emissions calculated to the California border, even though the federal scope of analysis extends to the East LA railyard, not the California border. Emissions from proposed project-related container ships, trucks, and trains were calculated as follows:

- Container ship emissions were calculated along the northern 170 nm shipping route. The analysis conservatively assumed that all container ships would follow this "northern" route because it represents the longest distance that ships would travel to and from the Port while within CARB's California in-state boundary.
- Truck and automobile emissions were calculated based on roadway link-by-link traffic volume and speed data provided by the transportation study for this EIS/EIR. The roadway link network extended all the way to the California border.
- Train emissions were calculated based on train travel data within the SCAB, as provided by the transportation study. For additional train travel between the SCAB boundary and the California border, one-way travel distances were assumed to be 191 and 184 miles for BNSF and UP trains, respectively. The travel distances were measured from maps of the rail mainlines.
- All electrical power production was assumed to be generated within the state for calculating emissions associated with electric power demand.
- This document acknowledges that GHG emissions extend beyond state borders. However, origin and destination data for out-of-state emissions over the life of the proposed Project or an alternative do not exist and would be speculative on a

project-specific level. Emissions outside state boundaries are discussed in Chapter 4 (Cumulative Impacts).

- The focus of the SLR analysis is the terminal. Although truck and train routes were also considered, because of the lack of project-specific SLR information, transportation routes associated with the proposed Project are addressed in general terms.

3.6.4.3 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.

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. The methodology used to quantify baseline emissions is presented in Section 3.6.4.1, 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), 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. Table 3.6-1 presents the annual baseline GHG emissions in 2012 in mty.

Table 3.6-1: Annual Operational GHG Emissions—CEQA Baseline 2012 (mty)

Source Category	CO_2	CH_4	N_2O	HCFC-22 [1]	R404A [1]	CO_2e [1]
Ships—transit and anchoring	48,793	1	2	-	-	49,598
Ships—hoteling	10,377	1	1	-	-	10,591
AMP electricity use	747	0	0	-	-	751
Reefer ship refrigeration losses [2]	-	-	-	0.1	-	96
Tugboats	643	0	0	-	-	653
Trucks	39,101	5	2	-	-	39,696
Line haul locomotives	26,223	2	1	-	-	26,481
Switch locomotives	422	0	0	-	-	426
Cargo handling equipment	7,377	0	0	-	-	7,411
Transportation refrigeration units (engine exhaust and refrigeration losses)	124	0	0	-	0.1	420
On-terminal electricity use	12,186	0	0	-	-	12,239
Worker vehicles	1,857	1	0	-	-	1,972
2012 Baseline Total	**147,849**	**10**	**6**	**0**	**0**	**150,335**

Table 3.6-1: Annual Operational GHG Emissions—CEQA Baseline 2012 (mty)

Source Category	CO_2	CH_4	N_2O	HCFC-22 [1]	R404A [1]	CO_2e [1]

Notes:

Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1 in Section 3.2, Air Quality and Meteorology. 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.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates non applicability.

[1] HCFC-22 is a typical refrigerant used in reefer ships. R404A is a typical refrigerant used in TRUs. CO_2e is the summation of individual GHGs multiplied by their GWPs.

[2] Reefer ships are vessels able to keep perishable cargo—such as fruits, vegetables, and meats—cool. Most of the cargo is stored below deck on pallets or transported inside refrigerated containers that are placed on top of the closed cargo hold. Reefer ships have refrigeration systems built into their cargo holds. Reefer ships called at the YTI Terminal in the 2012 baseline year but are not anticipated in future years as most of these ships have been replaced by vessels carrying refrigerated containers that have a small refrigeration system attached to the rear end of the container.

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.

3.6.4.4 NEPA Baseline

For purposes of this Draft EIS/EIR, the proposed Project or other alternative was compared 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 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 to the aquatic environment, as well as indirect and cumulative impacts in the uplands determined to be within the scope of federal control and responsibility. 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 ships calls at two berths, and be occupied by 14 cranes (10 operating).

Table 3.6-2 presents annual GHG emissions associated with the NEPA baseline for construction elements and shows amortized construction emissions over the life of the proposed Project (ten years). Table 3.6-3 presents annual GHG emissions associated with the NEPA baseline for operational activities and sums the annual operational emissions with the amortized construction emissions from Table 3.6-2.

Table 3.6-2: Annual Construction GHG Emissions – NEPA Baseline (mty)

Source Category	CO_2e
Construction Year 2015	
Off-road Construction Equipment Exhaust	77
Marine Source Exhaust	0
On-road Construction Vehicles	161
Worker Vehicles	1
Total Construction Year 2015	239
Construction Year 2016	
Off-road Construction Equipment Exhaust	38
Marine Source Exhaust	0
On-road Construction Vehicles	0
Worker Vehicles	0
Total Construction Year 2016	38
Amortized Construction	**28**

Notes:

Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Construction emissions are calculated for each relevant GHG, multiplied by the appropriate GWP, and reported as CO_2e. GHG emissions for each construction source category are detailed in Appendix B1 but presented here as total CO_2e.

A value of "0" indicates a number smaller than 1.

Table 3.6-3: Annual Operational GHG Emissions – NEPA Baseline (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**28**
Year 2017					
Ships - Transit and Anchoring	59,998	2	3	-	60,994
Ships - Hoteling	6,495	0	0	-	6,642
AMP Electricity Use	3,869	0	0	-	3,886
Tugboats	818	0	0	-	831
Trucks	41,843	5	2	-	42,474
Line Haul Locomotives	31,406	3	1	-	31,715
Switch Locomotives	508	0	0	-	512
Cargo Handling Equipment	9,638	0	0	-	9,682
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	169	0	0	0	656
On-terminal Electricity Use	19,462	0	0	-	19,547
Worker Vehicles	1,923	1	0	-	2,061
Total Operational Year 2017	176,128	11	7	0	179,001
Total Construction and Operations Year 2017					**179,029**
Year 2020					
Ships - Transit and Anchoring	62,019	2	3	-	63,049
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	45,259	6	2	-	45,941
Line Haul Locomotives	34,380	3	1	-	34,719
Switch Locomotives	556	0	0	-	561
Cargo Handling Equipment	10,539	0	0	-	10,587
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	185	0	0	0	718
On-terminal Electricity Use	21,305	0	0	-	21,399
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	187,379	12	7	0	190,443
Total Construction and Operations Year 2020					**190,470**
Year 2026					
Ships - Transit and Anchoring	62,019	2	3	-	63,049
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	51,705	7	2	-	52,493
Line Haul Locomotives	40,639	3	1	-	41,040
Switch Locomotives	657	0	0	-	663
Cargo Handling Equipment	12,444	0	0	-	12,501

Table 3.6-3: Annual Operational GHG Emissions – NEPA Baseline (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	218	0	0	0	849
On-terminal Electricity Use	25,202	1	0	-	25,312
Worker Vehicles	1,962	1	0	-	2,131
Total Operational Year 2026	205,913	13	8	0	209,272
Total Construction and Operations Year 2026					**209,300**

Notes:
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

3.6.4.5 Thresholds of Significance

CEQA Significance Thresholds

State CEQA Guidelines Section 15064.4(b) sets forth the factors that should be considered by a lead agency when assessing the significance of impacts from GHG emissions on the environment. These factors are:

- the extent to which a project may increase or reduce GHG emissions compared with the existing environmental setting;
- whether project emissions exceed a threshold of significance that the lead agency determines applicable to a project;
- the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The guidelines do not specify significance thresholds and allow the lead agencies discretion in how to address and evaluate significance based on these criteria. CARB developed initial guidance for air districts to consider for CEQA significance thresholds in October 2008. At that time, CARB proposed a threshold of 7,000 mty for industrial projects but did not provide a numerical threshold for commercial or residential projects, stating that it would be developed in the future.

To provide guidance to local lead agencies regarding determining significance for GHG emissions in CEQA documents, SCAQMD convened the GHG CEQA Significance Threshold Working Group. Members of the working group included government agencies that implement CEQA and representatives from various stakeholder groups that provide input to SCAQMD staff members regarding developing the GHG CEQA significance thresholds.

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal regarding an interim GHG significance threshold for projects where SCAQMD is lead agency. For industrial projects, a significance threshold of 10,000 mty of CO_2e emissions per year was established. Construction GHG emissions, amortized over project life, are required to be included in a project's annual GHG emissions totals (SCAQMD 2010).

After considering these guidelines and LAHD-specific climate change impact issues, LAHD has set the following thresholds for use in this EIR to determine the significance of proposed project-related GHG impacts. The proposed Project or alternative would create a significant GHG impact if it:

GHG-1: Generates GHG emissions that, either directly or indirectly, exceed the SCAQMD 10,000 mty CO_2e threshold; or

GHG-2: Conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions and climate change impacts.

Impacts are determined by comparing the combined amortized construction and future operational emissions with the baseline scenario. Total construction emissions are amortized over the life of the proposed Project or alternative and included in the CEQA impact determination. In addition, State CEQA Guidelines Section15126.2(a) identifies the need to evaluate potential impacts of locating development in areas that are vulnerable to climate change effects. The EIR "should evaluate any potentially significant impacts of locating development in other areas susceptible to hazardous conditions (e.g., floodplains, coastlines, wildfire risk areas)." Although no significance thresholds are defined for evaluating the potential impacts of locating development in areas that are vulnerable to climate change effects, the analysis addresses this evaluation qualitatively.

NEPA Effects

The USACE has established the following position under NEPA:

There are no science-based GHG significance thresholds, nor has the federal government or the state adopted any by regulations. In the absence of an adopted or science-based GHG standard, the USACE will not utilize the Port of Los Angeles' proposed GHG-1 CEQA standard, propose a new GHG standard, or make a NEPA impact determination for GHG emissions anticipated to result from the proposed Project or any of the alternatives. Rather, in compliance with the NEPA implementing regulations, the anticipated emissions relative to the NEPA baseline will be disclosed for the proposed Project and each alternative without expressing a judgment as to their significance.

On February 18, 2010, the Council on Environmental Quality (CEQ) released its *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. The CEQ guidance states that if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 mty or more of CO_2e on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision-makers and the public. Based on previous Port container terminal projects, it was assumed that the proposed Project or an alternative could exceed 25,000 mty of CO_2. Therefore, a quantitative assessment was conducted for this

EIS/EIR. It is important to note that CEQ does not propose this emissions reference point as a threshold of significant effects.

3.6.4.6 Impact Determination

Proposed Project

Construction of the proposed Project would include improvements to Berths 214–216 and 217–220 involving dredging to increase the depth of the berths and the installation of sheet and/or king piles. All of the dredged material, approximately 27,000 cy, would be disposed of at an approved site, which may include LA-2, the Berths 243–245 CDF, or another approved location. Additional improvements at the terminal would include extending the 100-foot gauge crane rail, expanding the TICTF on-dock rail by adding a single operational rail track, relocation of two Port-owned cranes, relocation and realignment of existing YTI cranes, delivery and installation of up to four new cranes, raising and extending up to six existing YTI cranes, and backland surface improvements.

The proposed Project would be constructed in two phases. Phase I is expected to take approximately 12 months, beginning in mid-2015, and Phase II is expected to take approximately 10 months, with backland improvement activities taking place in 2015 and berth deepening activities in mid-2016. During Phase I of construction, Berths 212–213 and Berths 214–216 would remain in operation. During Phase II of construction, Berths 212–213 and the newly improved Berths 217–220 would be in operation.

Impact GHG-1: The proposed Project would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO_2e threshold.

Table 3.6-4 presents amortized annual GHG emissions associated with construction of the proposed Project. Construction emissions were determined by adding direct and indirect GHG emissions associated with all construction elements and amortizing over the life of the proposed Project (10 years). Table 3.6-5 shows amortized construction, annual GHG emissions associated with operational activities, and significance determinations.

Table 3.6-4: Construction GHG Emissions without Mitigation – Proposed Project (mty)

Source Category	CO_2e
Construction Year 2015	
Off-road Construction Equipment Exhaust	1,732
Marine Source Exhaust	724
On-road Construction Vehicles	455
Worker Vehicles	30
Total Construction Year 2015	**2,940**

Table 3.6-4: Construction GHG Emissions without Mitigation – Proposed Project (mty)

Source Category	CO_2e
Construction Year 2016	
Off-road Construction Equipment Exhaust	1,711
Marine Source Exhaust	422
On-road Construction Vehicles	829
Worker Vehicles	25
Total Construction Year 2016	**2,987**
Amortized Construction	**593**

Notes:

Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Construction emissions are calculated for each relevant GHG, multiplied by the appropriate GWP, and reported as CO_2e. GHG emissions for each construction source category are detailed in Appendix B1 but presented here as total CO_2e.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

1

Table 3.6-5: Construction and Operational GHG Emissions without Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**593**
Year 2017					
Ships - Transit and Anchoring	59,495	2	3	-	60,483
Ships - Hoteling	6,910	0	0	-	7,065
AMP Electricity Use	4,417	0	0	-	4,437
Tugboats	818	0	0	-	831
Trucks	44,189	6	2	-	44,855
Line Haul Locomotives	33,176	3	1	-	33,503
Switch Locomotives	536	0	0	-	541
Cargo Handling Equipment	10,174	0	0	-	10,221
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	178	0	0	0	693
On-terminal Electricity Use	20,558	0	0	-	20,649
Worker Vehicles	2,034	1	0	-	2,180
Total Operational Year 2017	182,485	12	7	0	185,456
Total Construction and Operations Year 2017					**186,049**

Table 3.6-5: Construction and Operational GHG Emissions without Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
CEQA Impacts					
CEQA Baseline Emissions					150,335
Proposed Project Minus CEQA Baseline					35,714
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					179,029
Proposed Project Minus NEPA Baseline					7,020
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**
Year 2020					
Ships - Transit and Anchoring	62,957	2	3	-	64,002
Ships - Hoteling	6,409	0	0	-	6,555
AMP Electricity Use	5,660	0	0	-	5,685
Tugboats	818	0	0	-	830
Trucks	50,449	6	2	-	51,209
Line Haul Locomotives	38,365	3	1	-	38,743
Switch Locomotives	620	0	0	-	626
Cargo Handling Equipment	11,746	0	0	-	11,800
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	206	0	0	0	801
On-terminal Electricity Use	23,774	0	0	-	23,879
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	203,074	13	8	0	206,366
Total Construction and Operations Year 2020					**206,959**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Proposed Project Minus CEQA Baseline					56,624
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					190,470
Proposed Project Minus NEPA Baseline					16,489
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**

Table 3.6-5: Construction and Operational GHG Emissions without Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Year 2026					
Ships - Transit and Anchoring	63,526	2	3	-	64,581
Ships - Hoteling	6,644	0	0	-	6,795
AMP Electricity Use	6,029	0	0	-	6,055
Tugboats	818	0	0	-	830
Trucks	57,797	7	2	-	58,678
Line Haul Locomotives	45,981	4	1	-	46,434
Switch Locomotives	743	0	0	-	750
Cargo Handling Equipment	14,053	0	0	-	14,117
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	247	0	0	0	960
On-terminal Electricity Use	28,494	1	0	-	28,619
Worker Vehicles	2,208	1	1	-	2,399
Total Operational Year 2026	226,539	15	9	0	230,218
Total Construction and Operations Year 2026					**230,811**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Proposed Project Minus CEQA Baseline					80,476
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					209,300
Proposed Project Minus NEPA Baseline					21,511
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**

Notes: Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

Construction emissions are amortized over the life of the proposed Project (10 years) and added to each year of operational emissions.

CEQA Impact Determination

Table 3.6-5 shows that the proposed Project's GHG emissions minus the CEQA baseline would exceed the GHG threshold of 10,000 mty in all operational analysis years. Emissions for all source categories, except container ship hoteling and associated AMP use, would increase over the life of the proposed Project because of terminal throughput increase. In 2020, container ship hoteling emissions would decrease, relative to 2017, because of requirements under CARB's *Airborne Toxic Control Measure (ATCM) for*

Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port (CARB 2007) but would increase again slightly in 2026 as larger container ships call at the terminal. The CARB regulation is described in Section 3.6.3.3. Overall container ship emissions would increase because of terminal throughput increase. Proposed project GHG emissions would be significant under CEQA in all analysis years prior to mitigation.

Mitigation Measures

Mitigation measures MM AQ-1, MM AQ-5, MM AQ-9, and MM-AQ10 applied to the air quality impacts in Section 3.2 would reduce fossil fuel use and, as such, have the added benefit of reducing GHG emissions. The other air quality mitigation measures in Section 3.2 are either directed to criteria pollutants and DPM and would not have a substantial impact on GHG emissions or could not be reasonably quantified.

In addition to the air quality mitigation measures identified above, mitigation measures MM GHG-1 through MM GHG-3, directed at GHG emissions reduction specifically, were considered. Furthermore, LAHD's standard lease measures LM AQ-1 and LM AQ-2 would be included in the tenant lease; these measures would further reduce future GHG emissions and serve to comply with Port air quality planning requirements.

The following mitigation measures would reduce GHG emissions during proposed project construction:

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

The following mitigation measures would reduce GHG emissions during proposed project operation:

MM GHG-1: **Energy Audit.** The tenant will conduct an energy audit by a third party of its choice every 5 years and install innovative power-saving technology (1) where it is feasible and (2) where the amount of savings would be reasonably sufficient to cover the costs of implementation.

MM GHG-2: **LED Lighting.** When existing light bulbs require replacement, all bulbs within the interior of buildings on the premises will be replaced exclusively with LED light bulbs or a technology with similar energy-saving capabilities for ambient lighting within all terminal buildings. The tenant will also maintain and replace any Port-supplied LED light bulbs.

MM GHG-3: **Recycling.** The tenant will ensure that a minimum of 60% of all waste generated in all terminal buildings is recycled by 2017.

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 could reduce GHG emissions during proposed project operation:

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 the LAHD.

Because the effectiveness of mitigation measures MM GHG-1, MM GHG-2, and MM GHG-3 cannot be established, these mitigation measures were not quantified. For the same reasons, LM AQ-1 and LM AQ-2 were also not quantified.

Table 3.6-6 presents GHG emissions following the application of quantifiable mitigation measures as well as amortized annual GHG emissions associated with construction of the proposed Project after mitigation. Construction emissions were determined by adding direct and indirect GHG emissions associated with all construction elements and amortizing over the life of the proposed Project (10 years). Table 3.6-7 shows amortized construction, annual GHG emissions associated with operational activities, and significance determinations following mitigation.

Residual Impacts

Impacts would be reduced but would remain significant and unavoidable.

Table 3.6-6: Construction GHG Emissions with Mitigation – Proposed Project (mty)

Source Category	CO_2e
Construction Year 2015	
Offroad Construction Equipment Exhaust	1,593
Marine Source Exhaust	691
On-road Construction Vehicles	450
Worker Vehicles	30
Total Construction Year 2015	**2,764**
Construction Year 2016	
Off-road Construction Equipment Exhaust	1,515
Marine Source Exhaust	422
Onroad Construction Vehicles	820
Worker Vehicles	25
Total Construction Year 2016	**2,782**
Amortized Construction	**555**

Notes:

Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

Construction emissions are calculated for each relevant GHG, multiplied by the appropriate GWP, and reported as CO_2e. GHG emissions for each construction source category are detailed in Appendix B1 but presented here as total CO_2e.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

1

Table 3.6-7: Construction and Operational GHG Emissions with Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**555**
Year 2017					
Ships - Transit and Anchoring	58,802	2	3	-	59,781
Ships - Hoteling	6,910	0	0	-	7,065
AMP Electricity Use	4,417	0	0	-	4,437
Tugboats	818	0	0	-	831
Trucks	44,189	6	2	-	44,855
Line Haul Locomotives	33,176	3	1	-	33,503
Switch Locomotives	536	0	0	-	541
Cargo Handling Equipment	10,174	0	0	-	10,221
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	178	0	0	0	693

Table 3.6-7: Construction and Operational GHG Emissions with Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
On-terminal Electricity Use	20,558	0	0	-	20,649
Worker Vehicles	2,034	1	0	-	2,180
Total Operational Year 2017	181,793	12	7	0	184,754
Total Construction and Operations Year 2017					**185,309**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Proposed Project Minus CEQA Baseline					34,974
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					179,029
Proposed Project Minus NEPA Baseline					6,280
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**
Year 2020					
Ships - Transit and Anchoring	62,225	2	3	-	63,260
Ships - Hoteling	6,409	0	0	-	6,555
AMP Electricity Use	5,660	0	0	-	5,685
Tugboats	818	0	0	-	830
Trucks	50,449	6	2	-	51,209
Line Haul Locomotives	38,365	3	1	-	38,743
Switch Locomotives	620	0	0	-	626
Cargo Handling Equipment	11,746	0	0	-	11,800
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	206	0	0	0	801
On-terminal Electricity Use	23,774	0	0	-	23,879
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	202,343	13	8	0	205,625
Total Construction and Operations Year 2020					**206,179**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Proposed Project Minus CEQA Baseline					55,844
Significance Threshold					10,000
Significant?					**Yes**

Table 3.6-7: Construction and Operational GHG Emissions with Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
NEPA Impacts					
NEPA Baseline Emissions					190,470
Proposed Project Minus NEPA Baseline					15,709
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**
Year 2026					
Ships - Transit and Anchoring	62,791	2	3	-	63,836
Ships - Hoteling	5,832	0	0	-	5,970
AMP Electricity Use	6,827	0	0	-	6,857
Tugboats	818	0	0	-	830
Trucks	57,797	7	2	-	58,678
Line Haul Locomotives	45,981	4	1	-	46,434
Switch Locomotives	743	0	0	-	750
Cargo Handling Equipment	14,053	0	0	-	14,117
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	247	0	0	0	960
On-terminal Electricity Use	28,494	0	0	-	28,619
Worker Vehicles	2,208	1	1	-	2,399
Total Operational Year 2026	225,791	15	9	0	229,450
Total Construction and Operations Year 2026					**230,005**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Proposed Project Minus CEQA Baseline					79,670
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					209,300
Proposed Project Minus NEPA Baseline					20,705
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**

Table 3.6-7: Construction and Operational GHG Emissions with Mitigation – Proposed Project (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e

Notes:

Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

Construction emissions are amortized over the life of the proposed Project (10 years) and added to each year of operational emissions.

NEPA Impact Determination

In accordance with CEQ Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, GHG emissions are compared with the CEQ reference level of 25,000 mty CO_2e to determine whether further quantitative analysis is required.

USACE has established the position that there are no science-based GHG significance thresholds, nor has the federal government or the state adopted any by regulation. In the absence of an adopted or science-based GHG standard, in compliance with the CEQ and USACE NEPA implementing regulations, a significance determination regarding GHG emissions is not made under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Impact GHG-2: The proposed Project would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions and climate change impacts.

The State of California has adopted laws and policies to regulate and reduce GHG emissions, as detailed in Section 3.6.3, Applicable Regulations. AB 32, which specifically aimed to reduce statewide GHG emissions to 1990 levels by 2020, instructed CARB to adopt regulations that reduce emissions from significant sources of GHGs and establish a mandatory GHG reporting and verification program by January 1, 2008. Activities that have occurred since the adoption of AB 32 are also presented in Section 3.6.3.

The proposed Project would use stationary and mobile equipment that would be compliant with state and federal emissions requirements and adhere to control measures adopted by the State of California during construction and operation. The proposed Project would therefore not conflict with the goals of AB 32 or regulations adopted since AB 32.

With respect to adaptation to climate change effects, the Rand Corporation recently completed a study (Lempert et al. 2012) of potential SLR impacts on Port facilities that focused on four areas at different elevations and their potential exposure to SLR. The four areas studied are the low side of the container ship terminals, the upper side of the terminals, Berths 206–209, and the Alameda and Harry Bridges crossing. The study goes beyond the theoretical SLR inundation scenarios that have been generated (and are available online[3]) from the upper ranges of SLR in studies conducted by the Pacific Institute and the California Sea Level Rise Task Force of the Coastal and Ocean Working Group of the California Climate Action Team (Co-CAT) in the *State of California Sea Level Rise Interim Guidance Document* (2010).

The Rand study takes into account the range of the SLR estimates in the Co-CAT document (up to 55 inches by 2100) and expands the range by another 12 inches to allow for uncertainty related to a broad circulation shift in the Pacific Ocean resulting from climate change later in the 21st century. The Rand study assigns probabilities to the SLR ranges (with an approximately equal distribution of probabilities) and then determines whether investments should or should not be made to upgrade sea armoring at the four facility areas. Upgrades to sea armoring means the addition of physical structures intended to protect infrastructure or shoreline against anticipated seal level rise. The study concludes by stating that a decision to harden sea armoring at the next decision point for upgrade (i.e., when a new project is being constructed) should be seriously considered only for the lower lying Alameda and Harry Bridges crossing area, which is 6.13 feet above mean sea level.

The higher elevation areas reviewed in the study include Berths 206–209 (7.62 feet above MSL), lower terminal (9.20 feet above MSL), and upper terminal (12.14 feet above MSL). The proposed Project would be located in the lower terminal area.

The Rand study also performed a detailed analysis of key variables that could affect the decision to armor during construction. For the lower terminal area, which is where the proposed Project would be located, the study indicates that the Port could consider upgrading costs of approximately 1% of a project's total when the project's life is greater than 50 years and there is a forecast trend in increased daily storminess due to climate change (a 3% increase in the daily sea-level anomaly). Currently, there is no scientific consensus regarding whether daily storminess will increase or decrease in the 21st century for the Southern California region.

The conclusions from the Rand study, when applied to the proposed project area, demonstrate that additional protection from SLR are not warranted at this time given the current state of scientific understanding of SLR and related climatic variables. As noted above, the Rand study is consistent with state guidance because it uses the Co-CAT document for its central range of SLR estimates.

CEQA Impact Determination

The proposed Project is consistent with state and local policies and plans for GHG emissions and climate change. Accordingly, no significant impacts would result from inconsistencies with existing plans and policies.

[3] http://cal-adapt.org/sealevel/

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

A significance determination regarding GHG emissions is not made under NEPA.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

Alternative 1 – No Project

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

Under the No Project Alternative, the existing YTI Terminal would continue to operate as an approximate 185-acre container terminal. Given the Port'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.

The No Project Alternative would not preclude future improvements to the proposed project site. However, any future changes in use or new improvements with the potential to affect the environment significantly would need to be analyzed in a separate environmental document.

Impact GHG-1: Alternative 1 would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO_2e threshold.

Table 3.6-8 presents annual GHG emissions associated with operational activities of Alternative 1. Because Alternative 1 is the No Project Alternative, no construction would occur with Alternative 1.

Table 3.6-8: Operational GHG Emissions – Alternative 1 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Year 2017					
Ships - Transit and Anchoring	59,998	2	3	-	60,994
Ships - Hoteling	6,495	0	0	-	6,642
AMP Electricity Use	3,869	0	0	-	3,886
Tugboats	818	0	0	-	831
Trucks	41,843	5	2	-	42,474
Line Haul Locomotives	31,406	3	1	-	31,715
Switch Locomotives	508	0	0	-	512
Cargo Handling Equipment	9,638	0	0	-	9,682
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	169	0	0	0	656
On-terminal Electricity Use	19,462	0	0	-	19,547
Worker Vehicles	1,923	1	0	-	2,061
Total Operational Year 2017	176,128	11	7	0	179,001
Total Operations Year 2017					**179,001**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 1 Minus CEQA Baseline					28,666
Significance Threshold					10,000
Significant?					**Yes**
Year 2020					
Ships - Transit and Anchoring	62,019	2	3	-	63,049
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	45,259	6	2	-	45,941
Line Haul Locomotives	34,380	3	1	-	34,719
Switch Locomotives	556	0	0	-	561
Cargo Handling Equipment	10,539	0	0	-	10,587
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	185	0	0	0	718
On-terminal Electricity Use	21,305	0	0	-	21,399
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	187,379	12	7	0	190,443
Total Operations Year 2020					**190,443**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 1 Minus CEQA Baseline					40,108
Significance Threshold					10,000
Significant?					**Yes**

Table 3.6-8: Operational GHG Emissions – Alternative 1 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Year 2026					
Ships - Transit and Anchoring	62,019	2	3	-	63,049
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	51,705	7	2	-	52,493
Line Haul Locomotives	40,639	3	1	-	41,040
Switch Locomotives	657	0	0	-	663
Cargo Handling Equipment	12,444	0	0	-	12,501
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	218	0	0	0	849
On-terminal Electricity Use	25,202	0	0	-	25,312
Worker Vehicles	1,962	1	0	-	2,131
Total Operational Year 2026	205,913	13	8	0	209,272
Total Operations Year 2026					**209,272**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 1 Minus CEQA Baseline					58,937
Significance Threshold					10,000
Significant?					**Yes**

Notes:
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

CEQA Impact Determination

Table 3.6-8 shows that operational GHG emissions minus the CEQA baseline under Alternative 1 would exceed the GHG threshold of 10,000 mty in all analysis years. Emissions for all source categories, except container ship hoteling and associated AMP use, would increase over the life of Alternative 1 because of the increase in terminal throughput. Container ship hoteling emissions would decrease over the life of Alternative 1 because of requirements under CARB's *Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-going Vessels at Berth in a California Port* (CARB 2007). Alternative 1 GHG emissions would be significant under CEQA in all analysis years.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be significant and unavoidable.

NEPA Impact Determination

The impacts of Alternative 1 are not required to be analyzed under NEPA. 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 GHG-2: Alternative 1 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions and climate change impacts.

Alternative 1 would be consistent with federal, state, and local legislation, regulations, plans, and policies, as described in Section 3.6.3, Applicable Regulations. Alternative 1 would, therefore, not conflict with GHG emissions reduction plans, policies, or regulations. In addition, as discussed under the proposed project scenario, the decision to harden sea armoring is not warranted for the YTI Terminal.

CEQA Impact Determination

Alternative 1 is consistent with state and local policies and plans for GHG emissions and climate change. Accordingly, no significant impacts would result from inconsistencies with existing plans and policies.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

The impacts of Alternative 1 are not required to be analyzed under NEPA. 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 approximate 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 lines. Given 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.

Impact GHG-1: Alternative 2 would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO_2e threshold.

Table 3.6-9 presents amortized annual GHG emissions associated with construction and operational activities of Alternative 2. Because Alternative 2 is the same as the NEPA baseline, amortized construction emissions are the same as those presented for the NEPA baseline in Section 3.6.4.4, per Table 3.6-2. Construction emissions were determined by adding direct and indirect GHG emissions associated with all construction elements and amortizing over the life of the alternative (10 years).

Table 3.6-9: Construction and Operational GHG Emissions without Mitigation – Alternative 2 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**28**
Year 2017					
Ships - Transit and Anchoring	59,998	2	3	-	60,994
Ships - Hoteling	6,495	0	0	-	6,642
AMP Electricity Use	3,869	0	0	-	3,886
Tugboats	818	0	0	-	831
Trucks	41,843	5	2	-	42,474
Line Haul Locomotives	31,406	3	1	-	31,715
Switch Locomotives	508	0	0	-	512
Cargo Handling Equipment	9,638	0	0	-	9,682
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	169	0	0	0	656
On-terminal Electricity Use	19,462	0	0	-	19,547
Worker Vehicles	1,923	1	0	-	2,061
Total Operational Year 2017	176,128	11	7	0	179,001

Table 3.6-9: Construction and Operational GHG Emissions without Mitigation – Alternative 2 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Total Construction and Operations Year 2017					**179,029**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 2 Minus CEQA Baseline					28,694
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					179,029
Alternative 2 Minus NEPA Baseline					0
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**
Year 2020					
Ships - Transit and Anchoring	62,019	2	3	-	63,049
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	45,259	6	2	-	45,941
Line Haul Locomotives	34,380	3	1	-	34,719
Switch Locomotives	556	0	0	-	561
Cargo Handling Equipment	10,539	0	0	-	10,587
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	185	0	0	0	718
On-terminal Electricity Use	21,305	0	0	-	21,399
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	187,379	12	7	0	190,443
Total Construction and Operations Year 2020					**190,470**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 2 Minus CEQA Baseline					40,136
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					190,470
Alternative 2 Minus NEPA Baseline					0
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**

Table 3.6-9: Construction and Operational GHG Emissions without Mitigation – Alternative 2 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Year 2026					
Ships - Transit and Anchoring	62,019	2	3	-	63,049
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	51,705	7	2	-	52,493
Line Haul Locomotives	40,639	3	1	-	41,040
Switch Locomotives	657	0	0	-	663
Cargo Handling Equipment	12,444	0	0	-	12,501
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	218	0	0	0	849
On-terminal Electricity Use	25,202	0	0	-	25,312
Worker Vehicles	1,962	1	0	-	2,131
Total Operational Year 2026	205,913	13	8	0	209,272
Total Construction and Operations Year 2026					**209,300**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 2 Minus CEQA Baseline					58,965
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					209,300
Alternative 2 Minus NEPA Baseline					0
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**

Notes:
Alternative 2 is the same as the NEPA baseline; amortized construction emissions are the same as those presented for the NEPA baseline in Section 3.6.4.4, per Table 3.6-2.
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.
Construction emissions are amortized over the life of the proposed Project (10 years) and added to each year of operational emissions.

CEQA Impact Determination

Table 3.6-9 shows that construction and operational GHG emissions minus the CEQA baseline under Alternative 2 would exceed the GHG threshold of 10,000 mty in all analysis years. Emissions for all source categories, except cargo ship hoteling and

associated AMP use, would increase between 2017 and 2020 because of the increase in terminal throughput. Because Alternative 2 would not accommodate larger vessels, cargo ship hoteling emissions would not increase between 2020 and 2026 as they would under the proposed Project. Alternative 2 GHG emissions would be significant under CEQA in all analysis years prior to mitigation.

Mitigation Measures

Mitigation measures MM AQ-9, MM-AQ10, and MM GHG-1 through MM GHG-3 would be applied to Alternative 2. Construction mitigation measures MM AQ-1 and MM AQ-5 would not apply because dredging or crane delivery would not occur under Alternative 2 without USACE approval. Lease measures LM AQ-1 and LM AQ-2 would also be applied. Table 3.6-10 presents GHG emissions following the application of quantifiable mitigation measures.

Residual Impacts

Impacts would be reduced but would remain significant and unavoidable.

Table 3.6-10: Construction and Operational GHG Emissions with Mitigation – Alternative 2 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**28**
Year 2017					
Ships - Transit and Anchoring	59,293	2	3	-	60,280
Ships - Hoteling	6,495	0	0	-	6,642
AMP Electricity Use	3,869	0	0	-	3,886
Tugboats	818	0	0	-	831
Trucks	41,843	5	2	-	42,474
Line Haul Locomotives	31,406	3	1	-	31,715
Switch Locomotives	508	0	0	-	512
Cargo Handling Equipment	9,638	0	0	-	9,682
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	169	0	0	0	656
On-terminal Electricity Use	19,462	0	0	-	19,547
Worker Vehicles	1,923	1	0	-	2,061
Total Operational Year 2017	175,423	11	7	0	178,287
Total Construction and Operations Year 2017					**178,314**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 2 Minus CEQA Baseline					27,980
Significance Threshold					10,000
Significant?					**Yes**

Table 3.6-10: Construction and Operational GHG Emissions with Mitigation – Alternative 2 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Year 2020					
Ships - Transit and Anchoring	61,288	2	3	-	62,307
Ships - Hoteling	5,834	0	0	-	5,970
AMP Electricity Use	4,414	0	0	-	4,433
Tugboats	818	0	0	-	830
Trucks	45,259	6	2	-	45,941
Line Haul Locomotives	34,380	3	1	-	34,719
Switch Locomotives	556	0	0	-	561
Cargo Handling Equipment	10,539	0	0	-	10,587
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	185	0	0	0	718
On-terminal Electricity Use	21,305	0	0	-	21,399
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	186,648	12	7	0	189,702
Total Construction and Operations Year 2020					**189,729**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 2 Minus CEQA Baseline					39,394
Significance Threshold					10,000
Significant?					**Yes**
Year 2026					
Ships - Transit and Anchoring	61,288	2	3	-	62,307
Ships - Hoteling	5,239	0	0	-	5,365
AMP Electricity Use	4,999	0	0	-	5,020
Tugboats	818	0	0	-	830
Trucks	51,705	7	2	-	52,493
Line Haul Locomotives	40,639	3	1	-	41,040
Switch Locomotives	657	0	0	-	663
Cargo Handling Equipment	12,444	0	0	-	12,501
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	218	0	0	0	849
On-terminal Electricity Use	25,202	0	0	-	25,312
Worker Vehicles	1,962	1	0	-	2,131
Total Operational Year 2026	205,172	13	8	0	208,514
Total Construction and Operations Year 2026					**208,541**

Table 3.6-10: Construction and Operational GHG Emissions with Mitigation – Alternative 2 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 2 Minus CEQA Baseline					58,207
Significance Threshold					10,000
Significant?					**Yes**

Notes:
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

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

An impact determination is not applicable.

Impact GHG-2: Alternative 2 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions and climate change impacts.

Alternative 2 would be consistent with federal, state, and local legislation, regulations, plans, and policies, as described in Section 3.6.3, Applicable Regulations. Alternative 2 would, therefore, not conflict with GHG emission reduction plans, policies, or regulations. In addition, as discussed under the proposed project scenario, the decision to harden sea armoring is not warranted for the YTI Terminal.

CEQA Impact Determination

Given the analysis above, Alternative 2 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions and climate change impacts.

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

An impact determination is not applicable.

Alternative 3 – Reduced Project: Improve Berths 217–220 Only

This alternative 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 the Reduced Project Alternative:

- modifying up to six existing cranes;
- replacing up to four existing non-operating cranes;
- dredging 6,000 cy of material 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.

Impact GHG-1: Alternative 3 would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO_2e threshold.

Table 3.6-11 presents amortized annual GHG emissions associated with construction of Alternative 3. Table 3.6-12 presents the combined amortized annual GHG emissions associated with construction and annual GHG emissions associated with operational activities. Construction emissions were determined by adding direct and indirect GHG emissions associated with all construction elements and amortizing over the life of Alternative 3 (10 years).

Table 3.6-11: Construction GHG Emissions without Mitigation – Alternative 3 (mty)

Source Category	CO_2e
Construction Year 2015	
Off-road Construction Equipment Exhaust	1,732
Marine Source Exhaust	724
On-road Construction Vehicles	455
Worker Vehicles	30
Total Construction Year 2015	2,940
Construction Year 2016	
Off-road Construction Equipment Exhaust	862
Marine Source Exhaust	0
On-road Construction Vehicles	52
Worker Vehicles	20
Total Construction Year 2016	933
Amortized Construction	**387**

Notes:
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

Table 3.6-12: Construction and Operational GHG Emissions without Mitigation – Alternative 3 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**387**
Year 2017					
Ships - Transit and Anchoring	60,545	2	3	-	61,550
Ships - Hoteling	6,767	0	0	-	6,919
AMP Electricity Use	4,179	0	0	-	4,197
Tugboats	818	0	0	-	831
Trucks	44,189	6	2	-	44,855
Line Haul Locomotives	33,176	3	1	-	33,503
Switch Locomotives	536	0	0	-	541
Cargo Handling Equipment	10,174	0	0	-	10,221
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	178	0	0	0	693
On-terminal Electricity Use	20,558	0	0	-	20,649
Worker Vehicles	2,034	1	0	-	2,180
Total Operational Year 2017	183,153	12	7	0	186,139
Total Construction and Operations Year 2017					**186,526**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 3 Minus CEQA Baseline					36,191
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					179,001
Alternative 3 Minus NEPA Baseline					7,525
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**
Year 2020					
Ships - Transit and Anchoring	72,348	2	4	-	73,550
Ships - Hoteling	6,944	0	1	-	7,105
AMP Electricity Use	5,395	0	0	-	5,418
Tugboats	921	0	0	-	935
Trucks	50,449	6	2	-	51,209
Line Haul Locomotives	38,365	3	1	-	38,743
Switch Locomotives	620	0	0	-	626
Cargo Handling Equipment	11,746	0	0	-	11,800
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	206	0	0	0	801
On-terminal Electricity Use	23,774	0	0	-	23,879
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	212,839	13	8	0	216,302
Total Construction and Operations Year 2020					**216,689**

Table 3.6-12: Construction and Operational GHG Emissions without Mitigation – Alternative 3 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 3 Minus CEQA Baseline					66,355
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					190,443
Alternative 3 Minus NEPA Baseline					26,247
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**Yes**
Year 2026					
Ships - Transit and Anchoring	72,917	2	4	-	74,128
Ships - Hoteling	7,180	0	1	-	7,345
AMP Electricity Use	5,763	0	0	-	5,788
Tugboats	921	0	0	-	935
Trucks	57,797	7	2	-	58,678
Line Haul Locomotives	45,981	4	1	-	46,434
Switch Locomotives	743	0	0	-	750
Cargo Handling Equipment	14,053	0	0	-	14,117
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	247	0	0	0	960
On-terminal Electricity Use	28,494	1	0	-	28,619
Worker Vehicles	2,208	1	1	-	2,399
Total Operational Year 2026	236,304	15	9	0	240,154
Total Construction and Operations Year 2026					**240,541**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 3 Minus CEQA Baseline					90,207
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					209,272
Alternative 3 Minus NEPA Baseline					31,269
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**Yes**

Notes:

Amortized construction emissions are the same as those presented in Table 3.6-11.

Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not

Table 3.6-12: Construction and Operational GHG Emissions without Mitigation – Alternative 3 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
currently available.					
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability. Construction emissions are amortized over the life of the proposed Project (10 years) and added to each year of operational emissions.					

CEQA Impact Determination

Table 3.6-12 shows that Alternative 3 construction and operational GHG emissions minus the CEQA baseline would exceed the GHG threshold of 10,000 mty in all analysis years. Because Berths 214–216 would not be improved under this alternative, larger vessels would not be able to berth at Berths 214–216, and a greater number of smaller vessels would be needed to accommodate the anticipated cargo increase, resulting in higher emissions levels than those of the proposed Project. Emissions for all source categories would increase over the life of the alternative because of the increase in terminal throughput. Alternative 3 GHG emissions would be significant under CEQA in all analysis years prior to mitigation.

Mitigation Measures

The same mitigation measures identified for the proposed Project (i.e., MM AQ-1, MM AQ-5, MM AQ-9, MM-AQ10, and MM GHG-1 through MM GHG-3) would also be applied to Alternative 3. Lease measures LM AQ-1 and LM AQ-2 would also be applied.

Table 3.6-13 presents amortized annual GHG emissions associated with construction of Alternative 3, following application of quantifiable mitigation measures. Table 3.6-14 presents the combined amortized annual GHG emissions associated with construction and annual GHG emissions associated with operational activities, following mitigation.

Residual Impacts

GHG emissions from construction and operation of Alternative 3 would be reduced but would remain significant and unavoidable under CEQA for all analysis years.

Table 3.6-13: Construction GHG Emissions With Mitigation – Alternative 3 (mty)

Source Category	CO_2e
Construction Year 2015	
Off-road Construction Equipment Exhaust	1,593
Marine Source Exhaust	691
On-road Construction Vehicles	450
Worker Vehicles	30
Total Construction Year 2015	2,764

Table 3.6-13: Construction GHG Emissions With Mitigation – Alternative 3 (mty)

Source Category	CO_2e
Construction Year 2016	
Off-road Construction Equipment Exhaust	862
Marine Source Exhaust	0
On-road Construction Vehicles	51
Worker Vehicles	20
Total Construction Year 2016	933
Amortized Construction	**370**

Notes:
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

1

Table 3.6-14: Construction and Operational GHG Emissions with Mitigation – Alternative 3 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Amortized Construction					**370**
Year 2017					
Ships - Transit and Anchoring	59,837	2	3	-	60,833
Ships - Hoteling	6,767	0	0	-	6,919
AMP Electricity Use	4,179	0	0	-	4,197
Tugboats	818	0	0	-	831
Trucks	44,189	6	2	-	44,855
Line Haul Locomotives	33,176	3	1	-	33,503
Switch Locomotives	536	0	0	-	541
Cargo Handling Equipment	10,174	0	0	-	10,221
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	178	0	0	0	693
On-terminal Electricity Use	20,558	0	0	-	20,649
Worker Vehicles	2,034	1	0	-	2,180
Total Operational Year 2017	182,446	12	7	0	185,421
Total Construction and Operations Year 2017					**185,791**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 3 Minus CEQA Baseline					35,456
Significance Threshold					10,000
Significant?					**Yes**

Table 3.6-14: Construction and Operational GHG Emissions with Mitigation – Alternative 3 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
NEPA Impacts					
NEPA Baseline Emissions					179,001
Alternative 3 Minus NEPA Baseline					6,790
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**No**
Year 2020					
Ships - Transit and Anchoring	71,494	2	4	-	72,684
Ships - Hoteling	6,944	0	1	-	7,105
AMP Electricity Use	5,395	0	0	-	5,418
Tugboats	921	0	0	-	935
Trucks	50,449	6	2	-	51,209
Line Haul Locomotives	38,365	3	1	-	38,743
Switch Locomotives	620	0	0	-	626
Cargo Handling Equipment	11,746	0	0	-	11,800
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	206	0	0	0	801
On-terminal Electricity Use	23,774	0	0	-	23,879
Worker Vehicles	2,070	1	0	-	2,236
Total Operational Year 2020	211,985	13	8	0	215,436
Total Construction and Operations Year 2020					**215,806**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 3 Minus CEQA Baseline					65,471
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					190,443
Alternative 3 Minus NEPA Baseline					25,363
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**Yes**
Year 2026					
Ships - Transit and Anchoring	72,060	2	4	-	73,259
Ships - Hoteling	6,403	0	0	-	6,556
AMP Electricity Use	6,527	0	0	-	6,555
Tugboats	921	0	0	-	935
Trucks	57,797	7	2	-	58,678
Line Haul Locomotives	45,981	4	1	-	46,434
Switch Locomotives	743	0	0	-	750
Cargo Handling Equipment	14,053	0	0	-	14,117

Table 3.6-14: Construction and Operational GHG Emissions with Mitigation – Alternative 3 (mty)

Source Category	CO_2	CH_4	N_2O	R404A	CO_2e
Transportation Refrigeration Units (engine exhaust and refrigeration losses)	247	0	0	0	960
On-terminal Electricity Use	28,494	1	0	-	28,619
Worker Vehicles	2,208	1	1	-	2,399
Total Operational Year 2026	235,433	15	9	0	239,262
Total Construction and Operations Year 2026					**239,632**
CEQA Impacts					
CEQA Baseline Emissions					150,335
Alternative 3 Minus CEQA Baseline					89,297
Significance Threshold					10,000
Significant?					**Yes**
NEPA Impacts					
NEPA Baseline Emissions					209,272
Alternative 3 Minus NEPA Baseline					30,360
CEQ Reference Level					25,000
Exceeds CEQ Reference Level?					**Yes**

Notes:
Amortized construction emissions are the same as those presented in Table 3.6-13.
Emissions might not add precisely because of rounding. For more explanation, refer to the discussion in Section 3.2.4.1. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.
Construction emissions are amortized over the life of the proposed Project (10 years) and added to each year of operational emissions.

NEPA Impact Determination

Alternative 3 GHG emissions minus the NEPA baseline would exceed CEQ reference level. As under the proposed Project, a significance determination regarding GHG emissions is not made under NEPA for Alternative 3.

Mitigation Measures

Mitigation measures MM AQ-1, MM AQ-5, MM AQ-9, MM AQ-10, MM GHG-1 through MM GHG-3, as well as lease measures LM AQ-1 and LM AQ-2 were applied.

Residual Impacts

GHG emissions from construction and operation of Alternative 3 would be reduced. An impact determination is not applicable under NEPA.

Impact GHG-2: Alternative 3 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions and climate change impacts.

Alternative 3 would be consistent with federal, state, and local legislation, regulations, plans, and policies described in Section 3.6.3, Applicable Regulations. Alternative 3 would, therefore, not conflict with GHG emission reduction plans, policies, and regulations. In addition, as discussed under the proposed project scenario, the decision to harden sea armoring is not warranted for the YTI Terminal.

CEQA Impact Determination

Given the analysis above, Alternative 3 would not conflict with state and local plans and policies adopted for the purpose of reducing GHG emissions and climate change impacts.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

As under the proposed Project, a significance determination regarding GHG emissions is not made under NEPA for Alternative 3.

Mitigation Measures

Mitigation measures are not applicable.

Residual Impacts

An impact determination is not applicable.

3.6.4.7 Summary of Impact Determinations

Table 3.6-15 provides a summary of the impact determinations of the proposed Project and alternatives related to GHGs and climate change. This table allows easy comparison of the potential impacts of the proposed Project and alternatives.

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

Table 3.6-15: Summary Matrix of Impacts and Mitigation Measures for GHG Associated with the Proposed Project and Alternatives

Alternative	Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Proposed Project	**GHG-1**: The proposed Project would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	**MM AQ-1.** Crane Delivery Ships Used during Construction. **MM AQ-5**. Dredging Equipment. **MM AQ-9**. Vessel Speed Reduction Program. **MM AQ-10**. Alternative Maritime Power **MM GHG-1**. Energy Audit. **MM GHG-2.** LED Lighting. **MM GHG-3.** Recycling.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
	GHG-2: The proposed Project would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation measures are not applicable	NEPA: Not applicable
Alternative 1 – No Project	**GHG-1**: Alternative 1 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	No mitigation is required.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
	GHG-2: Alternative 1 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable

Table 3.6-15: Summary Matrix of Impacts and Mitigation Measures for GHG Associated with the Proposed Project and Alternatives

Alternative	Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Alternative 2 – No Federal Action	**GHG-1**: Alternative 2 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	**MM AQ-9**. Vessel Speed Reduction Program. **MM AQ-10**. Alternative Maritime Power **MM GHG-1**. Energy Audit. **MM GHG-2**. LED Lighting. **MM GHG-3**. Recycling.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
	GHG-2: Alternative 2 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable
Alternative 3 – Reduced Project: Improve Berths 217–220 Only	**GHG-1**: Alternative 3 would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO_2e threshold.	CEQA: Significant	**MM AQ-1**. Crane Delivery Ships Used during Construction.	CEQA: Significant and Unavoidable
		NEPA: Not applicable	**MM AQ-5**. Dredging Equipment. **MM AQ-9**. Vessel Speed Reduction Program. **MM AQ-10**. Alternative Maritime Power **MM GHG-1**. Energy Audit. **MM GHG-2**. LED Lighting. **MM GHG-3**. Recycling.	NEPA: Not applicable
	GHG-2: Alternative 3 would not conflict with state or local plans and policies adopted for the purpose of reducing GHG emissions.	CEQA: Less than significant	No mitigation is required.	CEQA: Less than significant
		NEPA: Not applicable	Mitigation not applicable	NEPA: Not applicable

3.6.4.8 Mitigation Monitoring

The mitigation monitoring program below is applicable to the proposed Project under CEQA and NEPA. Air quality mitigation measures that also reduce GHG emissions are addressed in Section 3.2.4.8, Air Quality and Meteorology/Mitigation Monitoring, and are summarized here.

GHG-1: The proposed Project would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO2e threshold.	
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	Prior to and during construction and throughout operation.
Methodology	The Tenant and/or its contractor(s) will be required to include MM AQ-1 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	LAHD and/or its contractor(s).
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.
Mitigation Measure	**MM AQ-5: Dredging Equipment.** All dredging equipment must be electric.
Timing	Prior to and during construction and throughout operation.
Methodology	The Tenant and/or its contractor(s) will be required to include MM AQ-5 in the contract specifications for construction. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	LAHD and/or its contractor(s).
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.
Mitigation Measure	**MM AQ-9: Vessel Speed Reduction.** 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	Prior to and during construction and throughout operation.
Methodology	LAHD will require MM AQ-9 in the Tenant lease during operation. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	Tenant.
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.

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	Prior to and during construction and throughout operation.
Methodology	LAHD will require MM AQ-10 in the Tenant lease during operation. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	Tenant.
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.
Mitigation Measure	**MM GHG-1: Energy Audit.** The tenant will conduct an energy audit by a third party of its choice every five years and install innovative power-saving technology (1) where it is feasible; and (2) where the amount of savings would be reasonably sufficient to cover the costs of implementation.
Timing	Prior to and during construction and throughout operation.
Methodology	LAHD will require MM GHG-1 in the Tenant lease during operation. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	Tenant.
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.
Mitigation Measure	**MM GHG-2: LED Lighting.** When existing light bulbs require replacement, all bulbs within the interior of buildings on the premises will be replaced exclusively with LED light bulbs or a technology with similar energy-saving capabilities for ambient lighting within all terminal buildings. The tenant will also maintain and replace any Port-supplied LED light bulbs.
Timing	Prior to and during construction and throughout operation.
Methodology	LAHD will require MM GHG-1 in the Tenant lease during operation. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	Tenant.
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.
Mitigation Measure	**MM GHG-3: Recycling.** The tenant will ensure that a minimum of 60% of all waste generated in all terminal buildings is recycled by 2017.
Timing	Prior to and during construction and throughout operation.
Methodology	LAHD will require MM GHG-3 in the Tenant lease during operation. LAHD will monitor implementation of mitigation measures during construction and operation.
Responsible Parties	Tenant.
Residual Impacts	Significant and unavoidable after mitigation for construction and operational GHG emissions.

3.6.5 Significant Unavoidable Impacts

Construction and operational GHG emissions under Impact GHG-1 would be significant and unavoidable after mitigation under CEQA for the proposed Project and all alternatives.