3.2

AIR QUALITY AND METEOROLOGY

3.2.1 Introduction

3.2.2 Environmental Setting

3.2.2.2 Air Pollutants and Air Monitoring

Criteria Pollutants

Local Air Monitoring Levels

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

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

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

Pollutant	*Adverse Effects*
Suspended Particulate Matter ($PM_{2.5}$)	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma) a
Lead [b]	(a) Increased body burden; (b) impairment of blood formation and nerve conduction, and neurotoxin.
Sulfates [c]	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardiopulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage

Source: (SCAQMD 2006a).

[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: OEHHA, *Particulate Matter Health Effects and Standard Recommendations* (www.oehha.ca.gov/air/toxic_contaminants/PM_{10}notice.html#may), May 9, 2002; and U.S. EPA, *Air Quality Criteria for Particulate Matter*, October 2004.

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

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

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

Generally, concentrations of photochemical smog, or O_3, are highest during the summer months and coincide with the season of maximum solar insolation. Inert pollutant concentrations, such as CO, tend to be the greatest during the winter months and are a product of light wind conditions and surface-based temperature inversions that are frequent this time of year. These conditions limit atmospheric dispersion. However, in the case of PM_{10} impacts from fugitive dust sources, maximum dust impacts may occur during high wind events and/or in proximity to man-made ground-disturbing activities, such as vehicular activities on roads and earth moving during construction activities.

Table 3.2-2. Maximum Pollutant Concentrations Measured at the North Long Beach Monitoring Station

Pollutant	*Averaging Period*	*National Standard*	*State Standard*	HIGHEST MONITORED CONCENTRATION			
				2002	*2003*	*2004*	*2005*
Ozone (ppm)	1 hour	n/a	0.09	0.084	**0.099** [a]	0.090	0.091
	8 hours	0.08	0.07	0.064	0.068	0.074	0.068
CO (ppm)	1 hour	35	20	5.8	5.5	4.2	5.0
	8 hours	9	9	4.6	4.7	3.4	3.7
NO_2 (ppm)	1 hour	n/a	0.18	0.13	0.14	0.12	0.12
	Annual	0.053	0.03	0.029	0.029	0.028	0.024
SO_2 (ppm)	1 hour	n/a	0.25	0.03	not avail.	not avail.	0.04
	24 hours	0.14	0.04	0.008	0.008	0.013	0.010
	Annual	0.03	n/a	0.002	0.002	0.005	0.002

Table 3.2-2. Maximum Pollutant Concentrations Measured at the North Long Beach Monitoring Station (continued)

Pollutant	Averaging Period	National Standard	State Standard	Highest Monitored Concentration			
				2002	2003	2004	2005
PM_{10} ($\mu g/m^3$)	24 hours	150	50	**74** [b]	**63** [b]	**72** [b]	**66** [b]
	Annual	n/a	20	35.9	32.8	33.1	29.7
$PM_{2.5}$ ($\mu g/m^3$)	24 hours	35	n/a	**62.7** [c]	**115.2** [c]	**66.6** [c]	**53.8** [c]
	Annual	15	12	**19.5**	**18.0**	**17.8**	**16.0**
Lead ($\mu g/m^3$)	30 days	n/a	1.5	0.03	not avail.	not avail.	not avail.
	Calendar quarter	1.5	n/a	0.02	not avail.	not avail.	not avail.
Sulfates ($\mu g/m^3$)	24 hours	n/a	25	17.8	not avail.	not avail.	not avail.

Notes:

Exceedances of the standards are highlighted in bold. Although the NAAQS were not exceeded at the North Long Beach Monitoring Station for carbon monoxide and PM_{10} from 2002 to 2005, the South Coast Air Basin is classified by USEPA as nonattainment for these pollutants because violations have occurred at other monitoring stations in the Basin.

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

b The state 24-hour PM_{10} standard was exceeded on 5 of 58 (9 percent) sampled days in 2002, 4 of 61 (7 percent) sampled days in 2003, and 2 of 57 (4 percent) sampled days in 2004. The number of 24-hour PM_{10} exceedances in 2005 is not available. The national 24-hour PM_{10} standard was not exceeded.

[c] The number of 24-hour $PM_{2.5}$ exceedances is not available.

Sources: (SCAQMD 2006c), (CARB 2006a), and (USEPA 2006).

µg/m3 micrograms per cubic meter

ppm parts per million

Greenhouse Gas Emissions

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

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the Earth's surface would be about 61°F cooler (AEP, 2007). However, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. According to the Intergovernmental Panel on Climate Change (IPCC) (IPCC 2007), the atmospheric concentration of CO2 in 2005 was 379 ppm compared to the pre-industrial levels of 280 ppm. In addition, The Fourth U.S. Climate Action Report concluded, in assessing current trends, that carbon dioxide emissions increased by 20 percent from 1990-2004, while methane and nitrous oxide emissions decreased by 10 percent and 2 percent, respectively. There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures. For example, the California Climate Change Center reports that by the end of this century, temperatures are expected to rise by 4.7 to 10.5°F due to increased GHG emissions. Scientific evidence indicates a trend of increasing global temperatures near the earth's surface over the past century due to increased human induced levels of GHGs.

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees (IPCC, 2001). Other, longer term environmental impacts of global warming may include sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack (for example, estimates include a 30-90% reduction in snowpack in the Sierra Mountains). Current data suggests that in the next 25 years, in every season of the year, California would experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, the California Climate Change Center (2006) predicted that California could witness the following events:

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

Sustainability and Port Climate Action Plan

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

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

The Port, as a Department of the City of Los Angeles and as a Port associated with a major City, is a participant in Clinton Climate Initiative as a C40 City. The Port is also a signatory to the State's Sustainable Goods Movement Program, and is participating in the University of Southern California Sustainable Cities Program, which is looking at GHGs associated with international goods movement.

3.2.2.4 Existing Emissions at the Berths 136-147 Terminal

Table 3.2-4. Average Daily Emissions Associated with Baseline Operations at the Berths 136-147 Terminal - Year 2003

Activity	POUNDS PER DAY					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Ships – Fairway Transit	65	151	1,949	1,145	163	153
Ships – Precautionary Area Transit	10	23	240	152	21	19
Ships – Harbor Transit	18	23	169	87	17	16
Ships – Docking	6	6	47	21	5	5
Ships – Hoteling Sources	32	120	1,146	1,142	98	92
Tugs – Cargo Vessel Assist	1	6	42	3	2	2
Terminal Equipment	93	337	1,198	16	55	50
On-Road Trucks	827	2,974	6,666	44	595	433
Trains (Off-site)	100	208	1,738	111	52	48
Rail Yard Equipment (Off-site)	17	63	202	3	10	9
Worker Commuter Vehicles	12	160	20	0	12	11
Pier A Rail Yard	4	6	55	1	1	1
Total Daily Emissions - Pounds	1,185	4,077	13,472	2,724	1,022	831

Table 3.2-5. Peak Daily Emissions Associated with Baseline Operations at the Berths 136-147 Terminal

Activity	POUNDS PER DAY					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Sources	57	208	2,019	1,975	173	162
Tugs – Cargo Vessel Assist	5	24	156	10	6	6
Terminal Equipment	542	1,969	7,008	92	320	294
On-Road Trucks	1,132	4,071	9,126	61	814	593
Trains (Off-site)	100	208	1,737	111	52	48
Rail Yard Equipment (Off-site)	17	63	202	3	10	9
Worker Commuter Vehicles	12	160	20	0	12	11
Pier A Rail Yard (Off-site)	4	6	55	1	1	1
Total Daily Emissions – Pounds	1,977	6,935	23,010	3,851	1,607	1,329

3.2.3 Applicable Regulations

3.2.3.1 Federal Regulations

Emission Standards for On-Road Trucks

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

General Conformity Rule

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

Based on the present attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$, 70 tons of PM_{10}, or 25 tons of NO_x or VOCs. The United States Court of Appeals ruled in December 2006 that areas in nonattainment of the 1-hour O_3 NAAQS that were superseded by the 8-hour nonattainment classifications must also consider the 1-hour requirements in conformity analyses (*South Coast Air Quality Management District v. EPA, et al.*, 472 F.3d 882) (U.S. Court of Appeals, District of Columbia Circuit 2006). Hence, to conform to the SIP in the SCAB, a federal action also would have to comply with annual de minimis thresholds of 10 tons of NO_x or VOCs, as the SCAB was in extreme nonattainment of the 1-hour O_3 NAAQS. These de minimis thresholds apply to both proposed construction and operational activities. (For proposed Project operations, the thresholds are compared to the net change in emissions relative to the No Federal Action/NEPA Baseline.) If the proposed action exceeds one or more of the de minimis thresholds, a more rigorous conformity determination is the next step in the conformity evaluation process. SCAQMD Rule 1901 adopts the guidelines of the General Conformity Rule.

Conformity Statement

The Port of Los Angeles regularly provides SCAG with its Portwide cargo forecasts for development of the AQMPs. Cargo projections from Port activities have been included in the Regional Transportation Plan (RTP) of the Municipal Planning Organization (MPO) and thus were included in the most recently EPA-approved 1997/1999 SIP and the 2003 SIP, should USEPA approve this. These same projections have also been included in the more recent 2007 RTP and SIP, which

would be also be submitted for USEPA approval. This has been acknowledged by the SCAG, which is the region's MPO. Additionally an analysis has been done pursuant to 40CFR 93 S153 which determined that the proposed Project criteria emissions are de minimis, as they are less than 10 percent of both the 1997 and 2006 TRP. As such, a General Conformity Determination is not required for the proposed Project. ~~Therefore, the attainment demonstrations included in the 2003 AQMP and Draft Final 2007 AQMP account for the emissions generated by projected future growth at the Port. Because one objective of the proposed Project is to accommodate growth in cargo throughput at the Port, the AQMP accounts for the Project and conforms to the SIP. The SCAQMD Governing Board approved the 2007 Draft Final AQMP on June 1, 2007. The plan now must be approved by the CARB and submitted to EPA for its review and approval.~~

3.2.4 Impacts and Mitigation Measures

3.2.4.1 Methodology

3.2.4.1.1 CEQA Baseline

3.2.4.1.2 NEPA Baseline

For purposes of this Draft EIS/EIR, the evaluation of significance under NEPA is defined by comparing the proposed Project or other alternative to the No Federal Action scenario. The No Federal Action/NEPA Baseline condition for determining significance of impacts coincides with the "No Federal Action" condition, which is defined by examining the full range of construction and operational activities the applicant could implement and is likely to implement absent permits from the USACE. Therefore, the No Federal Action/NEPA Baseline would not include any dredging, filling of the Northwest Slip, wharf construction or upgrades, or crane replacement. The No Federal Action/NEPA Baseline would include construction and operation of all upland elements (existing lands) for backlands or other purposes. Table 3.2-7 summarizes the daily emissions for each construction activity that would occur at the Berths 136-147 Terminal under the No Federal Action/NEPA Baseline scenario. The upland elements are assumed to include:

- Adding 57 acres or existing land for backland area and an on-dock rail yard;
- Constructing a 500-space parking lot for union workers;
- Demolishing the existing administration building and constructing a new LEED-certified administration building and other terminal buildings;
- Adding new lighting and replacing existing lighting, fencing, paving, and utilities on the backlands;
- Relocating the Pier A rail yard and constructing the new on-dock rail yard;
- Widening and realigning Harry Bridges Boulevard; and
- Developing the Harry Bridges Buffer Area.

Unlike the CEQA Baseline, which is defined by conditions at a point in time, the No Federal Action/NEPA Baseline is not bound by statute to a "flat" or "no growth" scenario; therefore, the USACE may project increases in operations over the life of a

project to properly analyze the No Federal Action/NEPA Baseline condition. Unlike the CEQA Baseline, the No Federal Action/NEPA Baseline would include the implementation of applicable CAAP measures with time. Normally, any ultimate permit decision would focus on direct impacts 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. Significance of the proposed Project or alternative is defined by comparing the proposed Project or alternative to the No Federal Action/NEPA Baseline (i.e., the increment). The No Federal Action/NEPA Baseline conditions are described in Table 2-2 of Section 2.4.

The No Federal Action/NEPA Baseline also differs from the "No Project" Alternative, where the Port would take no further action to construct and develop additional backlands (other than the 176 acres that currently exist). Under this alternative, no construction impacts would occur. However, forecasted increases in cargo throughput would still occur as greater operational efficiencies are made.

Table 3.2-8 summarizes the annual average daily emissions associated with operations at the Berths 136-147 Terminal under the No Federal Action/NEPA Baseline scenario for Project years ~~2007~~2008, 2015, 2025, and 2038. Table 3.2-9 presents peak daily operational emissions associated with the No Federal Action/NEPA Baseline. A comparison of these emissions to peak daily emissions for the Project Alternatives is also presented as part of the air quality analysis to determine NEPA significance. Emission estimates followed the methods presented in Sections 3.2.2.5 and 3.2.4.3.

Table 3.2-7. Daily Emissions from Construction Activities Associated with the No Federal Action/NEPA Baseline

Construction Project/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
78-Acre Backland Improvements at Berths 142-147						
Building Demolition	12	43	116	0	42	12
Backland Improvements	15	58	147	0	87	23
Construct New Administration Building, Main Gate, and Worker Parking Lot						
Construct Administration Building	6	23	41	0	16	5
Construct New Main Gate	2	8	17	0	28	7
Improve Demolished Areas and Parking	15	58	147	0	74	20
Demolish Existing Admin. Building/Gate	12	43	116	0	42	12
Construct New Maintenance and Repair Facility						
Construct Maintenance/Repair Facility	7	26	47	0	43	11
Improve Demolished Areas and M & R	15	58	147	0	74	20
Demolish Existing M & R Facility	12	43	116	0	42	12
Harry Bridges Blvd. Realignment						
Street Removals	17	64	154	0	34	12
Street Improvements	37	202	415	0	31	19
Sewer Installation	4	16	34	0	2	2
Water Systems Installation	4	16	34	0	2	2
Storm Drain Installation	8	32	71	0	4	3
Construct a 46-Acre Rail Yard at Berth 200	21	66	139	0	62	18
9 Acres of Backland Imp. at Berths 134-135	15	58	147	0	60	17
Construct the Berths 142-147 12-Acre ICTF and 19-Acre Backlands						
Rail Track Removal	6	21	54	0	2	2
Rail Yard Construction	21	66	139	0	62	18
Backland Improvements	15	58	147	0	87	23
Construct Harry Bridges Blvd. Buffer						
Landscape Installation	11	39	81	0	32	11
Grading/Earthmoving	21	83	191	0	116	31
Worker Commuter Vehicles	3	35	3	0	21	20
Peak Daily Emissions (1) (2)	**111**	494	**983**	1	**380**	**120**
Mitigated Peak Daily Emissions	56	262	**783**	1	**171**	**65**
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**	**55**

Notes: (1) Peak daily construction emissions of all pollutants except $PM_{10}/PM_{2.5}$ would occur from: (a) 78-acres of backland improvements at Berths 142-147, (b) construction of a new administration building, (c) construction of new maintenance and repair facility, (d) street improvements at the Harry Bridges Blvd (HBB) realignment, (e) construction of a 46-Acre rail yard at berth 200, (f) grading/earthmoving at Harry Bridges Blvd. Buffer, and (g) commuting of workers. However, this is an overestimation, as all equipment during these activities would not operate together in the same day.

(2) Peak daily construction emissions of $PM_{10}/PM_{2.5}$ 0 would occur from the same set of activities as above with one exception: instead of street improvements at the HBB realignment, street removals at the HBB realignment would be a contributor.

Table 3.2-8. Average Daily Operational Emissions Associated with the No Federal Action Baseline Scenario

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	77	179	2,288	1,344	192	180
Ships – Precautionary Area Transit	14	30	304	189	26	25
Ships – Harbor Transit	22	28	209	106	21	20
Ships – Docking	8	7	58	26	6	6
Ships – Hoteling Aux. Sources	41	147	1,451	1,393	124	116
Tugs – Cargo Vessel Assist	2	12	77	0	3	3
Terminal Equipment	118	430	1,374	1	59	54
On-road Trucks	676	2,167	6,599	6	444	269
Trains	106	247	1,475	131	56	51
Railyard Equipment	21	80	229	0	10	9
Worker Commutes	10	140	18	0	15	14
PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,099**	**3,475**	**14,136**	**3,197**	**958**	**748**
Project Year 2015						
Ships – Fairway Transit	20	144	1,081	65	23	22
Ships – Precautionary Area Transit	6	42	292	43	7	6
Ships – Harbor Transit	9	39	240	32	6	6
Ships – Docking	3	11	66	8	2	2
Ships – Hoteling Aux. Sources	16	92	551	746	28	26
Tugs – Cargo Vessel Assist	3	15	79	0	3	3
Terminal Equipment	69	516	77	1	4	4
On-road Trucks	176	620	1,544	9	255	71
Trains	102	280	1,408	1	37	34
Railyard Equipment	9	102	9	0	0	0
Worker Commutes	12	161	21	0	22	21
PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**428**	**2,031**	**5,399**	**906**	**388**	**195**
Project Year 2025						
Ships – Fairway Transit	23	161	1,136	67	25	23
Ships – Precautionary Area Transit	7	47	314	41	7	7
Ships – Harbor Transit	11	45	279	31	7	6
Ships – Docking	3	12	77	8	2	2
Ships – Hoteling Aux. Sources	5	66	176	772	22	20
Tugs – Cargo Vessel Assist	2	13	59	0	3	2
Terminal Equipment	28	561	88	1	4	4
On-road Trucks	151	534	1,347	8	220	61
Trains	124	406	1,781	1	45	41
Railyard Equipment	14	148	14	0	1	1
Worker Commutes	8	109	14	0	24	22
PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**380**	**2,112**	**5,290**	**930**	**359**	**191**

Table 3.2-8. Average Daily Operational Emissions Associated with the No Federal Action Baseline Scenario (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2038						
Ships – Fairway Transit	23	161	1,136	67	25	23
Ships – Precautionary Area Transit	7	47	314	41	7	7
Ships – Harbor Transit	11	45	279	31	7	6
Ships – Docking	3	12	77	8	2	2
Ships – Hoteling Aux. Sources	5	66	176	772	22	20
Tugs – Cargo Vessel Assist	2	13	53	0	2	2
Terminal Equipment	39	787	123	2	6	6
On-road Trucks	155	533	1,363	8	218	59
Trains	106	406	1,559	1	37	34
Railyard Equipment	14	148	14	0	1	1
Worker Commutes	4	50	5	0	30	28
PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**373**	**2,278**	**5,104**	**930**	**357**	**189**

Table 3.2-9. Peak Daily Operational Emissions Associated with the No Federal Action/NEPA Baseline Scenario

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Aux. Sources	78	267	2,789	2,468	236	221
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	688	2,511	8,024	5	345	318
On-road Trucks	925	2,967	9,034	8	607	368
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commutes	10	140	18	0	15	14
PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,927**	**6,417**	**24,193**	**4,191**	**1,498**	**1,195**
Project Year 2015						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	20	135	684	1,222	42	39
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	332	2,498	374	5	19	17

Table 3.2-9. Peak Daily Operational Emissions Associated with the No Federal Action/NEPA Baseline Scenario (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2015(continued)						
On-road Trucks	241	849	2,114	12	349	98
Trains	119	326	1,636	1	43	40
Railyard Equipment	2	24	2	0	0	0
Worker Commutes	12	161	21	0	22	21
PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**804**	**4,461**	**7,754**	**1,453**	**542**	**277**
Project Year 2025						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	105	0	5	4
Terminal Equipment	114	2,307	362	5	18	17
On-road Trucks	207	731	1,845	10	301	83
Trains	100	326	1,429	1	36	33
Railyard Equipment	11	120	11	0	1	1
Worker Commutes	8	109	14	0	24	22
PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**527**	**4,163**	**6,811**	**1,426**	**479**	**249**
Project Year 2038						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	114	2,307	362	5	18	17
On-road Trucks	213	729	1,866	11	298	81
Trains	85	326	1,251	1	30	27
Railyard Equipment	11	120	11	0	1	1
Worker Commutes	4	50	5	0	30	28
PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**513**	**4,102**	**6,634**	**1,426**	**476**	**246**

Table 3.2-10 summarizes the total GHG construction emissions associated with the No Federal Action Baseline. The emissions are totaled over the entire multiple-year construction period. The construction sources for which GHG emissions were calculated include off-road diesel equipment, on-road trucks, and marine cargo vessels used to deliver equipment to the site, and worker commute vehicles.

Table 3.2-10. Total GHG Emissions from Berths 136-147 Terminal Construction Activities – No Federal Action Baseline

Construction Activity	TOTAL EMISSIONS (METRIC TONS)			
	CO_2	CH_4	N_2O	CO_2e
89 Acres of Backland Improvement at Berths 142-147	392	0.05	0.01	395
Construct a New Admin. Bldg, Main Gate, and Worker Parking Lot	217	0.03	0.00	219
Construct a New Maintenance and Repair Facility-Berths 136-147	300	0.05	0.00	303
Harry Bridges Blvd. Realignment	447	0.05	0.01	451
Construction of a 46-Acre Rail Yard at Berth 200	1,410	0.17	0.03	1,422
5 Acres of Backland Improvements at Berths 134-135	19	0.00	0.00	19
Construction of B142-147 12-Acre ICTF and 19-Acre Backlands	548	0.07	0.01	553
Construction of Harry Bridges Blvd. Buffer	1,198	0.17	0.02	1,207
Worker Vehicles	857	0.14	0.14	902
Total Emissions	**5,388**	**0.73**	**0.21**	**5,469**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

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

Table 3.2-11 presents annual GHG operational emissions associated with the No Federal Action Baseline for project years ~~2007~~2008, 2015, 2025, and 2038. The emission sources for which GHG emission were calculated include ships, tugboats, diesel terminal and railyard equipment, on-road trucks, trains, fugitive refrigerant losses from reefers, AMP electricity usage, on-terminal electricity usage, and worker commute vehicles. These GHG emissions are compared to the emissions for the proposed Project and alternatives to determine NEPA impacts. The emission estimates followed the methods presented in Section 3.2.4.3.2.

Table 3.2-11. Annual Operational GHG Emissions - Berths 136-147 Terminal — No Federal Action Baseline

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	CH_4	N_2O	HFC-125	HFC-134a	HFC-143a	CO_2e
Year ~~2007~~2008							
Ships	78,788	10.4	0.7				79,224
Tugboats	717	0.1	0.0				721
Terminal & Railyard Equipment	19,889	3.2	0.2				20,028
Trucks	224,934	11.3	5.6				226,917
Trains	38,873	5.4	0.4				39,106
Reefer Refrigerant Losses				0.06	0.13	0.07	571
AMP Usage	0	0.0	0.0				0
On-Terminal Electricity Usage	4,467	0.0	0.0				4,475
Worker Vehicles	1,349	0.2	0.2				1,420
Year ~~2007~~2008 Total	**369,017**	**30.7**	**7.2**	**0.06**	**0.13**	**0.07**	**372,462**

Table 3.2-11. Annual Operational GHG Emissions - Berths 136-147 Terminal — No Federal Action Baseline (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	CH_4	N_2O	HFC-125	HFC-134a	HFC-143a	CO_2e
Year 2015							
Ships	49,184	6.7	0.5				49,471
Tugboats	854	0.1	0.0				859
Terminal & Railyard Equipment	27,147	4.4	0.3				27,338
Trucks	359,790	17.7	8.8				362,902
Trains	42,576	5.9	0.4				42,832
Reefer Refrigerant Losses				0.08	0.18	0.09	806
AMP Usage	6,710	0.1	0.0				6,720
On-Terminal Electricity Usage	6,308	0.1	0.0				6,318
Worker Vehicles	1,649	0.2	0.2				1,730
Year 2015 Total	**494,217**	**35.2**	**10.4**	**0.08**	**0.18**	**0.09**	**498,977**
Year 2025							
Ships	50,377	6.9	0.5				50,671
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	31,842	5.2	0.4				32,066
Trucks	306,195	14.8	7.4				308,798
Trains	61,799	8.6	0.6				62,170
Reefer Refrigerant Losses				0.09	0.21	0.10	917
AMP Usage	10,371	0.1	0.0				10,387
On-Terminal Electricity Usage	7,180	0.1	0.0				7,192
Worker Vehicles	1,664	0.2	0.2				1,744
Year 2025 Total	**470,192**	**35.9**	**9.2**	**0.09**	**0.21**	**0.10**	**474,715**
Year 2038							
Ships	50,377	6.9	0.5				50,671
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	31,842	5.2	0.4				32,066
Trucks	306,195	14.8	7.4				308,798
Trains	61,799	8.6	0.6				62,170
Reefer Refrigerant Losses				0.09	0.21	0.10	917
AMP Usage	10,371	0.1	0.0				10,387
On-Terminal Electricity Usage	7,180	0.1	0.0				7,192
Worker Vehicles	1,697	0.2	0.2				1,777
Year 2038 Total	**470,225**	**35.9**	**9.2**	**0.09**	**0.21**	**0.10**	**474,748**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

3.2.4.2 Thresholds of Significance

3.2.4.3 Proposed Project Emissions

3.2.4.3.1 Construction

The proposed Project start year was identified as 2007 in Chapter 3.2 of the Draft EIS/EIR. Due to delays in Project approval, the start year has been changed to 2008, consistent with the construction schedule reported in Chapter 2 and the lease term (2008-2038). This Final EIS/EIR does not update proposed Project construction emission estimates, as Project emission for 2008 are expected to be essentially the same or slightly lower compared to those estimated for the proposed Project in year 2007 for the following reasons: (1) all Project vehicle fleets except vessels would have an additional year to turn over to vehicles with newer and cleaner emission standards, (2) proposed construction scenarios remain the same, and (3) mitigation measures remain the same or become more aggressive.

Table 3.2-16. Regulations and Agreements Assumed in the Construction Emissions

Off-Road Construction Equipment	*On-Road Trucks*	*Tugboats*	*General Cargo Ships*	*Fugitive Dust*
Emission Standards for Non-road Diesel Engines – Gradual annual phase-in of Tier 1, 2, 3, and 4 standards due to normal construction equipment fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur starting September 2006.	**Emission Standards for On-road Trucks** – Gradual annual phase-in of tiered standards due to normal truck fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur starting September 2006.	**California Diesel Fuel Regulations** – 500-ppm sulfur starting January 2006 and 15-ppm sulfur starting September 2006.	No regulations or agreements are assumed to affect unmitigated emissions from cargo ships that deliver cranes during Project construction.	**SCAQMD Rule 403 Compliance** – 75 percent reduction in fugitive dust emissions to simulate Rule compliance.
Note: This table is not a comprehensive list of all applicable regulations; rather, the table lists key regulations and agreements that substantially affect the Project construction emission calculations. A description of each regulation or agreement is provided in Section 3.2.3.				

3.2.4.3.2 Operations

The proposed Project start year was identified as 2007 in Chapter 3.2 of the Draft EIS/EIR. Due to delays in project approval, the start year has been changed to 2008, consistent with the construction schedule reported in Chapter 2 and the lease term (2008-2038). This Final EIS/EIR does not update operational emission estimates for Project year 1, as Project emissions for 2008 are expected to be essentially the same or slightly lower compared to those estimated for the proposed Project in year 2007 for the following reasons: (1) all Project vehicle fleets except vessels would have an additional year to turn over to vehicles with newer and cleaner emission standards, (2) proposed Project throughput does not increase between 2007 and 2008 due to lack of terminal upgrades, (3) operational scenarios remain the same, and (4) mitigation measures remain the same or become more aggressive.

Emissions were estimated for proposed Project milestone development years of ~~2007~~2008, 2015, 2025, and 2038. For the proposed Project and each Project

Alternative, the following emission comparisons were made to assess operational air quality impacts:

- Project Alternative emissions for each year minus Berths 136-147 existing emissions in year 2003 were compared to the SCAQMD emission thresholds to determine CEQA significance. A comparison was done for both average daily and peak daily emissions.
- Project Alternative emissions for each year minus the NEPA Baseline emissions for the same year were compared to SCAQMD emission thresholds to determine NEPA significance. A comparison was done for both average daily and peak daily emissions.

Table 3.2-17 includes a synopsis of the regulations that were assumed in the emission calculations for Project operations. Regulations are not treated as mitigation measures, but rather as part of the Project because they represent enforceable rules with or without Project approval. Only currently adopted regulations and agreements were assumed in the Project emission calculations.

The following describes the specific approaches used to calculate emissions for the various operational emission sources associated with the Project Alternatives. Appendix D1 documents data used to estimate emissions from each Project Alternative.

Greenhouse Gases

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

Construction

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

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

Operations

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

- Ships
- Tugboats

- Terminal equipment
- Railyard equipment
- On-road trucks
- Trains
- Fugitive HFC emissions from refers
- AMP electricity consumption (for the mitigated project)
- On-terminal electricity consumption
- Worker commute vehicles

The adaptation of the General Reporting Protocol methodologies to these project-specific emission sources is described in Appendix D.1.3

GHG Operational and Geographical Boundaries

Under CCAR's General Reporting Protocol, emissions associated with project construction and operations would be divided into 3 categories:

- Scope 1: Direct emissions from sources owned or operated by the Port
- Scope 2: Indirect emissions from purchased and consumed electricity
- Scope 3: Indirect emissions from sources not owned or operated by the Port

Examples of Scope 1 sources for LAHD or the proposed Project tenant would be cargo handling equipment, LAHD vehicles, POLA-based yard locomotives (switching locomotives), and POLA-based tugboats. Scope 2 emissions would be indirect GHG emissions from electricity consumption on the terminal. Because the proposed Project tenant and/or POLA generally do not own ships, main line locomotives, trucks, and construction equipment, these mobile sources would be considered Scope 3 emissions.

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

For the purposes of this NEPA/CEQA document, GHG emissions were calculated for all Project-related sources (Scope 1, 2, and 3). Because CCAR does not require reporting of Scope 3 emissions, CCAR has not developed a protocol for determining the operational or geographical boundaries for some Scope 3 emissions sources, ~~including~~ such as ships. Therefore, for those sources that travel out of California (ships, trucks, and line haul locomotives), ~~the~~ GHG emissions were based upon the following route lengths~~that portion of their travel that is within California~~:

1. For on-road trucks, transit along the following routes: (a) between the Port and the Carson Intermodal Container Transfer Facility ("ICTF"), (b) between the Port and the Los Angeles Rail Yards, (c) the average local trip distance, and (d) the average distance between the Port and the California border for out-of-state truck trips. (See Table XX-PP-37 in Appendix D1-3).

2. For trains, transit along the following routes: (a) 250 miles between the Berths 136-147 ICTF and the eastern border of California and (b) 242 miles between the Carson/Los Angeles ICTF and the eastern border of California. (See Table XX-PP-44 in Appendix D1-3).

3. For cargo ships, ocean transit along a 170-nautical mile shipping route between the Port and the State Water's three-mile jurisdictional boundary west of Point Conception. The analysis assumed that all Project ships would follow this "northern route." The northern route represents the longest distance that container ships would travel to and from the Port while in State Waters.

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

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

3.2.4.4 Proposed Project Impacts and Mitigation

Impact AQ-1: Proposed Project construction would produce emissions that would exceed SCAQMD emission significance thresholds.

Tables 3.2-18 and 3.2-19 present the unmitigated daily air emissions that would occur from each Project Phase 1 and 2 construction activity. These data show that most of the proposed construction activities are estimated to produce emissions that would exceed the daily SCAQMD NO_x threshold of 100 pounds. Dredging and disposal and rip-rap placement would produce the greatest amounts of emissions from the proposed construction activities. The main contributors to emissions from these activities include (1) transit and hoteling of general cargo vessels during crane and sheetpiles deliveries, (2) tugboats that deliver dike rock and transport dredge sediments, (3) clamshell dredge equipment, (4) barge equipment used to place rip-rap and wharf pilings, and (5) earth-moving equipment. Fugitive dust from earth-moving activities would contribute to the majority of PM emissions during upland construction activities, while PM emissions from all other construction activities mainly would take the form of combustive DPM.

To determine the significance of proposed Project emissions based upon criterion **Impact AQ-1**, the analysis reviewed the proposed construction schedule to determine a peak daily period of activity and resulting peak daily emissions for comparison to the SCAQMD daily emission thresholds. These data are shown in Tables 3.2-18 and 3.2-19 for Phase 1 and 2 construction activities.

Table 3.2-18. Daily Emissions for Proposed Project Construction Activities – Phase 1

Construction Project/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Wharf Improvements at Berths 144-147						
Wharf Demolition	13	39	126	0	7	6
Remove 2 Existing Cranes at Berth 144	5	17	97	0	5	4
Piledriving-Sheet Piles	46	112	1,246	675	93	87
Rip-Rap Placement	34	87	667	1	35	33
Dredge and Disposal	26	95	273	0	11	10
Piledriving-Waterside Piles	10	51	118	0	5	4
Piledriving-Landside Piles	11	57	126	0	5	5
Replace Existing Wharf	36	138	335	0	14	13
Upgrade Existing Wharf	15	65	131	0	6	6
Install 3 Cranes at Berth 144	46	115	1,245	675	93	87
78-Acre Backland Improvements at Berths 142-147						
Building Demolition	12	43	116	0	42	12
Backland Improvements	15	58	147	0	87	23
Construct a New Administration Building, Main Gate, and Worker Parking Lot						
Construct Administration Building	6	23	41	0	16	5
Construct New Main Gate	2	8	17	0	28	7
Improve/Pave Demolished Areas and Parking	15	58	147	0	74	20
Demolish Existing Admin. Building/Gate	12	43	116	0	42	12
Construct a New Maintenance and Repair Facility						
Construct Maintenance and Repair Facility	7	26	47	0	43	11
Improve/Pave Demolished Areas and M & R	15	58	147	0	74	20
Demolish Existing M & R Facility	12	43	116	0	42	12
Harry Bridges Blvd. Realignment						
Street Removals	17	64	154	0	34	12
Street Improvements	37	202	415	0	31	19
Sewer Installation	4	16	34	0	2	2
Water Systems Installation	4	16	34	0	2	2
Storm Drain Installation	8	32	71	0	4	3
Construct a 46-Acre Rail Yard at Berth 200	21	66	139	0	62	18
9 Acres of Backland Improve. at Berths 134-135	15	58	147	0	60	17
Construct the Berths 142-147 12-Acre ICTF and 19-Acre Backlands						
Rail Track Removal	6	21	54	0	2	2
Rail Yard Construction	21	66	139	0	62	18
Backland Improvements	15	58	147	0	87	23
Existing Cranes Removal at Berth 136	5	17	97	0	5	4
Construct Harry Bridges Blvd. Buffer						
Landscape Installation	11	39	81	0	32	11
Grading/Earthmoving	21	83	191	0	116	31
Install Cranes at Berths 136 & 144	46	115	1,245	675	93	87
Worker Commuter Vehicles	4	49	4	0	30	28

Table 3.2-18. Daily Emissions for Proposed Project Construction Activities – Phase 1 (continued)

Construction Project/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Peak Daily Emissions – CEQA Impact (1) (2)	**126**	443	**1,845**	**676**	**424**	**161**
Mitigated Peak Daily Emissions – CEQA Impact	74	299	**1,459**	**541**	**205**	**97**
Peak Daily Emissions – NEPA Impact (3)	**111**	494	**983**	1	**380**	**120**
Mitigated Peak Daily Emissions – NEPA Impact (4)	56	262	**783**	1	**171**	**65**
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**	**55**

Notes:(1) Peak daily construction emissions of all pollutants except $PM_{10}/PM_{2.5}$ would occur from: (a) Installation of 3 cranes at berth 144, (b) Construction of new main gate, (c) Construction of new maintenance and repair facility, (d) Sewer installation at the Harry Bridges Blvd realignment, (e) Construction of a 46-Acre rail yard at berth 200, (f) 9 Acres of backland improvements at Berths 134-135, (g) Landscape installation at the Harry Bridges Blvd. Buffer, and (f) commuting of workers. However, this is an overestimation, as all equipment during these activities would not operate together in the same day.

(2) Peak daily construction emissions of $PM_{10}/PM_{2.5}$ would occur from: (a) Rip-Rap placement during wharf improvements at Berths 144-147, (b) Backland improvements at Berths 142-147, (c) Construction of new administration building, (d) Construction of new maintenance and repair facility, (e) Street removals during the Harry Bridges Blvd. realignment, (f) Construction of a 46-Acre Rail Yard at Berth 200, and (g) Grading and earthmoving during for the Harry Bridges Blvd buffer construction, and (f) commuting of workers.

(3) Equal to Project construction emissions in this table minus NFAB construction emissions presented in Table 3.2-~~TBD~~7.

(4) Equal to Project mitigated construction emissions minus NFAB mitigated construction emissions.

Table 3.2-19. Daily Emissions for Proposed Project Construction Activities – Phase 2

Construction Project/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
10-Acre Northwest Slip Fill						
Dredge Dike Toe	17	58	197	0	9	8
Rip-Rap Placement	29	79	623	1	32	30
Channel Dredging	13	32	319	0	16	15
Disposal into Dike	83	201	1,985	3	100	93
10-Acre Backland Improvements at Berth 131	10	43	83	0	57	15
Wharf Construction at Berth 136						
Piledriving-Sheet Piles	45	113	1,236	675	93	87
Piledriving-Waterside Piles	6	26	60	0	3	2
Piledriving-Landside Piles	7	31	63	0	3	3
Dike Filling	3	11	25	0	1	1
Wharf Construction	30	131	263	0	11	10
Peak Daily Emissions – CEQA/NEPA Impact (1)	**97**	233	**2,304**	3	116	**109**
Mitigated Peak Daily Emissions – CEQA/NEPA Impact	56	180	**1,476**	2	72	**67**
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**	**55**

CEQA Impact Determination

During a peak day of activity, the proposed Project's Phase 1 construction would produce significant levels of VOC, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions and Phase 2 construction would produce significant levels of VOC, NO_x, and $PM_{2.5}$ emissions under CEQA. In regard to $PM_{10}/PM_{2.5}$ emissions, the overwhelming majority of this

pollutant emitted during Phase 1 construction would occur in the form of fugitive dust. However, almost all $PM_{2.5}$ emissions during Phase 2 construction would occur from diesel fuel combustion.

NEPA Impact Determination

During a peak day of activity, the proposed Project's Phase 1 construction would produce significant levels of VOC, NO_x, PM_{10}, and $PM_{2.5}$ emissions and Phase 2 construction would produce significant levels of VOC, NO_x, and $PM_{2.5}$ emissions under NEPA.

Mitigation Measures

Mitigation measures for proposed Project construction were derived, where feasible, from the proposed NNI measures, Port of Los Angeles Community Advisory Committee (PCAC) recommended measures, the SPBP CAAP, and in consultation with the Port. A complete proposed Project feasibility review of the NNI and PCAC measures is included in Appendix B. The following mitigation measures would reduce criteria pollutant emissions associated with Project construction. All mitigation measures (**AQ-1** through **AQ-5**) would apply to Phases 1 and 2 of construction. Additionally, the proposed Project construction procurement process would include a selection system that favors bidders that propose clean construction equipment.

Mitigation Measure AQ-1: Crane and Sheet-pile Deliveries and Construction Harbor Craft~~Expanded VSR Program~~. All cargo ships used for terminal crane and sheet pile deliveries shall comply with the expanded Vessel Speed Reduction Program (VSRP) of 12 knots from 40 nm from Point Fermin to the Precautionary Area. In addition, ships used for sheetpile deliveries in Phase II construction (post-2014) shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin. This measure shall also require all harbor craft used during the construction phase of the proposed Project to, at a minimum, be repowered to meet the cleanest existing marine engine emission standards or U.S. EPA Tier 2. Additionally, where available, harbor craft shall meet the proposed U.S. EPA Tier 3 (which are proposed to be phased-in beginning 2009) or cleaner marine engine emission standards.~~All cargo ships used for terminal crane and sheetpile deliveries shall comply with the expanded VSRP of 12 knots from 40 nm from Point Fermin to the Precautionary Area.~~

The construction contractor shall be exempt from the above harbor craft requirements if he provides proof that any of following circumstances exists:

1. A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement.

2. A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.

3. A contractor has ordered a control device for a piece of equipment planned for use on the proposed Project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order

has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the Project area has the controlled equipment available for lease.

The average cruise speed for a general cargo vessel is 14.7 knots (Starcrest 2005). A reduction in speed to 12 knots in the 40-mile to Precautionary Area trip segment would reduce the main engine load factor from 83 percent to 45 percent, due to the cubic relationship of load factor to speed. This would produce a corresponding reduction in transit emissions from vessel main engines within the outer SCAQMD waters by about 20 percent, depending on the pollutant.

Mitigation Measure AQ-2: Fleet Modernization for On-Road Trucks. All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 33,000 pounds or greater used on-site or to transport materials to and from the site shall comply with the USEPA 2007 Heavy-Duty Highway Rule PM emission standards and have the cleanest available NOx emissions for Phase 1. In addition, for Phase 2 construction (post-2014), all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 33,000 pounds or greater used on-site or to transport materials to and from the site shall comply with year 2010 USEPA emission standards. Trucks hauling materials such as debris or fill shall be fully covered while operation off Port property~~year 2007 emission standards~~.

The construction contractor shall be exempt from the above on-road truck requirements if he provides proof that any of following circumstances exists:

1. A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement.

2. A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.

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

The effectiveness of this measure was determined by assuming that the (1) Phase 1 mitigated construction truck fleet was 50 percent 2007 SCAB average fleet and 50 percent compliant with the year 2007 standards and (2) Phase 2 mitigated construction truck fleet was a 2015 average fleet and 100 percent compliant with the year 2010~~7~~ standards. Use of the EMFAC2007 emission factor model determined that the emission reductions associated with this mitigation measure would range from 9 to 15 percent in Phase 1 and 34 to 57 percent in Phase 2, depending upon the pollutant. Because SO_x emissions are proportional to the fuel sulfur content, no appreciable change would occur in SO_x emissions.

Mitigation Measure AQ-3: Fleet Modernization for Construction Equipment. All off-road diesel-powered construction equipment greater than 50~~0~~ hp, except derrick barges and ocean-going ~~marine~~ cargo vessels, shall meet the cleanest non-road diesel emission levels available, but no greater than Tier 2 emission standards for projects starting construction prior to December 2011. Tier 3 emission standards shall be applied to projects starting construction between December 2011 and January 2015. The contractor could meet Tier 3 equivalent PM emission limits through the use of new or re-powered engines designed to meet Tier 2 PM standards and/or the use of CARB-approved diesel particulate traps. For Phase 2 construction (post-2014), equipment shall meet the Tier 4 non-road emission standards where available. In addition, construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards.~~shall achieve the Tier 2 emission standards in Phase 1 construction and Tier 4 emission standards in Phase 2 construction, as defined in the USEPA Nonroad Diesel Engine Rule (USEPA 1998 and 2004). Equipment not designated Tier 2 by the manufacturer may achieve the emissions requirement by retrofitting the equipment with an CARB-Verified Diesel Emission Control System (VDECS) and/or by the use of an CARB-verified emulsified fuel.~~

The construction contractor shall be exempt from the above equipment requirements if he provides proof that any of following circumstances exists:

1. A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement.

2. A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.

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

Use of equipment with cleaner Tier 2 or Tier 4 emission standards would produce fewer air emissions, compared to the statewide average fleet of construction equipment that was assumed in the unmitigated emission calculations. The emission reductions associated with this mitigation measure would be as high as 68 percent in Phase 1 and 95 percent in Phase 2, depending upon the pollutant and equipment horsepower category. Although all new equipment sold by 2006/2015 would have to comply with the Tier 2/4 standards, these requirements do not apply to existing equipment. Therefore, this mitigation measure would force an earlier turnover of the existing construction equipment to lower-emitting models.

Mitigation Measure AQ-4: Best Management Practices (BMPs). LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction if it is determined that the proposed construction

equipment exceeds any SCAQMD significance threshold. The following types of measures would be required on construction equipment: (a) use of diesel oxidation catalysts and catalyzed diesel particulate traps; (b) maintain equipment according to manufacturers' specifications; (c) restrict idling of construction equipment to a maximum of ~~10~~ 5 minutes when not in use; and (d) install high-pressure fuel injectors on construction equipment vehicles. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list.

Since the final construction equipment list has not yet been determined, this mitigation is not quantified in this study.

Mitigation Measure AQ-5: Additional Fugitive Dust Controls. The calculation of fugitive dust (PM) from Project earth-moving activities assumes a 75 percent reduction from uncontrolled levels to simulate rigorous watering of the site and use of other measures (listed below) to ensure Project compliance with SCAQMD Rule 403. The construction contractor shall further reduce fugitive dust emissions to 90 percent from uncontrolled levels. The Project construction contractor shall specify and implement dust-control methods that would achieve this control level in a SCAQMD Rule 403 dust control plan. The construction contractor shall designate personnel to monitor the dust control program and to order increased watering, as necessary, to ensure a 90 percent control level. Their duties shall include holiday and weekend periods when work may not be in progress.

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

- Active grading sites shall be watered one additional time per day beyond that required by Rule 403.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Construction contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code.
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.

Mitigation Measure AQ-18A: General Mitigation Measure. For any of the above mitigation measures (**Mitigation Measure AQ-1** through **AQ-5**), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of emissions performance than the existing measure, the technology could replace the existing measure pending approval by the Port.

Mitigation Measure AQ-25: Special Precautions near Sensitive Sites. For construction activities that occur within 1,000 feet of sensitive receptors (defined as

schools, playgrounds, daycares, and hospitals), the Port shall notify each of these sites in writing at least 30 days before construction activities begin.

Residual Impacts

Tables 3.2-18 and 3.2-19 show that implementation of **Mitigation Measures AQ-1** through **AQ-3** and **AQ-5** would reduce Project construction emissions. **Mitigation Measures AQ-4 and AQ 18A,** which were not included in the mitigated emission calculations, would further reduce construction emissions. These data show that mitigated construction emissions under CEQA would exceed the (1) NO_x, SO_x, PM_{10}, and $PM_{2.5}$ SCAQMD emission thresholds during Phase 1 and (2) NO_x, PM_{10}, and $PM_{2.5}$ SCAQMD emission thresholds during Phase 2. As a result, these emissions would remain significant under CEQA. The data in Tables 3.2-18 and 3.2-19 also show that mitigated construction emissions under NEPA would exceed the (1) NO_x and SO_x SCAQMD emission thresholds during Phase 1 and (2) NO_x and $PM_{2.5}$ SCAQMD emission thresholds during Phase 2. As a result, these emissions would remain significant under NEPA.

Uncalculated Revisions to Construction Assumptions/Mitigation Measures

The revisions to the mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to further reduce emissions from proposed construction activities. These revisions include implementation of (1) low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin for vessels that deliver materials in Phase 2, (2) USEPA Tier 2 and 3 equivalent marine engine emission standards for tug boats, (3) USEPA 2007 Heavy-Duty Highway Rule emission standards for Phase 1 trucks, (4) Tier 3 equivalent non-road PM emission standards for construction equipment in years 2011 through 2015, and (5) a limitation of on-site truck idling to five minutes. Implementation of these revised measures would reduce mitigated construction emissions by several percent compared to the uncorrected values presented in Tables 3.2-18 and 3.2-19. Changing the start of construction from 2007 to 2008 also would result in slightly lower construction emissions in Project year 1 (2008), as the Project construction equipment fleet would have an additional year to turn over to vehicles with newer and cleaner emission standards. However, the revised mitigated peak daily emissions during construction Phases 1 and 2 still would exceed the same SCAQMD emission thresholds, as identified in Tables 3.2-18 and 3.2-19.

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

A dispersion modeling analysis was performed to estimate the ambient impact of construction emissions from the proposed Project. The analysis focused on the peak day of Phase 1 construction activities, as Phase 2 construction emissions mainly occur from off-site activities (dredge, dike construction, and dredge material transport) whose impacts are not compared to the SCAQMD ambient air quality thresholds (SCAQMD 2006). Due to the relatively low magnitude of onsite construction emissions, Phase 2 construction would produce less than significant

ambient air quality impacts. Appendix D2 contains documentation of the Project construction emissions dispersion modeling analysis.

Table 3.2-20 presents the maximum offsite ground level concentrations of criteria pollutants estimated for Phase 1 construction activities without mitigation. These data show that the maximum total 1-hour NO_2 concentration of 1,039 $\mu g/m^3$ would exceed the SCAQMD threshold of 338 $\mu g/m^3$. Additionally, the maximum offsite 24-hour $PM_{10}/PM_{2.5}$ incremental impacts would exceed the SCAQMD threshold of 10.4 $\mu g/m^3$.

Table 3.2-20. Maximum Offsite Ambient Concentrations – Proposed Project Phase 1 Construction without Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from Phase 1 Emissions ($\mu g/m^3$)*	*Background Pollutant Concentration ($\mu g/m^3$)*	*Total Maximum Phase 1 Impact ($\mu g/m^3$)*	*SCAQMD Threshold [a] ($\mu g/m^3$)*
NO_2	1-hour	776	263	**1,039**	338
CO	1-hour	1,086	6,629	7,715	23,000
	8-hour	305	5,371	5,676	10,000
PM_{10}	24-hour	**110**	-	-	10.4
$PM_{2.5}$	24-hour	**35**	-	-	10.4

[a] Exceedances of the thresholds are indicated in bold. The thresholds for PM10 are incremental thresholds and therefore only impacts from Project emissions without background pollutant concentrations are compared to the thresholds. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from Project emissions plus background pollutant concentrations are compared to the thresholds.

[b] Construction schedules are assumed to be 8 hours per day, 5 days per week, and 52 weeks per year.

[c] In accordance with SCAQMD guidance (SCAQMD, 2005), ship transit emissions, tugboat emissions, and offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, ship hoteling and onsite truck emissions were included in the modeling.

[d] NO_2 concentrations were calculated assuming a 25.8 percent conversion rate from NO_x to NO_2 (SCAQMD, 2003c). This conversion rate assumes the maximum impact locations occur within 500 meters of the majority of emission sources that contribute to this impact. This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are within 200 meters of this location and the SCAQMD NO_x to NO_2 conversion factor for this distance is 11.4 percent.

CEQA Impact Determination

Without mitigation, the proposed Project's Phase 1 construction emissions would produce impacts that would exceed the SCAQMD 1-hour NO_2 and 24-hour $PM_{10}/PM_{2.5}$ ambient thresholds. Therefore, these represent significant air quality impacts under CEQA.

NEPA Impact Determination

Without mitigation, the proposed Project's Phase 1 construction emissions would produce impacts that would exceed the SCAQMD 1-hour NO_2 and 24-hour $PM_{10}/PM_{2.5}$ ambient thresholds. Therefore, these significant air quality impacts under NEPA are identical to those estimated under CEQA.

Mitigation Measures

Implementation of **Mitigation Measures AQ-1** through **AQ-5** would reduce NO_2 and/or PM_{10} emissions during Project construction. Table 3.2-21 presents the

maximum offsite ground level concentrations of NO_2, CO, PM_{10}, and $PM_{2.5}$ estimated for Phase 1 construction activities after mitigation. These data show that **Mitigation Measures AQ-1** through **AQ-5** would reduce all pollutant impacts.

Table 3.2-21. Maximum Offsite Ambient Concentrations – Proposed Project Phase 1 Construction After Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from Phase 1 Emissions ($\mu g/m^3$)*	*Background Pollutant Concentration ($\mu g/m^3$)*	*Total Maximum Phase 1 Impact ($\mu g/m^3$)*	*SCAQMD Threshold[a] ($\mu g/m^3$)*
NO_2	1-hour	656	263	**919**	338
CO	1-hour	569	6,629	7,198	23,000
	8-hour	163	5,371	5,534	10,000
PM_{10}	24-hour	**47**	-	-	10.4
$PM_{2.5}$	24-hour	**16**	-	-	10.4

[a] Exceedances of the thresholds are indicated in bold. The thresholds for PM_{10} are incremental thresholds and therefore only impacts from Project emissions without background pollutant concentrations are compared to the thresholds. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from Project emissions plus background pollutant concentrations are compared to the thresholds.

[b] Construction schedules are assumed to be 8 hours per day, 5 days per week, and 52 weeks per year.

[c] In accordance with SCAQMD guidance (SCAQMD, 2005), ship transit emissions, tugboat emissions, and offsite haul truck transport emissions are considered offsite emissions and were not included in the modeling. However, ship hoteling and onsite truck emissions were included in the modeling.

[d] NO_2 concentrations were calculated assuming a 25.8 percent conversion rate from NO_x to NO_2 (SCAQMD, 2003c). This conversion rate assumes the maximum impact locations occur within 500 meters of the majority of emission sources that contribute to this impact. This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are within 200 meters of this location and the SCAQMD NO_x to NO_2 conversion factor for this distance is 11.4 percent.

Residual Impacts

Implementation of **Mitigation Measures AQ-1** through **AQ-5** would reduce ambient pollutant impacts from Phase 1 construction. However, with mitigation, the Project Phase 1 construction emissions would produce impacts that would exceed the SCAQMD 1-hour NO_2 and 24-hour $PM_{10}/PM_{2.5}$ ambient thresholds. As a result, Project residual impacts would remain significant for 1-hour NO_2 and 24-hour $PM_{10}/PM_{2.5}$ under CEQA and NEPA.

Uncalculated Revisions to Construction Mitigation Measures

As mentioned in the discussion of Impact AQ-1, the revisions to the mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to further reduce emissions from proposed construction activities. Implementation of these revised measures would reduce the ambient impact of mitigated construction emissions by several percent compared to the uncorrected values presented in Table 3.2-21. Changing the start of construction from 2007 to 2008 also would result in slightly lower construction emissions in 2008, as the Project construction equipment fleet would have an additional year to turn over to vehicles with newer and cleaner emission standards. However, the revised

mitigated impacts still would exceed the same SCAQMD thresholds as those identified in Table 3.2-21.

Impact AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs and SCAQMD thresholds of significance.

Table 3.2-22 summarizes the unmitigated annual average daily emissions that would occur from the operation of the Berths 136-147 Terminal Project for Project milestone years of ~~2007~~2008, 2015, 2025, and 2038. Project emissions are compared to the CEQA Baseline (2003) and No Federal Action/NEPA Baseline emissions to determine CEQA and NEPA significance, respectively.

The main contributors to Project operational emissions include (1) terminal equipment, (2) on-road trucks, (3) container ships in cruise mode outside of the Port breakwater, and (4) vessels at berth in hoteling mode. With time, vessel sources would produce a greater percentage of total Project emissions. This is the case, as these sources are not currently subject to agency-adopted requirements to meet lower emissions standards in the future. Conversely, all other Project source categories have future emission standards that would substantially reduce their emissions with time, due to the replacement of old with new vehicles. Additionally, shifting a large percentage of Project rail cargo from offsite rail yards to the on-site rail yard would produce emissions savings.

Table 3.2-22. Average Daily Emissions Associated with the Operation of the Berths 136-147 Terminal Proposed Project

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	80	185	2,355	1,383	197	185
Ships – Precautionary Area Transit	15	31	312	194	27	26
Ships – Harbor Transit	23	29	216	109	22	20
Ships – Docking	8	8	60	26	6	6
Ships – Hoteling Aux. Sources	42	153	1,505	1,440	128	120
Tugs – Cargo Vessel Assist	2	13	79	0	3	3
Terminal Equipment	122	444	1,420	1	61	56
On-road Trucks	916	3,111	8,288	6	576	385
Trains	109	255	1,524	136	58	53
Rail Yard Equipment	21	82	237	0	11	10
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,352**	**4,457**	**16,067**	**3,297**	**1,106**	**880**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year ~~2007~~2008	**167**	**380**	**2,596**	**573**	**84**	**49**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	Y	N	Y	Y	N	N
NEPA Baseline (NFAB)	**1,099**	**3,475**	**14,136**	**3,197**	**958**	**748**
Net Change from NFAB Year ~~2007~~2008	**253**	**982**	**1,931**	**100**	**148**	**132**
Exceeds SCAQMD Threshold?	Y	Y	Y	N	N	Y
Project Year 2015						
Ships – Fairway Transit	105	233	2,823	1,643	240	225
Ships – Precautionary Area Transit	25	46	411	238	37	35
Ships – Harbor Transit	34	43	326	158	33	31
Ships – Docking	12	12	91	38	10	9
Ships – Hoteling Aux. Sources	69	237	2,455	2,205	208	195
Tugs – Cargo Vessel Assist	3	13	72	0	3	3
Terminal Equipment	83	605	1,174	1	48	44
On-road Trucks	513	2,890	8,482	10	592	352
Trains	119	326	1,658	1	44	40
Rail Yard Equipment	11	87	148	0	6	6
Worker Commuter Vehicles	12	161	21	0	22	21
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**987**	**4,662**	**17,691**	**4,296**	**1,243**	**960**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline 2003 - Year 2015	**(198)**	**586**	**4,220**	**1,572**	**221**	**129**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**Y**	**Y**	**Y**	**Y**	**Y**
NEPA Baseline (NFAB)	**428**	**2,031**	**5,399**	**906**	**388**	**195**
Net Change from NFAB Year 2015	**559**	**2,631**	**12,293**	**3,390**	**855**	**765**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

Table 3.2-22. Average Daily Emissions Associated with the Operation of the Berths 136-147 Terminal Proposed Project (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2025						
Ships – Fairway Transit	139	302	3,602	2,087	307	288
Ships – Precautionary Area Transit	34	61	518	289	48	45
Ships – Harbor Transit	46	57	435	207	44	41
Ships – Docking	16	15	121	50	13	12
Ships – Hoteling Aux. Sources	95	322	3,386	2,968	286	268
Tugs – Cargo Vessel Assist	3	15	67	0	3	3
Terminal Equipment	48	970	365	2	14	13
On-road Trucks	277	1,412	3,773	12	393	137
Trains	132	430	1,913	2	48	44
Rail Yard Equipment	5	111	38	0	1	1
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**804**	**3,812**	**14,260**	**5,619**	**1,182**	**875**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2025	**(381)**	**(265)**	**789**	**2,895**	**160**	**44**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**Y**	**N**
NEPA Baseline (NFAB)	**380**	**2,112**	**5,290**	**930**	**359**	**191**
Net Change from NFAB Year 2025	**424**	**1,700**	**8,971**	**4,689**	**823**	**685**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2038						
Ships – Fairway Transit	139	302	3,602	2,087	307	288
Ships – Precautionary Area Transit	34	61	518	289	48	45
Ships – Harbor Transit	46	57	435	207	44	41
Ships – Docking	16	15	121	50	13	12
Ships – Hoteling Aux. Sources	95	322	3,386	2,968	286	268
Tugs – Cargo Vessel Assist	3	15	60	0	3	2
Terminal Equipment	59	1,362	221	3	16	14
On-road Trucks	330	1,168	3,067	12	367	113
Trains	112	430	1,678	2	40	37
Rail Yard Equipment	4	111	15	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**843**	**3,901**	**13,136**	**5,620**	**1,155**	**850**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2038	**(342)**	**(175)**	**(336)**	**2,896**	**133**	**19**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**373**	**2,278**	**5,104**	**930**	**357**	**189**
Net Change from NFAB Year 2038	**470**	**1,624**	**8,032**	**4,689**	**798**	**662**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

Table 3.2-23 summarizes peak daily unmitigated emissions estimated for the operation of the Berths 136-147 Terminal Project in years ~~2007~~2008, 2015, 2025, and 2038. As discussed in Section 3.2.2.4, peak daily emissions are presented to comply with SCAQMD reporting requirements. Project emissions are compared to the CEQA Baseline (2003) and No Federal Action/NEPA Baseline emissions to determine CEQA and NEPA significance, respectively. However, the annual average daily emissions discussed in Table 3.2-20 more adequately express typical Port operations. Additionally, peak daily emissions occur infrequently and are based upon a lesser known and therefore more theoretical set of assumptions on which to determine significance.

The peak daily emission estimates for Project operations include the following assumptions that were chosen to identify a scenario that would occur with some regularity, rather than a scenario that would produce extreme daily emissions. Development of this type of scenario provides for a more meaningful determination of significance for future Project peak daily scenarios, as it is expected that these scenarios could occur several days per year.

- Ships at berth: (1) in 2007, one 3,000 to 5,000 TEU and one 5,000 to 6,000 TEU capacity vessel and (2) in 2015 and all future years, one 3,000 to 5,000 TEU, one 5,000 to 6,000 TEU, and one 8,000 to 9,000 TEU capacity vessel.
- Throughput across the berth is dependent upon 10 cranes in 2007 and 12 cranes beginning in 2015. Daily vessel crane service rates include the following: (1) four cranes on a 3,000 to 5,000 TEU capacity vessel at 2,992 TEUs, (2) five cranes on a 5,000 to 6,000 TEU capacity vessel at 3,740 TEUs, and (3) six cranes on a 8,000 to 9,000 TEU capacity vessel at 4,488 TEUs per day. Beginning in year 2015, daily crane service time increases from 16 to 21 hours and 4-, 5-, and 6- crane daily production rates increase to 3,927, 4,909, and 5,890 TEUs. This increased level of activity is used to maximize peak daily emissions. However, its future occurrence is speculative and not assumed in calculations of future Project annual average daily emissions.
- The following vessels would perform a round trip transit in and out of the Port in the following project years: (1) 2007, one 3,000 to 5,000 TEU capacity vessel and (2) 2015 and thereafter, one 8,000 to 9,000 TEU capacity vessel.
- The following truck trips and gate cargo throughputs would occur during each Project year: (1) in 2007, 5,675 trips and 10,499 TEUs, (2) in 2015, 6,028 trips and 11,152 TEUs, and (3) in 2025 and 2038, 7,053 trips and 13,049 TEUs.
- The following train trips and associated cargo throughputs at off-site/on-site rail yards would occur during each Project year: (1) in 2007, 2 trips at an off-site rail yard and 1,224 TEUs, (2) in 2015, 1/2 trips at an off-site/on-site rail yard and 1,836 TEUs, and (4) in 2025 and 2038, 1/3 trips at an off-site/on-site rail yard and 2,448 TEUs.
- Rail yard cargo handling equipment usage. The equipment usage associated with this activity is a function of throughput and equal to those used to estimate average daily emissions for each Project year.

Table 3.2-23. Peak Daily Emissions Associated with the Operation of the Berths 136-147 Terminal Proposed Project

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	117	265	3,260	1,913	276	258
Ships – Precautionary Area Transit	28	57	527	312	47	44
Ships – Harbor Transit	41	52	392	191	40	37
Ships – Docking	14	14	109	46	12	11
Ships – Hoteling Aux. Sources	78	267	2,789	2,468	236	221
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	702	2,561	8,184	5	352	324
On-road Trucks	1,254	4,259	11,347	9	788	528
Trains	89	208	1,245	111	47	43
Rail Yard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**2,360**	**7,921**	**28,266**	**5,055**	**1,828**	**1,495**
CEQA Baseline 2003	**1,977 ~~1,185~~**	**6,935 ~~4,077~~**	**23,010 ~~13,472~~**	**3,851 ~~2,724~~**	**1,607 ~~1,022~~**	**1,329 ~~831~~**
Net Change from CEQA Baseline - Year ~~2007~~2008	**383**	**986**	**5,255**	**1,205**	**222**	**166**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
NEPA Baseline (NFAB)	**1,927**	**6,417**	**24,193**	**4,191**	**1,498**	**1,195**
Net Change from NFAB Year ~~2007~~2008	**434**	**1,504**	**4,073**	**864**	**331**	**301**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**Y**	**Y**
Project Year 2015						
Ships – Fairway Transit	222	441	4,809	2,716	421	394
Ships – Precautionary Area Transit	66	102	757	380	73	69
Ships – Harbor Transit	75	92	700	320	71	67
Ships – Docking	26	25	195	76	21	20
Ships – Hoteling Aux. Sources	124	419	4,426	3,857	373	350
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	397	2,899	5,625	6	228	209
On-road Trucks	703	3,957	11,613	14	811	481
Trains	119	326	1,658	1	44	40
Rail Yard Equipment	11	88	149	0	6	6
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**1,758**	**8,489**	**30,102**	**7,372**	**2,078**	**1,664**
CEQA Baseline 2003	**1,977 ~~1,185~~**	**6,935 ~~4,077~~**	**23,010 ~~13,472~~**	**3,851 ~~2,724~~**	**1,607 ~~1,022~~**	**1,329 ~~831~~**
Net Change CEQA Baseline - Year 2015	**(219)**	**1,554**	**7,091**	**3,521**	**472**	**335**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**Y**	**Y**	**Y**	**Y**	**Y**
NEPA Baseline (NFAB)	**804**	**4,461**	**7,754**	**1,453**	**542**	**277**
Net Change from NFAB Year 2015	**954**	**4,028**	**22,347**	**5,919**	**1,537**	**1,387**
Project Year 2015 Total	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

Table 3.2-23. Peak Daily Emissions Associated with the Operation of the Berths 136-147 Terminal Proposed Project (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year 2025						
Ships – Fairway Transit	222	441	4,809	2,716	421	394
Ships – Precautionary Area Transit	66	102	757	380	73	69
Ships – Harbor Transit	75	92	700	320	71	67
Ships – Docking	26	25	195	76	21	20
Ships – Hoteling Aux. Sources	124	419	4,426	3,857	373	350
Tugs – Cargo Vessel Assist	4	24	105	0	5	4
Terminal Equipment	182	3,680	1,383	8	53	48
On-road Trucks	379	1,933	5,165	17	538	188
Trains	134	437	1,943	2	49	45
Rail Yard Equipment	5	113	39	0	1	1
Worker Commuter Vehicles	4	55	6	0	30	28
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**1,224**	**7,327**	**19,558**	**7,377**	**1,636**	**1,215**
CEQA Baseline 2003	**1,977** ~~**1,185**~~	**6,935** ~~**4,077**~~	**23,010** ~~**13,472**~~	**3,851** ~~**2,724**~~	**1,607** ~~**1,022**~~	**1,329** ~~**831**~~
Net Change from CEQA Baseline - Year 2025	**(753)**	**392**	**(3,453)**	**3,526**	**29**	**(114)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**527**	**4,163**	**6,811**	**1,426**	**479**	**249**
Net Change from NFAB Year 2025	**698**	**3,164**	**12,747**	**5,951**	**1,157**	**966**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2038						
Ships – Fairway Transit	222	441	4,809	2,716	421	394
Ships – Precautionary Area Transit	66	102	757	380	73	69
Ships – Harbor Transit	75	92	700	320	71	67
Ships – Docking	26	25	195	76	21	20
Ships – Hoteling Aux. Sources	124	419	4,426	3,857	373	350
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	160	3,680	596	8	42	39
On-road Trucks	451	1,600	4,198	17	502	155
Trains	114	437	1,704	2	41	37
Rail Yard Equipment	4	113	15	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**1,253**	**6,989**	**17,529**	**7,377**	**1,581**	**1,164**
CEQA Baseline 2003	**1,977** ~~**1,185**~~	**6,935** ~~**4,077**~~	**23,010** ~~**13,472**~~	**3,851** ~~**2,724**~~	**1,607** ~~**1,022**~~	**1,329** ~~**831**~~
Net Change from CEQA Baseline - Year 2038	**(725)**	**54**	**(5,481)**	**3,526**	**(25)**	**(165)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**513**	**4,102**	**6,634**	**1,426**	**476**	**246**
Net Change from NFAB Year 2038	**739**	**2,887**	**10,895**	**5,951**	**1,106**	**918**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

- Peak day container yard cargo handling equipment usage is a function of the wharf and gate throughput identified for each Project year. Peak daily emissions generated by cargo handling equipment were estimated by multiplying the annual CHE emissions estimated for each Project year times the container yard peak daily TEUs divided by the Project year annual throughput in TEUs.

CEQA Impact Determination

The data in Table 3.2-22 show that in the following Project years, the net change in average daily operational emissions between the unmitigated Project and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, VOC, NO_x, and SO_x; (2) in 2015, all thresholds except VOC; (3) in 2025, NO_x, SO_x, and PM_{10}; and (4) in 2038, SO_x. The net change in VOC emissions between the unmitigated Project and CEQA Baseline also would exceed 10 tons in Project year ~~2007~~2008 (See Table D1.2-PP-39 in Appendix D1).

The data in Table 3.2-23 show that during a peak day of activity in the following Project years, operational emissions between the unmitigated Project and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, all thresholds; (2) in 2015, all thresholds except VOC; (3) in 2025 and 2038, the SO_x threshold. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the proposed Project under CEQA.

NEPA Impact Determination

The data in Table 3.2-22 show that during each Project year, the net change in average daily operational emissions between the unmitigated Project and No Federal Action/NEPA Baseline would exceed all SCAQMD daily thresholds. Additionally, the net change in VOC emissions between the unmitigated Project and No Federal Action/NEPA Baseline would exceed 10 tons for each Project year (See Table D1.2-NFAB-Mit-43 in Appendix D1).

The data in Table 3.2-23 show that during a peak day of activity, emissions between the unmitigated Project and No Federal Action/NEPA Baseline would exceed all SCAQMD daily thresholds during each Project year. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the proposed Project under NEPA.

Mitigation Measures

Mitigation measures for proposed Project operations were derived, where feasible, from the proposed NNI measures, PCAC recommended measures, San Pedro Bays Ports CAAP, and in consultation with the Port. All feasible measures were selected. A review of the feasibility of the Project to implement the NNI and PCAC measures is included in Appendix B. Table 3.2-24 details how the Project mitigation measures compare to those identified in the San Pedro Bays Ports CAAP. The following mitigation measures would reduce criteria pollutant emissions associated with Project operations.

Mitigation Measure AQ-6: Alternative Maritime Power (AMP). Ships calling at the Berths 136-147 Terminal shall use AMP while hoteling in the Port in the following minimum percentages:

- 2009 - 25 percent of total ship calls
- 2010 - 540 percent of total ship calls
- 2012 - 650 percent of total ship calls
- 2015 - 80 percent of total ship calls
- 2018 - 100 percent of total ship calls

Additionally, by 2010, all ships retrofitted for AMP shall be required to use AMP while hoteling at 100 percent compliance rate, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship.

Use of AMP would enable ships to turn off their auxiliary engines during hoteling and eliminate all air pollutants from these sources. The only source of direct emissions from hoteling activities would occur from small diesel-fired service boilers.

Mitigation Measure AQ-7: Yard Tractors. All yard tractors operated at the Berths 136-147 Terminal, including the on-dock rail facility, shall implement the following measures.

- Beginning in 2007, all new yard tractors shall be either (1) the cleanest available NO_x alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (2) the cleanest available NO_x diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and would have the cleanest Verified Diesel Emissions Controls (VDEC).
- By the end of 2010, all yard tractors would meet at a minimum the USEPA Tier 4 non-road emission standards.~~Beginning in 2007, all new yard tractors shall be either (1) the cleanest available NO_x alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (2) the cleanest available NO_x diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and will have the cleanest Verified Diesel Emissions Controls (VDEC).~~

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
HDV-1	Performance Standards for On-Road Heavy-Duty Vehicles (HDVs)	All frequent caller trucks and semi-frequent caller container trucks model year (MY) 1992 and older will meet or be cleaner than the USEPA 2007 Heavy Duty Highway Rule on-road emission standards (0.015 g/bhp-hr for PM) and the cleanest available NO_x at time of replacement. Semi-frequent caller container trucks MY1993-2003 would be equipped with the maximum CARB verified emissions reduction technologies currently available.	**Mitigation Measure AQ-9:** Fleet Modernization for On-Road Trucks. Heavy-duty diesel trucks entering the Berths 136-147 Terminal shall achieve the USEPA 2007 Heavy Duty Highway Rule emission standards ~~for on-road heavy-duty diesel engines (USEPA 2001)~~ in the following percentages:~~15% in 2007,~~ 30% in 2008, 50% in 2009, ~~50% in 2009,~~ 70% in 2010, and 100% in ~~or newer~~ 2012 and thereafter.	**Mitigation Measure AQ-9** complies with the overall truck modernization program described in the CAAP. The Port is largely responsible for this mitigation measure through the Clean Truck ~~p~~Program being developed as part of the CAAP. The terminal operator will be responsible for ensuring gate restrictions and tracking.
HDV-2	Alternative Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	Construct LNG or compressed natural gas (CNG) refueling stations.	No applicable measure.	This measure would be implemented directly by the Ports. The Port of Long Beach, in conjunction with the Port of Los Angeles, recently released a RFP seeking proposals to design, construct and operate a public LNG fueling and maintenance facility on Port of Los Angeles property.
OGV-1	OGV Vessel Speed Reduction (VSR)	OGVs that call at the SPB Ports shall not exceed 12 knots (kts) within 20 nautical miles (nm) of Point Fermin (extending to 40 nm in future).	**Mitigation Measure AQ-10:** Vessel Speed Reduction Program. Vessels that call at the Berths 136-147 Terminal shall comply with the VSRP of 12 kts within 40 nm of Point Fermin by the following schedule: 2008 – 95% of total ship calls.	**Mitigation Measure AQ-10** complies with **OGV-1**. The CAAP targets a 95% compliance rate through lease provisions.

1

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
OGV-2	Reduction of At-Berth OGV Emissions	Each Port would develop the infrastructure required to provide shore-power capabilities to all container and cruise ship berths. On a case-by-case basis, other vessel types, like specially outfitted tankers or reefer terminals, would be evaluated for the application of shore-power.	**Mitigation Measure AQ-6:** Alternative Maritime Power (AMP). The following percentages of total ship calls at the Berths 136-147 Terminal shall use AMP while hoteling in the Port: 25% in 2009, 45~~4~~0% in 2010, 56~~5~~0% in 2012, 80% in 2015, and 100% in 2020~~20~~18 and thereafter.	**Mitigation Measure AQ-6** complies with **OGV-2**. The CAAP calls for 106 AMP'd ship calls at Berth 136-147 by the end of fiscal year 2010/2011 with an eventual goal of 100% pending technical feasibility. The Project assumes 322 ship calls by 2010 with 40%, or 128 ships, using AMP while at berth. The Project reaches 100% compliance by 2018~~20~~ as all ships calling at the Berth 136-147 Terminal are upgraded with appropriate AMP technology. Therefore, the Project mitigation exceeds CAAP standards.
OGV-3	OGV Auxiliary Engine Fuel Standards	Require ship's auxiliary engines to operate using MGO fuels with sulfur content ≤0.2% S in their auxiliary engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin	**Mitigation Measure AQ-11:** Vessels that call at the Berths 136-147 Terminal shall use marine gas oil (MGO) with a sulfur content of 0.2 percent or less in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hotelling for non-AMP ships) at the following annual participation rates: 2~~1~~0% in 2009, 2~~2~~30% in 2012~~0~~, 50% in 2012, 100% in 2015 and thereafter.	**Mitigation Measure AQ-11** complies with **OGV-43** and **OGV-5~~4~~4.** The CAAP assumes full compliance of **OGV-43** and **OGV-5~~4~~4** pending technical feasibility and fuel availability. The phase-in schedule for **Mitigation Measure AQ-11** allows time for technical equipment upgrades, including installing new tanks and piping, on ships. These measures go beyond the existing CARB regulation by requiring <0.2% S MGO (prior to 2010) in both auxiliary and main engines, instead of requiring <0.5% S MDO or MGO for only OGV auxiliary engines.
OGV-4	OGV Main Engine Fuel Standards	Require ship's main engines to operate using MGO fuels with sulfur content ≤0.2% S in their main engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin		

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
OGV-5	OGV Main & Auxiliary Engine Emissions Improvements	Focus on reducing DPM, NO_x, and SO_x emissions from OGV main engines and auxiliary engines. The goal of this measure is to reduce main and auxiliary engine DPM, NO_x, and SO_x emissions by 90%. The first engine emissions reduction technology for this measure would be the use of MAN B&W slide valves for main engines.	**Mitigation Measure AQ-12: Slide Valves in Ship Main Engines.** Vessels that call at the Berths 136-147 Terminal shall be equipped with slide valves or equivalent on main engines in the following percentages: 15% in 2008, ~~2~~50% in 2010, ~~50% in 2012,~~ and 95% in 2015 and thereafter. By 2012, all frequent caller ships (three or more calls per year) shall comply with this requirement. **Mitigation Measure AQ-13: New Vessel Builds.** All new vessel builds shall incorporate NO_x and PM control devices on auxiliary and main engines. NO_x and PM control devices include, but are not limited to, the following technology where appropriate: (1) selective catalytic reduction (SCR) technology, (2) exhaust gas recirculation, (3) in line fuel emulsification technology, (4) diesel particulate filters (DPFs), or exhaust scrubbers (5) common rail and (6) Low NO_x burners for boilers.	**Mitigation Measures AQ-12** and **AQ-13** fully comply with **OGV-5**.

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
CHE-1	Performance Standards for CHE	Sets fuel neutral purchase requirements for CHE, starting in 2007. Requires by 2010, all yard tractors operating at the ports would have the cleanest engines meeting US EPA ~~on-road 2007 or~~ Tier ~~IV~~ 4 non-road ~~engine~~ emission standards for PM and NO_x. All remaining CHE less than 750 hp would meet at a minimum the ~~2007 or~~ Tier ~~IV~~ 4 standards for PM and NO_x by 2012. Requires that all remaining CHE greater than 750 hp to meet Tier ~~IV~~ 4 standards for PM and NO_x by 2014 and prior to that, be equipped with the cleanest available Verified Diesel Emissions Controls (VDEC).	**Mitigation Measure AQ-7: Yard Tractors.** All yard tractors operated at the Berths 136-147 Terminal, including the on-dock rail facility, shall implement the following measures. (1) Beginning in 2007, all new yard tractors shall be either (a) the cleanest available NO_x alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (b) the cleanest available NO_x diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and would have the cleanest ~~Verified Diesel Emissions Controls (~~VDEC~~)~~.	**Mitigation Measures AQ-7** and **AQ-8** comply with **CHE-1.**

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
			(2) By the end of 2010, all yard tractors would meet at a minimum the USEPA Tier 4 non-road emission standards. ~~Beginning in 2007, all new yard tractors shall be either (a) the cleanest available NOx alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (b) the cleanest available NOx diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and will have the cleanest Verified Diesel Emissions Controls (VDEC).~~	

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
CHE-1 (continued)	Performance Standards for CHE		**Mitigation Measure AQ-8: Low-NO_x and low-PM emission standards for top picks, fork lifts, toppicks, fork lifts, reach stackers, rubber-tired gantries, and straddle carriers.** All diesel-powered terminal equipment at the Berths 136-147 Terminal, including the on-dock rail facility, shall implement the following measures: (1) Beginning in 2007, all terminal equipment shall be either (a) the cleanest available NO_x alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (b) the cleanest available NO_x diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and would have the cleanest VDEC. (2) By 2013, all non-yard tractor terminal equipment les than 750 Hp shall meet the USEPA Tier 4 non-road ~~or Tier 4 non-road~~ engine standards. (3) by 2015, all terminal equipment shall meet USEPA Tier ~~IV~~ 4 non-road emission standards	

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
HC-1	Performance Standards for Harbor Craft	This measure focuses on harbor craft that have not already been repowered/retrofitted (including construction related harbor craft like dredges and support vessels). When candidate vessels are identified, the Ports shall assist/require the owner/operator to repower or retrofit propulsion and auxiliary engines. For non-construction related candidates, Ports staff shall assist the owners in applying for Carl Moyer Program incentive funding for the cleanest available engine that meets the emissions and cost effectiveness requirements. It should be noted, that several tugs operating at the Port of Long Beach are home-ported on private property (not Port property) and therefore would not be affected by this measure.	No mitigation assumed.	This measure is a Portwide measure. Terminal operators and shipping lines do not have a direct contractual relationship with tugboat operators and may be limited in providing the infrastructure necessary to implement **HC-1**. The Ports of Los Angeles and Long Beach shall implement **HC-1** through a Port-wide Program as described in the CAAP. The Project air quality analysis assumes that a portion of the Port tugboat fleet shall be re-powered through the CARB Carl Moyer Program.
RL-1	Pacific Harbor Line (PHL) Rail Switch Engine Modernization	A voluntary program initiated by the Ports in conjunction with PHL to modernize switcher locomotives used in Port service to meet Tier 2 locomotive engine standards and initiate the use of fuel emulsion in those engines. Also includes evaluation of alternative-powered switch engines including LNG and hybrid locomotives. In addition, a locomotive DOC and DPF would be evaluated and based on a successful demonstration, would be applied to all Tier 2 switcher locomotives. Also restricts future purchases to the cleanest locomotives available.	No specific mitigation assumed. See RL-3.	No mitigation assumed. Since the PHL Agreement is an existing program, the measure is assumed as part of the Project.

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
RL-2	Existing Class 1 Railroad Operations	Effects only existing Class 1 railroad operations on Port property. Lays out stringent goals for switcher, helper, and long haul locomotives operating on Port properties. By 2011, all diesel-powered Class 1 switcher and helper locomotives entering Port facilities would be 90% controlled for PM and NO_x, would use 15-minute idle restrictors, and after January 1, 2007, the use of ULSD fuels. Starting in 2012 and fully implemented by 2014, the fleet average for Class 1 long haul locomotives calling at Port properties would be Tier ~~III~~ 3 equivalent (Tier 2 equipped with DPF and SCR or new locomotives meeting Tier 3) PM and NO_x and would use 15-minute idle restrictors. Class 1 long haul locomotives would operate on USLD while on Port properties by the end of 2007. Technologies to get to these levels of reductions would be validated through the Technology Advancement Program.	No specific mitigation assumed. See RL-3.	**RL-2** affects only existing Class 1 rail yards (Class I rail yards are BNSF and UP). The Ports of Los Angeles and Long Beach shall implement **RL-2** through a Port-wide Program as described in the CAAP. The Port is meeting with the Class I rail yards to discuss implementation of the Port-wide Program **RL-3** effects all new or redeveloped rail yards. Mitigation for the Project on-dock rail yard is applied under **RL-3** below.

Table 3.2-24. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and Berths 136-147 Terminal EIS/EIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (Mitigation Measure)*	*Discussion*
RL-3	New and Redeveloped Rail Yards	New rail facilities, or modifications to existing rail facilities located on Port property, would incorporate the cleanest locomotive technologies, meet the requirements specified in SPBP-RL2, utilize "clean" CHE and HDV, and utilize available "green-container" transport systems.	**Mitigation Measure AQ-14: Clean Rail Yard Standards**: The Berth 136-147 on-dock rail yard would incorporate the cleanest locomotive technologies into their operations. These include diesel-electric hybrids, multiple engine generator sets, uses of alternative fuels, DPFs, SCR, idling shut-off devices, and idling exhaust hoods. The on-dock rail yard would also utilize "clean" CHE and HDVs and comply with the CAAP's Technology Advancement Program. Additionally, the Port shall require diesel particulate traps (DPTs) on all PHL switcher locomotives that operate within the Project rail yard beginning in 2015. ~~The new on-dock rail facility at Berths 136-147 shall incorporate the cleanest locomotive technologies into their operations.~~	**Mitigation Measure AQ-14** complies with **RL-3.** The new Berth 136-147 on-dock rail yard would incorporate the cleanest locomotive technologies/measures. ~~These include diesel-electric hybrids, multiple engine generator sets, use of alternative fuels, DPFs, SCR, idling shut-off devices, and idling exhaust hoods.~~ However, because ~~some~~ many of these systems are not yet available, but are expected to be available within the next few years, the air quality analysis ~~this measure has not been quantified.~~ only quantifies the implementation of DPTs on PHL locomotives that operate in the Project on-dock rail yard and relocated Pier A rail yard beginning in year 2015. These devises would reduce DPM from these sources by 90 percent from uncontrolled levels.

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The effectiveness of **Mitigation Measure AQ-7** was assessed by assuming that all yard tractors have clean diesel engines. According to 2001 terminal equipment usage records at the Berths 136-147 Terminal, yard tractors produce the majority of power output of all terminal equipment. As a result, this mitigation measure would substantially reduce emissions of VOC, CO, NO_x, and PM from Project terminal and rail yard equipment. For example, implementation of the Tier 4 non-road ~~engine~~ emission standards in year 2010 would reduce NO_x and DPM emissions from unmitigated Project diesel-powered yard tractors by approximately 96 and 95 percent, respectively. With time, implementation of **Mitigation Measure AQ-7** would result in less mitigation effectiveness as the Project future baseline (unmitigated) fleet gradually turns over to Tier 4 standard engines with new purchases beginning in 2012. By 2026, both the Project future baseline and mitigated fleets would be all Tier 4 engines with nearly identical emission rates. The Federal Register (June 29, 2004) listed the Tier 4 engine PM standards at 0.015 g/Hp-Hr. However, the Tier 4 PM standard is conventionally reported as 0.01 g/Hp-Hr. While this mitigation measure uses the conventional standard, the more conservative 0.015 g/Hp-Hr was used in the analysis.

Mitigation Measure AQ-8: Low- NO_x **and low–PM emission standards for top picks, forklifts, reach stackers, rubber-tired gantries (RTGs), and straddle carriers.** All diesel-powered terminal equipment other then yard tractors at the Berths 136-147 Terminal, including the on-dock rail facility, shall implement the following measures.

- Beginning in 2007, all non-yard tractor purchases shall be either (1) the cleanest available NO_x alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (2) the cleanest available NO_x diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and would have the cleanest VDEC.
- By the end of 2012, all non-yard tractor terminal equipment less than 750 Hp shall meet the USEPA Tier 4 non-road ~~or Tier 4 non-road~~ engine standards.
- By the end of 2014, all terminal equipment shall meet USEPA Tier 4 non-road engine standards.

Implementation of **Mitigation Measure AQ-8** was assessed by assuming that all yard tractors have clean diesel engines. For example, implementation of the Tier 4 non-road engine standards in year 2010 would reduce NO_x and DPM emissions from unmitigated Project diesel-powered top picks and RTGs by approximately 95 and 93 percent, respectively. The Federal Register (June 29, 2004) listed the Tier 4 engine PM standards at 0.015 g/Hp-Hr. However, the Tier 4 PM standard is conventionally reported as 0.01 g/Hp-Hr. While this mitigation measure uses the conventional standard, the more conservative 0.015 g/Hp-Hr was used in the analysis.

Mitigation Measure AQ-9: Fleet Modernization for On-Road Trucks. Heavy-duty diesel trucks entering the Berths 136-147 Terminal shall achieve the EPA 2007 Heavy-Duty Highway Rule emission standards~~USEPA 2007 emission standards for on-road heavy-duty~~ by the following percentages:

- ~~15 percent in 2007~~
- 30 percent in 2008
- 50 percent in 2009
- ~~50 percent in 2009~~
- 70 percent in 2010
- ~~90 percent in 2011~~
- 100 percent in 2012~~,~~ and thereafter

The effectiveness of this measure was determined by using the EMFAC2007 emission factor model. The Port truck fleet mix was adjusted in the EMFAC2007 model to account for the required percentages of 2007-compliant trucks. The emission reductions varied depending on the pollutant, year, and vehicle speed. For example, in 2010 (assuming 70 percent of the trucks in the Project fleet are 2010~~7~~-compliant) the measure would reduce emissions from trucks traveling at 25 mph by 72 percent for VOC, 76 percent for CO, 71 percent for NOx~~NO$_x$~~, and 77 percent for DPM.

Mitigation Measure AQ-10: Vessel Speed Reduction Program. Vessels that call at the Berths 136-147 Terminal shall comply with the VSRP of 12 knots within 40 nautical miles (nm) of Point Fermin by the following schedule:

- 2008 – 95 percent of total ship calls

The VSRP currently is a voluntary program. This mitigation measure requires vessels calling at the Berths 136-147 Terminal to participate in the VSRP at rates higher than current operations. The average cruise speed for a container vessel ranges from about 18 to 25 knots, depending on the size of a ship (larger ships generally cruise at higher speeds). For a ship with a 24-knot cruise speed, for example, a reduction in speed to 12 knots reduces the main engine load factor from about 83 to 10 percent, due to the cubic relationship of load factor to speed. The corresponding reduction in overall container ship transit emissions (main engine, auxiliary engines, and boiler) from the SCAQMD overwater boundary to the berth, is approximately 19 percent for VOC, 37 percent for CO, 56 percent for NO_x, 58 percent for SO_x, and 53 percent for PM_{10}.

While the goal of this mitigation measure is a 100 percent compliance rate, this air quality analysis only assumed a compliance rate of 95 percent. The 5 percent differential is based upon the assumption that on occasion, a ship would be unable to slow to 12 knots due to time limitations (for instance, a storm at sea has slowed the ship down). By only analyzing a compliance rate of 95 percent, this analysis is a worst-case analysis.

Mitigation Measure AQ-11: Ship Auxiliary Engine, Main Engine, and Boiler Fuel Improvement Program. Vessels that call at the Berths 136-147 Terminal shall use marine gas oil (MGO) with a sulfur content of 0.2 percent or less in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) at the following annual participation rates:

- 2009 - 2~~1~~0 percent of total ship calls
- 2010 - 3~~2~~0 percent of total ship calls

- 2012 - 50 percent of total ship calls
- 2015 - 100 percent of total ship calls

Additionally, by 2012, all frequent caller ships (three or more calls per year) shall comply with this requirement.

Use of MGO with a 0.2 percent sulfur content in the main engines, auxiliary engines, and boilers would reduce emissions of NO_x, SO_x, and PM by approximately 10, 93, and 65 percent, respectively, compared to residual fuel with a sulfur content of 2.7 percent (Port 2005c). Other pollutants are assumed to be unaffected by this measure. This mitigation measure assumes that these fuels would be readily available by the required dates. The phase-in schedule for **Mitigation Measure AQ-11** also allows time for technical equipment upgrades on the vessels, including installing new tanks and piping.

Mitigation Measure AQ-12: Slide Valves in Ship Main Engines. Vessels that call at the Berths 136-147 Terminal shall be equipped with slide valves or equivalent on main engines in the following percentages:

- 2008 - 15 percent of total ship calls
- 2010 - ~~2~~50 percent of total ship calls
- ~~2012 - 50 percent of total ship calls~~
- 2015 - 95 percent of total ship calls

Additionally, by 2012, all frequent caller ships (three or more calls per year) shall comply with this requirement.

Recent emission tests conducted on ship main engines have shown that engines equipped with slide valves produce lower VOC, NO_x, and PM emissions than engines with standard valves. Test data provided by engine manufacturer MAN B&W show VOC, NO_x, and PM reductions of 30, 30, and 25 percent at engine loads greater than 50 percent. At engine loads of less than 25 percent, the emission reductions of VOC, NO_x, and PM were measured at approximately 85, 30, and 60 percent (MAN B&W Diesel A/S, 2004).

For the mitigated emission calculations, high-load emission reductions of 30, 30, and 25 percent for VOC, NO_x, and PM were assigned to ships during fairway and precautionary area transit. Low-load emission reductions of 85, 30, and 60 percent for VOC, NO_x, and PM were assigned to ships during harbor transit, turning, and docking (where load factors range from 2 to 4 percent). Emissions of CO and SO_x were assumed to be unaffected by this measure.

Mitigation Measure AQ-13: New Vessel Builds. All new vessel builds shall incorporate NOx~~NOx, and~~ PM, and GHG control devices on auxiliary and main engines. These control devices include, but are not limited to the following technologies, where appropriate: (1) selective catalytic reduction (SCR) technology, (2) exhaust gas recirculation, (3) in line fuel emulsification technology, (4) diesel particulate filters (DPFs) or exhaust scrubbers, (5) common rail, ~~and~~ (6) Low NO_x burners for boilers, (7) implementation of fuel economy standards by vessel class and engines, and (8) diesel-electric pod-propulsion system.

This measure focuses on reducing DPM, NO_x, and SO_x emissions from main engines and auxiliary engines. OGV engine standards have not kept pace with other engine standards such as trucks and terminal equipment. New vessels destined for California service should be built with these technologies. As new orders for ships are placed, the Ports believe it is essential that the following elements be incorporated into future vessel design and construction:

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

In addition, this measure would also incorporate design changes and technology to reduce GHG emissions where available.

Mitigation Measure AQ-14: Clean Rail Yard Standards: The Berth 136-147 on dock-rail facility shall incorporate the cleanest locomotive technologies into their operations.

The new Berth 136-147 on-dock rail yard would incorporate the cleanest locomotive technologies/measures. These include use of diesel-electric hybrids, multiple engine generator sets, ~~use of~~ alternative fuels, DPFs, SCR, idling shut-off devices, and idling exhaust hoods. The on-dock rail yard would utilize "clean" CHE and HDVs and comply with the CAAP's Technology Advancement Program. Additionally, the Port shall require diesel particulate traps (DPTs) on all PHL switcher locomotives that operate within the Project rail yard beginning in 2015. Because ~~some~~ many of these systems are not yet available, but are expected to be available within the next few years, the air quality analysis only quantifies the implementation of DPTs on PHL locomotives that operate in the Project on-dock rail yard and relocated Pier A rail yard beginning in year 2015. These devises would reduce DPM from these sources by 90 percent from uncontrolled levels. ~~this measure has not been quantified~~

Mitigation Measure AQ-15: Reroute Cleaner Ships. The Berths 136-147 Terminal operator shall use ships meeting IMO MARPOL Annex VI NO_x emissions limits for Category 3 engines to the greatest extent possible when scheduling ship visits.

Under the IMO MARPOL Annex VI, the NO_x emission limit applies to Category 3 engines installed on new vessels retroactive to the year 2000. Although Annex VI was entered into force in May 2005, most engine manufacturers and shipbuilders have been voluntarily complying with the emission limit since 2000 (City of Los Angeles 2005). Some ship engines manufactured before 2000 possibly could meet or fall below the Annex VI emission limit and, as a result, also could present an opportunity for shippers to route their cleanest ships to the Port of Los Angeles (City of Los Angeles 2005). For

main propulsion engines (<130 rpm engine speed), the new NO_x limit is about 6 percent lower than the unmitigated emission factor used in this study. To quantify the effectiveness of this measure, the additional percentage of ships meeting the Annex VI NO_x emission limit was assumed to equal the percentage of ships complying with the AMP mitigation measures (**Mitigation Measure AQ-6**) because the AMP-capable ships would be manufactured during or after 2000. NO_x emissions from non-AMP ships were calculated using the conventional Entec (2002) NO_x emission factor.

Mitigation Measure AQ-16: Truck Idling Reduction Measures. The Berths 136-147 Terminal operator shall ensure that truck idling is reduced at the Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the durations when the main gates are left open, including during off-peak hours, (2) operator shall implement a container tracking and appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck flow capacity to ensure queuing is minimized.

This measure would reduce on-terminal truck idling emissions of all pollutants. Because the effectiveness of this measure has not been established, **Mitigation Measure AQ-16** is not quantified in this study.

Mitigation Measure AQ-17: Periodic Review of New Technology and Regulations. The Port shall require the Berths 136-147 tenant to review, in terms of feasibility, any Port-identified or other new emissions-reduction technology, and report to the Port. Such technology feasibility reviews shall take place at the time of the Port's consideration of any lease amendment or facility modification for the Berths 136-147 property. If the technology is determined by the Port to be feasible in terms of cost, technical and operational feasibility, the tenant shall work with the Port to implement such technology.

Potential technologies that may further reduce emission and/or result in cost-savings benefits for the tenant may be identified through future work on the CAAP. Over the course of the lease, the tenant and the Port shall work together to identify potential new technology. Such technology shall be studied for feasibility, in terms of cost, technical and operational feasibility. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies. As discussed in Section 3.2.4.1, if the tenant requests future Project changes that would require environmental clearance and a lease amendment, future CAAP mitigation measures would be incorporated into the new lease at that time.

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

Mitigation Measure AQ-18B: General Mitigation Measure. For any of the above mitigation measures (**Mitigation Measure AQ-6** through **AQ-16**), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of

emissions performance than the existing measure, the technology could replace the existing measure pending approval by the Port.

Mitigation Measure AQ-26: Throughput Tracking. If the project exceeds project throughput assumptions/projections anticipated through the years 2015, 2025, or 2030, staff shall evaluate the effects of this on the emission sources (ship calls, locomotive activity, backland equipment, and truck calls) relative to the EIR. If it is determined that these emission sources exceed EIR assumptions, staff would evaluate actual air emissions for comparison with the EIR and if the criteria pollutant emissions exceed those in the EIR, then new/additional mitigations would be applied through Mitigation Measure AQ-17.

Residual Impacts

Implementation of **Mitigation Measures AQ-6** through **AQ-18B** would substantially reduce Project operational emissions from unmitigated levels. However, given the uncertainty of implementing **Mitigation Measures AQ-13** through **AQ-18B**, the mitigated emission analysis only considered the effects of **Mitigation Measures AQ-6** through **AQ-12.**

From a CEQA perspective, Table 3.2-25 shows that proposed Project average daily operational emissions after mitigation would exceed the NO_x and SO_x SCAQMD daily thresholds in ~~2007~~2008. The net change in annual emissions between the mitigated Project and CEQA Baseline would not exceed the criterion of 10 tons per year VOC in any project year (See Table D1.2.PPMit-43 in Appendix D1). By 2015, the mitigated Project would produce lower average daily emissions of all pollutants compared to the CEQA baseline.

The data in Table 3.2-26 show that during a peak day of activity, the net change in emissions between the mitigated Project and CEQA Baseline would exceed the VOC, NO_x, and SO_x SCAQMD daily thresholds in ~~2007~~2008 and would remain below all thresholds in 2015 and thereafter. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the mitigated Project under CEQA. By 2015, the mitigated Project would produce lower peak daily emissions of all pollutants compared to the CEQA baseline.

From a NEPA perspective, the data in Table 3.2-25 show that in the following years, the net change in average daily emissions between the mitigated Project and NEPA

Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, NO_x; (2) in 2015, VOC and NO_x; (3) in 2025, all pollutants; and (4) in 2038, all pollutants except PM_{10}. The net change in VOC emissions between the mitigated Project and No Federal Action/NEPA Baseline would exceed the annual threshold of 10 tons in year 2015 and thereafter (See Table D1.2--NFAB-43 in Appendix D1).

The data in Table 3.2-26 show that during a peak day of activity, emissions from the mitigated Project compared to the No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, all thresholds except CO; (2) in 2015, VOC, CO, and NO_x; and (3) in 2025 and 2038, all pollutants except SO_x. As a result, these exceedances of the SCAQMD emission thresholds represent

significant levels of emissions produced during the operation of the Project under NEPA.

Uncalculated Revisions to Operational Assumptions/Mitigation Measures

The revisions to operational assumptions/mitigation measures used in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change emissions from proposed operational activities. The changes to the following assumptions would essentially counter-act each other in terms of changing Project emissions: (1) use of electric rubber-tired gantry (RTGs) cranes in the Project on-dock rail yard instead of diesel-powered units and (2) an increase in line haul locomotive dwell times from 1.0 to 2.5 hours for outbound trains within the Project on-dock rail yard. As mentioned in Section 3.2.4.3.2, initiation of the Project in year 2008 would result in operational emissions in Project year 1 that are essentially the same or slightly lower compared to those estimated for the Project in year 2007, as all Project vehicle fleets except vessels would have an additional year to turn over to vehicles with newer and cleaner emission standards.

The revisions to mitigation measures include implementation of (1) AMP from 40/50 to 50/60 percent in years 2010/2012; (2) 0.2 percent or less sulfur content diesel fuel in 20/30 percent of all OGVs in 2009/2010, instead of 10/20 percent; and (3) slide valves in 50 percent of all OGVs in 2010, instead of 25 percent. Therefore, the net effect of the revised assumptions/mitigation measures would reduce mitigated operational emissions between years 2008 and 2012 by several percent compared to the uncorrected values presented in Tables 3.2-25 and 3.2-26. However, the revised mitigated operational emissions still would exceed the same SCAQMD emission thresholds, as identified in Tables 3.2-25 and 3.2-26.

Table 3.2-25. Mitigated Average Daily Emissions Associated with Operation of the Proposed Project

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	80	185	2,355	1,383	197	185
Ships – Precautionary Area Transit	15	31	312	194	27	26
Ships – Harbor Transit	23	29	216	109	22	20
Ships – Docking	8	8	60	26	6	6
Ships – Hoteling Aux. Sources	42	153	1,505	1,440	128	120
Tugs – Cargo Vessel Assist	2	13	79	0	3	3
Terminal Equipment	122	444	1,420	1	61	56
On-road Trucks	698	2,239	6,819	6	458	278
Trains	109	255	1,524	136	58	53
Railyard Equipment	21	82	237	0	11	10
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,135**	**3,585**	**14,598**	**3,297**	**989**	**772**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**

Table 3.2-25. Mitigated Average Daily Emissions Associated with Operation of the Proposed Project (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Net Change from CEQA Baseline - Year ~~2007~~2008	**(50)**	**(491)**	**1,127**	**573**	**(33)**	**(59)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**1,099**	**3,475**	**14,136**	**3,197**	**958**	**748**
Net Change from NFAB Year ~~2007~~2008	**36**	**110**	**462**	**100**	**31**	**24**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**N**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	23	156	1,088	64	24	23
Ships – Precautionary Area Transit	7	46	299	40	7	6
Ships – Harbor Transit	10	43	260	31	6	6
Ships – Docking	3	12	72	8	2	2
Ships – Hoteling Aux. Sources	18	98	609	768	30	28
Tugs – Cargo Vessel Assist	3	13	72	0	3	3
Terminal Equipment	80	605	90	1	5	4
On-road Trucks	208	733	1,842	10	301	84
Trains	119	326	1,637	1	43	40
Railyard Equipment	11	119	11	0	1	1
Worker Commuter Vehicles	12	161	21	0	22	21
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**496**	**2,321**	**6,033**	**924**	**444**	**216**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2015	**(689)**	**(1,756)**	**(7,438)**	**(1,800)**	**(578)**	**(615)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**428**	**2,031**	**5,399**	**906**	**388**	**195**
Net Change from NFAB Year 2015	**68**	**290**	**634**	**18**	**55**	**21**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**N**	**N**	**N**
Project Year 2025						
Ships – Fairway Transit	31	205	1,357	78	30	29
Ships – Precautionary Area Transit	10	60	374	47	9	8
Ships – Harbor Transit	14	57	348	37	9	8
Ships – Docking	4	15	96	10	2	2
Ships – Hoteling Aux. Sources	7	80	213	937	26	25
Tugs – Cargo Vessel Assist	3	15	67	0	3	3
Terminal Equipment	48	970	152	2	8	7
On-road Trucks	240	849	2,136	12	349	97
Trains	132	430	1,885	2	47	44
Railyard Equipment	14	157	14	0	1	1
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**512**	**2,957**	**6,663**	**1,125**	**509**	**245**

Table 3.2-25. Mitigated Average Daily Emissions Associated with Operation of the Proposed Project (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2025	**(672)**	**(1,120)**	**(6,809)**	**(1,599)**	**(513)**	**(586)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**380**	**2,112**	**5,290**	**930**	**359**	**191**
Net Change from NFAB Year 2025	**132**	**845**	**1,373**	**195**	**150**	**55**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2038						
Ships – Fairway Transit	31	205	1,357	78	30	29
Ships – Precautionary Area Transit	10	60	374	47	9	8
Ships – Harbor Transit	14	57	348	37	9	8
Ships – Docking	4	15	96	10	2	2
Ships – Hoteling Aux. Sources	7	80	213	937	26	25
Tugs – Cargo Vessel Assist	3	15	60	0	3	2
Terminal Equipment	67	1,362	213	3	11	10
On-road Trucks	247	846	2,161	12	346	94
Trains	112	430	1,650	2	39	36
Railyard Equipment	14	157	14	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**515**	**3,287**	**6,499**	**1,126**	**506**	**243**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2038	**(670)**	**(790)**	**(6,973)**	**(1,598)**	**(515)**	**(588)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**414**	**2,358**	**5,382**	**186**	**387**	**216**
Net Change from NFAB Year 2038	**142**	**1,009**	**1,395**	**196**	**149**	**55**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**N**	**Y**

Table 3.2-26. Mitigated Peak Daily Emissions Associated with Operation of the Proposed Project

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	117	265	3,260	1,913	276	258
Ships – Precautionary Area Transit	28	57	527	312	47	44
Ships – Harbor Transit	41	52	392	191	40	37
Ships – Docking	14	14	109	46	12	11
Ships – Hoteling Aux. Sources	78	267	2,789	2,468	236	221
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	702	2,561	8,184	5	352	324
On-road Trucks	956	3,065	9,336	9	628	380
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**2,063**	**6,728**	**26,255**	**5,055**	**1,668**	**1,348**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year ~~2007~~2008	**85**	**(207)**	**3,244**	**1,205**	**61**	**19**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**1,927**	**6,417**	**24,193**	**4,191**	**1,498**	**1,195**
Net Change from NFAB Year ~~2007~~2008	**136**	**310**	**2,062**	**864**	**171**	**153**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**Y**	**Y**
Project Year 2015						
Ships – Fairway Transit	47	324	1,764	92	39	36
Ships – Precautionary Area Transit	17	102	554	59	13	12
Ships – Harbor Transit	22	92	556	50	14	13
Ships – Docking	7	25	154	13	4	4
Ships – Hoteling Aux. Sources	16	124	553	1,215	39	37
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	385	2,899	433	6	22	20
On-road Trucks	285	1,004	2,522	14	412	115
Trains	119	326	1,636	1	43	40
Railyard Equipment	2	24	2	0	0	0
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**915**	**5,060**	**8,346**	**1,450**	**616**	**304**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2015	**(1,062)**	**(1,875)**	**(14,665)**	**(2,401)**	**(991)**	**(1,025)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**804**	**4,461**	**7,754**	**1,453**	**542**	**277**
Net Change from NFAB Year 2015	**111**	**600**	**591**	**(3)**	**74**	**27**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**N**	**N**	**N**

Table 3.2-26. Mitigated Peak Daily Emissions Associated with Operation of the Proposed Project (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2025						
Ships – Fairway Transit	47	324	1,764	92	39	36
Ships – Precautionary Area Transit	17	102	554	59	13	12
Ships – Harbor Transit	22	92	556	50	14	13
Ships – Docking	7	25	154	13	4	4
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	105	0	5	4
Terminal Equipment	182	3,680	577	8	29	27
On-road Trucks	329	1,162	2,924	16	478	133
Trains	134	437	1,914	2	48	44
Railyard Equipment	15	160	15	0	1	1
Worker Commuter Vehicles	4	55	6	0	30	28
Relocated PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**772**	**6,170**	**8,847**	**1,438**	**694**	**333**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2025	**(1,205)**	**(765)**	**(14,163)**	**(2,413)**	**(913)**	**(995)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**527**	**4,163**	**6,811**	**1,426**	**479**	**249**
Net Change from NFAB Year 2025	**246**	**2,007**	**2,037**	**12**	**215**	**84**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
Project Year 2038						
Ships – Fairway Transit	47	324	1,764	92	39	36
Ships – Precautionary Area Transit	17	102	554	59	13	12
Ships – Harbor Transit	22	92	556	50	14	13
Ships – Docking	7	25	154	13	4	4
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	182	3,680	577	8	29	27
On-road Trucks	338	1,159	2,959	17	474	129
Trains	114	437	1,675	2	40	37
Railyard Equipment	15	160	15	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**761**	**6,162**	**8,631**	**1,438**	**681**	**322**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2038	**(1,216)**	**(773)**	**(14,379)**	**(2,413)**	**(925)**	**(1,007)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**513**	**4,102**	**6,634**	**1,426**	**476**	**246**
Net Change from NFAB Year 2038	**248**	**2,060**	**1,997**	**12**	**206**	**76**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**N**	**Y**	**Y**

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

A dispersion modeling analysis was performed to estimate the ambient impact of operational emissions from the proposed Project. The analysis focused on year 2010, as Project operational sources would produce the highest amount of daily and annual emissions during this year within and adjacent to the Berths 136-147 Terminal. In other words, this scenario would produce the highest Project ambient impacts within the Port region for any Project year, even in comparison to years ~~2007~~2008 through 2009 and 2015, when Project construction emissions would combine and overlap with operational emissions. Appendix D2 contains documentation of the Project operational emissions dispersion modeling analysis.

Table 3.2-27 presents the maximum offsite ground level concentrations of criteria pollutants estimated for Project operations without mitigation. These data show that total maximum NO_2 concentrations would exceed the 1-hour and annual SCAQMD thresholds. Additionally, Project operations would exceed the SCAQMD 24-hour $PM_{10}/PM_{2.5}$ thresholds of 2.5 $\mu g/m^3$.

A modeling was performed to evaluate the ambient impact of CO emissions from Project on-road auto and truck traffic generated by the Project. Table 3.2-27 shows that maximum impacts from these sources would remain below both the 1-hour and 8-hour CO significance criteria. The location of these maximum impacts would occur within the Buffer Area adjacent to Harry Bridges Boulevard.

CEQA Impact Determination

Proposed Project operations would contribute to significant levels of 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations under CEQA.

NEPA Impact Determination

Proposed Project operations would contribute to significant levels of 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations under NEPA.

Mitigation Measures

Implementation of **Mitigation Measures AQ-6** through **AQ-18** would substantially reduce the ambient impact of Project operational emissions from unmitigated levels. However, given the uncertainty of implementing **Mitigation Measures AQ-13** through **AQ-18**, the mitigated dispersion modeling analysis only considered the effects of **Mitigation Measures AQ-6** through **AQ-12.**

Table 3.2-28 presents the maximum off-site ground level concentrations of criteria pollutants estimated for Project operations after mitigation. These data show that **Mitigation Measures AQ-6** through **AQ-12** would reduce all pollutant impacts, but 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ CEQA and NEPA increments would still exceed the SCAQMD ambient thresholds.

Table 3.2-27. Maximum Offsite Ambient Concentrations – Proposed Project Operations Without Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from Project Emissions (µg/m³)*	*Background Pollutant Concentration (µg/m³)*	*Total Maximum Project Impact (µg/m³)*	*SCAQMD Threshold [a] (µg/m³)*
NO_2 [b]	1-hour	**1,946**	263	**2,209**	338
	Annual	39	54	**93**	56
CO	1-hour	2,791	6,629	9,420	23,000
	8-hour	723	5,371	6,094	10,000
		Maximum Impact from Project Emissions (µg/m³)	*Maximum Impact from CEQA Baseline Emissions (µg/m³)*	*Maximum CEQA Increment (µg/m³) [c]*	
PM_{10}	24-hour	51.9	24.1	**27.9**	2.5
$PM_{2.5}$	24-hour	47.8	22.1	**25.7**	2.5
		Maximum Impact from Project Emissions (µg/m³)	*Maximum Impact from NEPA Baseline Emissions (µg/m³)*	*Maximum NEPA Increment (µg/m³) [d]*	
PM_{10}	24-hour	46.2	17.9	**28.8**	2.5
$PM_{2.5}$	24-hour	43.0	16.5	**26.5**	2.5
		Maximum Impact from Project On-Road Emissions (µg/m³)	*Maximum Impact from CEQA Baseline On-Road Emissions (µg/m³)*	*Maximum CEQA On-Road Sources Increment (µg/m³) [ce]*	
CO	1-hour	629	145	484	1,150
	8-hour	155	37	118	518
		Maximum Impact from Project On-Road Emissions (µg/m³)	*Maximum Impact from NEPA Baseline On-Road Emissions (µg/m³)*	*Maximum NEPA On-Road Sources Increment (µg/m³) [de]*	
CO	1-hour	642	145	497	1,150
	8-hour	156	33	123	518

[a] Exceedances of the thresholds are indicated in bold. The thresholds for PM_{10}/$PM_{2.5}$ are incremental thresholds and therefore only impacts from Project emissions without background pollutant concentrations are compared to the thresholds. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from Project emissions plus background pollutant concentrations are compared to the thresholds.

[b] NO_2 concentrations based upon source/maximum impact locations distances of either 500 or 1000 meters. The NO_x to NO_2 conversion rates for these distances were 25.8 and 46.7 percent (SCAQMD, 2003c). This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are closer than 500 meters from this location.

[c] Equal to Project impact minus CEQA Baseline impact.

[d] Equal to Project impact minus NEPA Baseline (NFAB) impact.

[e] Represents the highest incremental impacts within 0.25 miles of a sensitive receptor.

Table 3.2-28. Maximum Offsite Ambient Concentrations – Proposed Project Operations After Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from Project Emissions (µg/m³)*	*Background Pollutant Concentration (µg/m³)*	*Total Maximum Project Impact (µg/m³)*	*SCAQMD Threshold [a] (µg/m³)*
NO_2 [b]	1-hour	**1,542**	263	**1,805**	338
	Annual	27	54	**81**	56
CO	1-hour	2,427	6,629	9,056	23,000
	8-hour	524	5,371	5,895	10,000
		Maximum Impact from Project Emissions (µg/m³)	*Maximum Impact from CEQA Baseline Emissions (µg/m³)*	*Maximum CEQA Increment (µg/m³) [c]*	
PM_{10}	24-hour	21.7	10.6	**11.1**	2.5
$PM_{2.5}$	24-hour	20.0	9.8	**10.2**	2.5
		Maximum Impact from Project Emissions (µg/m³)	*Maximum Impact from NEPA Baseline Emissions (µg/m³)*	*Maximum NEPA Increment (µg/m³) [d]*	
PM_{10}	24-hour	30.0	22.2	**7.7**	2.5
$PM_{2.5}$	24-hour	27.5	20.4	**7.1**	2.5
		Maximum Impact from Project On-Road Emissions (µg/m³)	*Maximum Impact from CEQA Baseline On-Road Emissions (µg/m³)*	*Maximum CEQA On-Road Sources Increment (µg/m³) [ce]*	
CO	1-hour	153	82	71	1,150
	8-hour	38	30	8	518
		Maximum Impact from Project On-Road Emissions (µg/m³)	*Maximum Impact from NEPA Baseline On-Road Emissions (µg/m³)*	*Maximum NEPA On-Road Sources Increment (µg/m³) [de]*	
CO	1-hour	169	133	36	1,150
	8-hour	42	33	9	518

[a] Exceedances of the thresholds are indicated in bold. The thresholds for PM_{10}/$PM_{2.5}$ are incremental thresholds and therefore only impacts from Project emissions without background pollutant concentrations are compared to the thresholds. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from Project emissions plus background pollutant concentrations are compared to the thresholds.

[b] NO_2 concentrations based upon source/maximum impact locations distances of either 500 or 1000 meters. The NO_x to NO_2 conversion rates for these distances were 25.8 and 46.7 percent (SCAQMD, 2003c). This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are closer than 500 meters from this location.

[c] Equal to Project impact minus CEQA Baseline impact.

[d] Equal to Project impact minus NEPA Baseline (NFAB) impact.

[e] Represents the highest incremental impacts within 0.25 miles of a sensitive receptor.

Residual Impacts

Proposed Project residual air quality impacts would remain significant after mitigation for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ impacts under CEQA and NEPA.

Uncalculated Revisions to Operational Assumptions/Mitigation Measures

As mentioned in the discussion of Impact AQ-3, the revisions to the operational assumptions/mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change emissions from proposed operational activities. The combined effect of these revised assumptions/mitigation measures would reduce the ambient impact of mitigated Project operational emissions between years 2008 and 2012 by several percent compared to the uncorrected values presented in Table 3.2-28, as these data are based upon Project emissions in year 2010. However, the revised mitigated impacts still would result in exceedances of the SCAQMD thresholds, as identified in Table 3.2-28.

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

The following presents the results of a health risk assessment (HRA) that was used to quantify the significance of public health effects generated by Project emissions of TACs. The Project HRA was conducted in accordance with a Protocol developed in consultation with the CARB and SCAQMD (POLA 2005b). The HRA evaluated cancer and non-cancer effects, which is consistent with quantitative health impact analyses used for purposes of CEQA and NEPA documentation. Estimates of Project health effects included the evaluation of (1) operational emissions from the expanded Berths 136-147 Terminal and relocated Pier A rail yard operated by PHL and (2) DPM emissions from Project construction. Appendix D3 of this EIS/EIR presents documentation of the Project HRA and Section 3.2.5 provides a synopsis of this report. Appendix D4 presents the emissions calculations used to develop the HRA. Since the Project would generate emissions of DPM, **Impact AQ-6** also discusses the effects of ambient particulate matter (PM) on increased mortality and morbidity.

Significance of Project Health Impacts

Emissions of TACs from Project operational sources would occur from the (1) internal combustion of diesel or residual fuels in ships, tugboats, terminal equipment, locomotives, and trucks and (2) external combustion of diesel or residual fuels in OGV service boilers. Emissions of TACs from Project construction sources would occur from the internal combustion of diesel fuels in construction equipment and associated harbor craft. For health effects resulting from long-term exposure to Project diesel emissions, the Project HRA only considered DPM emissions, in accordance with the Office of Environmental Health Hazard Assessment (OEHHA) guidance (OEHHA 2003). In regard to acute non-cancer effects from Project diesel sources, OEHHA assesses both criteria pollutants and chemicals that are subsets of VOCs and particulate matter.

For the determination of significance from a CEQA standpoint, this HRA determined the incremental increase in health effects values due to the proposed Project by estimating the net change in impacts between the proposed Project and CEQA Baseline conditions. For the determination of significance from a NEPA standpoint, this HRA determined the incremental increase in health effects values due to the proposed Project by estimating the net change in impacts between the proposed Project and No Federal Action/NEPA Baseline. Both of these incremental health effects values (proposed Project minus CEQA

Baseline and proposed Project minus No Federal Action/NEPA Baseline) were compared to the health risk thresholds identified in Section 3.2.4.2 to determine their significance.

To estimate cancer risk impacts, DPM emissions were projected over a 70-year period, from 2007 through 2076. This 70-year projection of emissions was done for each Project Alternative and the CEQA Baseline and No Federal Action/NEPA Baseline to enable a proper calculation of cancer risk increments between each Project Alternative and the baseline scenarios. To calculate the 70-year emissions, estimates of activity levels and emission factors were made for each year from 2007 through 2076. Yearly equipment activity levels from 2007 through 2038 were interpolated from Project years 2007, 2010, 2015, 2025, and 2038 for the proposed Project and No Federal Action/NEPA Baseline. Activity levels after 2038 were held constant at their 2038 values. For the CEQA Baseline, activity levels were held constant at their 2003 values for all years. Where applicable, yearly emission factors were allowed to decrease with time in accordance with currently adopted regulations. In addition, the No Federal Action/NEPA Baseline implements applicable CAAP measures with time, which would result in 70-year average emissions that are lower than the CEQA Baseline.

Project construction activities would occur between ~~2007~~2008 and 2016. The analysis divided total DPM emissions from construction by 70 years to create 70-year annual average DPM emission rates. The analysis then added these emissions to the 70-year annual average operational DPM emissions to estimate total Project cancer effects.

The HRA estimated health impacts to several population subgroups (receptors), including residential, off-site occupational, sensitive, student, and recreational. Each of these receptor types has specific air pollutant exposure duration and breathing rate factors, as presented in Appendix D3.

To estimate Project non-cancer effects, the HRA focused on Project operations in year 2010, as this was determined in consideration of annual emissions and their locations to be the year with the greatest incremental impacts between the Project and baseline conditions. Operational emissions in year 2010 would produce the highest Project ambient impacts within the Port region for any Project year, even in comparison to years ~~2007~~2008 through 2009 and 2015, when Project construction emissions would combine and overlap with operational emissions. Illnesses associate with non-cancer effects include cardiovascular or respiratory diseases, exacerbation of asthma, acute and chronic bronchitis, decrease in lung function, and mortality.

Table 3.2-29 presents estimates of cancer risk, chronic (annual) non-cancer hazard index, and acute non-cancer hazard index impacts that correspond to the maximum CEQA increment (proposed Project minus CEQA Baseline) and NEPA increment (proposed Project minus No Federal Action/NEPA Baseline). All other incremental health impacts within the modeling domain would be less than those shown in Table 3.2-29. Since the No Federal Action/NEPA Baseline implements applicable CAAP measures with time, its emissions are lower than the CEQA Baseline. As a result, the NEPA increments presented in Table 3.2-29 are higher than the CEQA increments.

Table 3.2-29. Maximum Health Impacts due to the Proposed Project Without Mitigation

Health Impact	*Receptor Type*	MAXIMUM PREDICTED INCREMENTAL IMPACTS[1]						*Significance Threshold*[3]
		Proposed Project	*CEQA Baseline*	*CEQA Increment*[2]	*Proposed Project*	*NEPA Baseline*	*NEPA Increment*[2]	
Cancer Risk	Residential	272×10^{-6}	117×10^{-6}	**155×10^{-6}**	272×10^{-6}	43×10^{-6}	**229×10^{-6}**	10×10^{-6}
	Occupational	146×10^{-6}	49×10^{-6}	**98×10^{-6}**	146×10^{-6}	20×10^{-6}	**127×10^{-6}**	
	Sensitive	183×10^{-6}	70×10^{-6}	**113×10^{-6}**	183×10^{-6}	30×10^{-6}	**153×10^{-6}**	
	Student	3.8×10^{-6}	1.5×10^{-6}	2.4×10^{-6}	3.8×10^{-6}	0.6×10^{-6}	3.2×10^{-6}	
	Recreational	109×10^{-6}	48×10^{-6}	**61×10^{-6}**	115×10^{-6}	20×10^{-6}	**95×10^{-6}**	
Chronic Hazard Index	Residential	0.50	0.32	0.18	0.57	0.25	0.32	1.0
	Occupational	0.89	0.57	0.32	0.86	0.39	0.47	
	Sensitive	0.38	0.22	0.16	0.38	0.18	0.20	
	Student	0.31	0.20	0.11	0.31	0.14	0.17	
	Recreational	0.83	0.46	0.37	0.85	0.38	0.47	
Acute Hazard Index[4]	Residential	3.60	2.47	**1.13**	3.60	1.83	**1.77**	1.0
	Occupational	4.01	2.62	**1.39**	4.57	2.38	**2.19**	
	Sensitive	3.35	2.33	**1.02**	3.35	1.72	**1.63**	
	Student	2.77	1.92	0.85	2.77	1.42	**1.35**	
	Recreational	4.65	3.21	**1.44**	4.76	2.47	**2.29**	

Notes:

(1) Data represent project scenario impacts that contribute to maximum CEQA/NEPA incremental impacts.

(2) The CEQA Increment represents proposed Project impact minus CEQA Baseline impact. The NEPA Increment represents proposed Project impact minus NEPA Baseline impact.

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

(4) For the acute hazard index, two possible maximum 1-hour scenarios were modeled: (1) one ship hoteling and one ship harbor transiting, turning, and docking; and (2) two ships hoteling. The scenario that yielded the highest result is reported for each impact type.

Figures D3-10 through D3-14 in Appendix D3 show the distribution of predicted residential cancer risks within the modeling domain for the following scenarios: (1) CEQA Baseline (also presented in Figure 3.2-1), (2) No Federal Action/NEPA Baseline, (3) unmitigated Project, (4) unmitigated CEQA increment (unmitigated Project minus CEQA Baseline), and (5) unmitigated NEPA increment (unmitigated Project minus No Federal Action/NEPA Baseline). As an explanation of the incremental cancer risks presented in these figures, the Project unmitigated CEQA cancer risk increment shown in Figure D3-13 is obtained by subtracting the data in Figure D3-10 (CEQA Baseline cancer risk) from Figure D3-12 (unmitigated Project cancer risk).

CEQA Impact Determination

Table 3.2-29 shows that the maximum CEQA increment for residential cancer risk is predicted to be 155 in a million (155×10^{-6}). This risk value exceeds the significance criterion of 10 in a million (10×10^{-6}) risk; this impact would be significant under CEQA. This impact would occur just northeast of the intersection of C Street and Mar Vista Avenue in Wilmington. The maximum cancer risk increments at an off-site occupational (near the corner of Fries Avenue and La Paloma Street), sensitive, and recreational receptor also would exceed the 10 in a million significance criterion. The maximum cancer risk increment at a student receptor would be less than significant.

The prediction for the maximum CEQA increment for acute non-cancer effects would exceed the 1.0 hazard index significance criterion at residential, occupational, and recreational receptors in proximity to the Project terminal. The maximum occupational and recreational impacts would occur along Fries Avenue south of Pier A Street and in the southwest portion of the HBB Buffer. The maximum CEQA increment for acute non-cancer effects to student receptor types would remain below the 1.0 hazard index significance criterion. The prediction for the maximum CEQA increment for chronic non-cancer effects would remain below the significance criterion of 1.0 at all receptor types.

The main contributors of Project emissions to the maximum residential cancer risk location northeast of the intersection of C Street and Mar Vista Avenue include (1) 70 percent by ship hoteling, (2) 12 percent by terminal and rail yard equipment, (3) 9 percent by off-site trucks, and (4) 4 percent by on-terminal trucks. Container vessel emissions that occur outside of the Port within the precautionary area and fairway zones would contribute approximately 1 percent of the total cancer risk at this location. Operational emissions from the relocated PHL rail yard would contribute to less than 0.1 percent of the risk at this location.

NEPA Impact Determination

Table 3.2-29 shows that the maximum NEPA increment for residential cancer risk predicted for the unmitigated proposed Project is 229 in a million (229×10^{-6}), which exceeds the significance criterion of 10 in a million risk; this impact would be significant under NEPA. This impact would occur just northeast of the intersection of C Street and Mar Vista Avenue, in the same location as the CEQA incremental impact. The maximum cancer risk increments at an off-site occupational (also near the corner of Fries Avenue and La Paloma Street), sensitive, and recreational receptor also would exceed the 10 in a million significance criterion.

The prediction for the maximum NEQA increment for acute non-cancer effects would exceed the 1.0 hazard index significance criterion at all receptor types in proximity to the Project terminal. These maximum impacts would occur (1) in the vicinity of C Street and Gulf Avenue (residential), (2) along La Paloma Street (occupational), (3) near Wilmington Boulevard and D Street (sensitive), (4) at Hawaiian Avenue Elementary School (student), and (5) in the southern portion of the HBB Buffer (recreational). The prediction for the maximum NEPA increment for chronic non-cancer effects would remain well below the 1.0 hazard index significance criterion at all receptor types.

Figure 3.2-1. CEQA Baseline Residential Cancer Risk Estimate - Berths 136-147 Terminal Project EIS/EIR.

Mitigation Measures

Consistent with the approach taken to mitigate **Impacts AQ-3 and AQ-4**, the mitigated HRA considered the ability of **Mitigation Measures AQ-6** through **AQ-12** to reduce Project emissions of TACs.

Residual Impacts

Figures D3-15 through D3-17 in Appendix D3 show the distribution of predicted residential cancer risks for the (1) mitigated Project, (2) mitigated CEQA increment (mitigated Project minus CEQA Baseline) (also shown in Figure 3.2-2), and (3) mitigated NEPA increment (mitigated Project minus No Federal Action/NEPA Baseline).

Table 3.2-30 summarizes the maximum health impacts predicted to occur from the operation of the proposed Project with mitigation. An analysis was not performed for mitigated chronic non-cancer effects, due to the minimal unmitigated values of the Project increments. Table 3.2-30 shows that the maximum CEQA increment for residential cancer risk predicted for the mitigated Project is reduced to 1.4 in a million (1.4×10^{-6}), which is less than the significance criterion of 10 in a million. The location of this impact is near Berth 202 within the Consolidated Slip Marina in association with a live aboard. Table 3.2-30 also shows that the maximum mitigated Project CEQA cancer risk increments at other receptor types would remain below the 10 in a million significance criterion. Review of Figure D3-16 in Appendix D3 shows that the mitigated Project would produce lower residential cancer risks compared to the CEQA Baseline within the entire modeling domain except for a small area that encompasses the Consolidated Slip that is northeast of the Berths 136-147 Terminal.

The main contributors of Project emissions to the maximum mitigated CEQA residential cancer risk location within the Consolidated Slip Marina include (1) 30 percent by locomotives that haul cargo along the rail line that parallels Alameda Street, (2) 20 percent by ships hoteling (mainly from boiler emissions), (3) 17 percent by locomotives within the relocated PHL rail yard, and (4) 12 percent by off-site trucks. Container vessel emissions that occur outside of the Port within the Precautionary area and fairway zones would contribute approximately 2 percent of the total cancer risk at this location.

Table 3.2-30 shows that the mitigated Project would reduce maximum CEQA increments for acute non-cancer effects to below the 1.0 hazard index significance criterion at all receptor types.

The maximum NEPA increment for residential, occupational, and sensitive cancer risks predicted for the mitigated Project is 20, 10.1, and 13.6 in a million, meaning that the mitigated Project would produce significant cancer risks compared to the No Federal Action/NEPA Baseline to these receptor types. Since the No Federal Action/NEPA Baseline implements applicable CAAP measures with time, its emissions are lower than the CEQA Baseline. As a result, the NEPA cancer risk increments presented in Table 3.2-30 are higher than the CEQA increments. The location of the maximum NEPA increment for residential cancer risk is just northeast of the intersection of C Street and Mar Vista Avenue, in the same location as the maximum NEPA incremental impact for the unmitigated Project. This location differs from the location of the

maximum CEQA incremental residential cancer risk for the mitigated Project. This is due to the differences in the locations and magnitudes of emissions between these four scenarios. As an example, the following main contributors of Project emissions to maximum mitigated NEPA residential cancer risk at this impact location differ from those that produced the maximum mitigated

Table 3.2-30. Maximum Health Impacts due to the Proposed Project After Mitigation

Health Impact	*Receptor Type*	MAXIMUM PREDICTED IMPACT[1]						*Significance Threshold*[3]
		Mitigated Proposed Project	*CEQA Baseline*	*CEQA Increment*[2]	*Mitigated Proposed Project*	*No Federal Action Baseline*	*NEPA Increment*[2]	
Cancer Risk	Residential	15.0×10^{-6}	13.6×10^{-6}	1.4×10^{-6}	62.7×10^{-6}	42.7×10^{-6}	**20.0×10^{-6}**	10×10^{-6}
	Occupational	2.9×10^{-6}	1.6×10^{-6}	1.3×10^{-6}	29.6×10^{-6}	19.5×10^{-6}	**10.1×10^{-6}**	
	Sensitive	4.8×10^{-6}	7.3×10^{-6}	$-2.5. \times 10^{-6}$	43.2×10^{-6}	29.6×10^{-6}	**13.6×10^{-6}**	
	Student	$.01 \times 10^{-6}$	0.2×10^{-6}	-0.1×10^{-6}	0.9×10^{-6}	0.6×10^{-6}	0.3×10^{-6}	
	Recreational	14.7×10^{-6}	16.7×10^{-6}	-2.0×10^{-6}	28.0×10^{-6}	19.8×10^{-6}	8.2×10^{-6}	
Acute Hazard Index[4]	Residential	1.85	1.72	0.13	2.51	1.87	0.64	1.0
	Occupational	2.44	2.23	0.21	3.19	2.38	0.81	
	Sensitive	1.12	1.05	0.07	2.32	1.72	0.60	
	Student	1.53	1.45	0.08	1.93	1.42	0.51	
	Recreational	3.19	3.21	(0.02)	3.32	2.47	0.85	

Notes:

(1) Data represent project scenario impacts that contribute to maximum CEQA/NEPA incremental impacts.

(2) The CEQA Increment represents proposed Project impact minus CEQA Baseline impact. The NEPA Increment represents proposed Project impact minus No Federal Action baseline impact.

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

(4) For the acute hazard index, two possible maximum 1-hour scenarios were modeled: (1) one ship hoteling and one ship harbor transiting, turning, and docking; and (2) two ships hoteling. The scenario that yielded the highest result is reported for each impact type.

(5) Mitigation measures quantified in this HRA for the Mitigated Project include **AQ-6** through **AQ-12.** The HRA did not consider mitigated chronic non-cancer effects, as these unmitigated effects were less than significant.

Figure 3.2-2. Proposed Project Mitigated minus CEQA Baseline Residential Cancer Risk Estimate Berths 136-147 Terminal Project EIS/EIR.

CEQA residential cancer risk: (1) 39 percent by ships hoteling (mainly from boiler emissions), (2) 31 percent by terminal and rail yard equipment, (3) 16 percent by off-site trucks, and (4) 5 percent by on-terminal trucks. Container vessel emissions that occur outside of the Port within the Precautionary area and fairway zones would contribute approximately 0.5 percent of the total cancer risk at this location.

Table 3.2-30 shows that the mitigated Project would reduce maximum NEPA increments for acute non-cancer effects to below the 1.0 hazard index significance criterion at all receptor locations. As a result, acute non-cancer impacts from the mitigated Project would be less than significant under NEPA.

Uncalculated Revisions to Construction and Operational Assumptions/Mitigation Measures

As mentioned in the discussions of Impacts AQ-1 through AQ-4, the revisions to the construction and operational assumptions/mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change Project emissions. The combined effect of these revised assumptions/mitigation measures would reduce the ambient health impacts of mitigated Project construction and operational emissions between years 2008 and 2012 by several percent compared to the uncorrected values presented in Table 3.2-30. However, the revised mitigated impacts still would result in exceedances of the cancer risk threshold, as identified in Table 3.2-30.

HRA Baseline and Source Impact Contributions and Locations

Significance of the cancer HRA is determined by comparing the maximum increment of the Project minus baseline scenario to the 10 in a million threshold. The CEQA increment represents Project impact minus CEQA Baseline impact. The NEPA Increment represents Project impact minus No Federal Action/NEPA Baseline impact. The HRA results are based upon the relationships between emission source locations ~~and~~ /strengths, ~~and~~ receptor impact locations, and these different baselines. Since source strengths vary between the proposed Project, mitigated Project, and the baseline scenarios, the potential exists for the locations of the maximum increments for the Project scenarios in comparison to the baseline conditions to differ. For example, Table 3.2-30 reports the maximum residential CEQA increment at 1.4 in a million for the mitigated Project. This maximum impact occurs near Berth 202 within the Consolidated Slip Marina largely because ~~on-dock rail~~ sources associated with the on-dock rail would not exist with the CEQA Baseline and therefore they would not cancel out these emissions that would occur with the mitigated Project. As a result, the maximum difference in emissions and impacts between these two scenarios occurs in the location of these sources east of the Berths 136-147 Terminal, as shown in Figure D3-16.

Table 3.2-30 also shows that the maximum residential NEPA increment is 20 in a million for the mitigated Project. On-dock rail sources exist under the No Federal Action/NEPA Baseline scenario and therefore they would cancel out these emissions that would occur with the mitigated Project. As a result, the maximum residential NEPA increment is dominated by emissions from hoteling and terminal equipment mitigated Project sources, which shifts the impact location to near the intersection of C Street and Mar Vista Avenue, as shown in Figure D3-17.

Tables 3.2-29 and 3.2-30 identify the maximum predicted cancer risk increments for each receptor type, which are essential to evaluating the significance of Project cancer risks. It is also instructive to review Figures D3-10 through D3-17, which show the individual Project and baseline scenario cancer risks and the Project incremental cancer risks predicted across the modeling domain. These data show that (1) predicted cancer risks vary greatly by location, (2) air quality mitigations and CAAP measures would significantly reduce cancer risks, and (3) the baseline condition used to calculate incremental cancer risks greatly affects the cancer risks attributed to the Project. More specifically, CEQA Baseline cancer risks (Figure D3-10) are higher than No Federal Action/NEPA Baseline cancer risks (Figure D3-11) at a given location, because it does not include any CAAP measures, as opposed to the No Federal Action/NEPA Baseline. As a result, Project cancer risks minus the lower No Federal Action/NEPA Baseline cancer risks results in higher incremental cancer risks, compared to use of the CEQA Baseline.

Quantifying Morbidity and Mortality

CARB's recent study (CARB2006a and CARB2006b) used a health effects model, based on multiple epidemiological studies, which quantified expected non-cancer impacts of mortality and morbidity from ambient PM exposure (for example premature deaths, cardiac and respiratory hospitalizations, asthma and other lower respiratory symptoms, and lost work/school days). The study focused on large-scale applications such as the benefits of attaining the State air quality standard for $PM_{2.5}$, the impacts of goods movement emissions on a statewide and broad regional level, and the impacts from combined operations at the Ports of Los Angeles and Long Beach (CARB2006a and CARB2006b).

CARB staff have stated that it would be neither appropriate nor meaningful to apply the health effects model used in the CARB study to quantify the mortality and morbidity impacts of PM on a project of the proposed Project's size because values quantified for a specific location would fall within the margin of error for their methodology (CARB2007). Because CARB's methodology was designed for larger-scaled projects affecting a much larger population, the methodology may not be sensitive enough to provide accurate results for projects affecting much smaller populations. The proposed Project is located in Wilmington and, based on the health risk assessment completed for this Project, the potential health impacts of PM emissions would largely be restricted to an area 4 miles east-west by 6 miles north-south around the terminal area (about 20,000 people). In contrast, CARB's study looked at a 40-mile by 50-mile area with a population of over 400,000 people. In addition CARB is also in the process of updating the health information that relates changes in $PM_{2.5}$ exposures to premature death. A public workshop was held on August 21, 2006 to discuss our approach for revising the methodology. A formal review of the updated methodology and analysis would be conducted by a peer review committee composed of experts in the fields of epidemiology, health impacts quantification and economics (personal communications, CARB staff).

Due to potential scale issues, Port staff also contacted OEHHA to discuss an appropriate methodology to assess the potential morbidity and mortality impacts from the Project. OEHHA is in the process of developing further guidance on health impacts from PM exposure. This guidance would be released later this summer for public comment and peer review. In the absence of further guidance, staff was

directed to the "Public Hearing to Consider Amendments to Ambient Air Quality Standards for Particulate Matter and Sulfates" (CARB 2002). This document pools together different research papers and epidemiological studies and describes how different impacts of morbidity and mortality (for example, long-term mortality, chronic bronchitis, and hospital admissions for asthma) were quantified in considering AAQS revisions for PM. The document used concentration-response (C-R) functions to determine morbidity and mortality impacts. C-R functions are equations that relate the change in the number of adverse health effect incidences in a population to a change in pollutant concentration experienced by that population. Normally, epidemiological studies are used to estimate the relationship between a pollutant and a particular health endpoint at different locations. Most common C-R functions are represented in log-linear form.

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

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

where:

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

y_0 = baseline incidence rate per person

β = coefficient (PM_{10}: 0.00231285); this coefficient is based on the relative risk that is associated with a particular concentration and varies from one study to another.

ΔPM = change in PM concentration

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

- Location: Intersection of E Street and Neptune Avenue, Wilmington
- Population (>25 years of age): 3,305 within a 0.3-mile radius (extending to Harry Bridges Blvd.)
- Change in annual PM_{10} concentration: 0.1 $\mu g/m^3$ (unmitigated peak project minus CEQA baseline, as shown in Figure 3.2-3)

The increase in incidence of long-term mortality corresponding to this change in PM_{10} concentration was calculated to be: 0.006848 cases per year.

However, as shown in Section 3.2.5, proposed **Mitigation Measures AQ-6** through **AQ-16** are expected to reduce DPM emissions relative to baseline DPM emissions, thereby reducing potential impacts on morbidity and mortality.

According to the CARB/OEHHA document, the standard error of the β coefficient is 0.0006023 for PM_{10}.

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

Among the uncertainties in the risk estimates is the degree of transferability of the concentration-response functions to California. Many of the epidemiologic studies used by CARB/OEHHA do include several California cities, but not all. For example, the C-R function for long-term mortality (Krewski et al., 2000) included eight California cities out of a total of 63 cities. Another uncertainty stems from the issue of co-pollutants. Specifically, it is possible that some of the estimated health effects include the effects of both PM and other correlated pollutants. Finally, the studies used in developing the C-R functions do not usually take into consideration estimates of averting behaviors. Examples of averting behaviors include measures that prevent symptoms from occurring in the first place, such as avoiding strenuous exertion on days with high PM, staying indoors, the use of filters, etc.

However, perhaps the most compelling ~~use~~ limitation ~~of~~ to use C-R functions for site-specific projects is the consideration of whether it is valid to apply the C-R functions to changes in ambient PM concentrations that are far below the thresholds used to develop the C-R functions~~ambient concentration~~. For example, the CARB/OEHHA analysis applied a threshold of 18 $\mu g/m^3$ for the long-term mortality C-R function because this was the lowest concentration level observed in the long-term mortality studies evaluated. In other words, CARB/OEHHA assumed that the C-R functions were continuous and differentiable down to threshold levels. In the case of trying to quantify project-specific impacts, it may not be appropriate to use C-R functions that were developed with a threshold significantly higher than the change in PM due to the project.

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

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

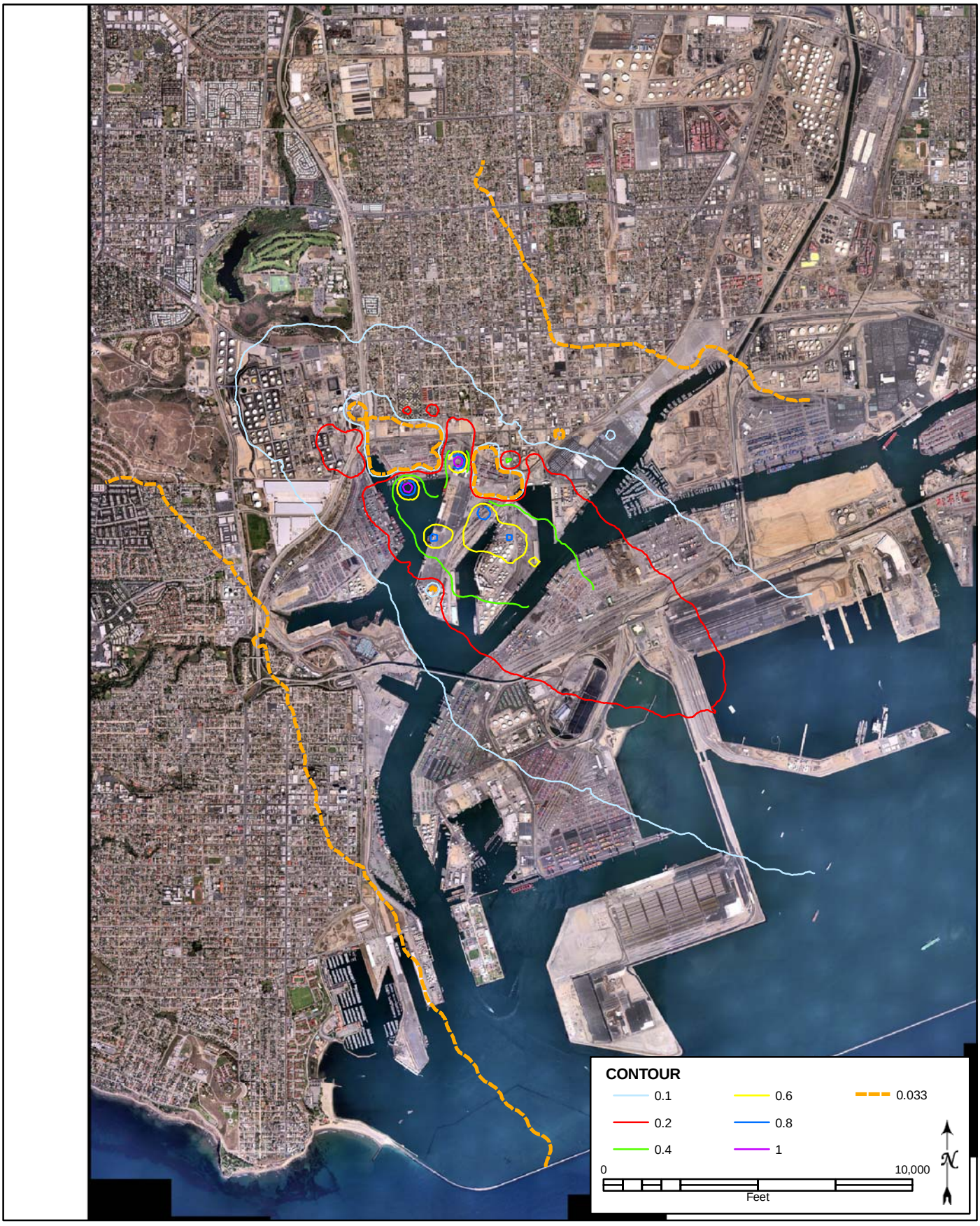

Figure 3.2-3. Unmitigated Proposed Project minus CEQA Baseline Annual DPM concentrations (ug/m3)

Table 3.2-31 summarizes the total GHG construction emissions associated with the proposed Project. The emissions are totaled over the entire multiple-year construction period. The construction sources for which GHG emissions were calculated include off-road diesel equipment, on-road trucks, and marine cargo vessels used to deliver equipment to the site, and worker commute vehicles.

Table 3.2-31. Total GHG Emissions from Berths 136-147 Terminal Construction Activities - Proposed Project

Construction Activity	TOTAL EMISSIONS (METRIC TONS)			
	CO_2	CH_4	N_2O	CO_2e
Phase 1				
Wharf Improvements at Berths 144-147	3,537	0.50	0.04	3,560
78 Acres of Backland Improvement at Berths 142-147	350	0.05	0.01	353
Construct a New Admin. Bldg, Main Gate, & Worker Parking Lot	217	0.03	0.00	219
Construct a New Maintenance & Repair Facility-Berths 136-147	300	0.05	0.00	303
Harry Bridges Blvd. Realignment	447	0.05	0.01	451
Construction of a 46-Acre Rail Yard at Berth 200	1,410	0.17	0.03	1,422
9 Acres of Backland Improvements at Berths 134-135	34	0.00	0.00	34
Construction of B142-147 12-Ac ICTF & 19-Ac Backlands	548	0.07	0.01	553
Existing Cranes Removal at Berth 136	8	0.00	0.00	8
Construction of Harry Bridges Blvd. Buffer	1,198	0.17	0.02	1,207
Install Cranes at Berth 136 & Berth 144	120	0.02	0.00	121
Phase 2				
10-Acre Northwest Slip Fill	1,357	0.19	0.01	1,366
10-Acres of Backland Improvement at Berth 131	44	0.01	0.00	44
Berth 136 Wharf Extension	932	0.13	0.01	938
Worker Vehicles	2,218	0.36	0.35	2,335
Total Emissions	**12,721**	**1.79**	**0.49**	**12,911**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

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

Table 3.2-32 summarizes the annual unmitigated GHG emissions that would occur within California from operation of the Berths 136-147 Terminal Project. The emission sources for which GHG emission were calculated include ships, tugboats, terminal and rail yard equipment, on-road trucks, trains, fugitive refrigerant losses from reefers, on-terminal electricity usage, and worker commute vehicles. The table also shows the net change in the Project's GHG emissions relative to both the CEQA and No Federal Action/NEPA Baselines.

CEQA Impact Determination

Table 3.2-32 shows that in each future project year, annual operational CO_2e emissions would increase relative to the CEQA baseline. These increases are considered a significant impact under CEQA.

NEPA Impact Determination

Table 3.2-32 shows that in each future project year, annual operational CO_2e emissions would increase relative to the No Federal Action/NEPA Baseline. Because no NEPA

significance threshold has been established, no determination of significance has been made for this impact.

Table 3.2-32. Annual Operational GHG Emissions - Berths 136-147 Terminal - Proposed Project without Mitigation

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year ~~2007~~2008							
Ships	81,191	10.7	0.7				81,641
Tugboats	731	0.1	0.0				735
Terminal & Railyard Equipment	20,551	3.3	0.2				20,695
Trucks	229,901	11.5	5.8				231,927
Trains	40,158	5.6	0.4				40,399
Reefer Refrigerant Losses				0.06	0.13	0.07	590
AMP Usage							0
On-Terminal Electricity Usage	4,616	0.0	0.0				4,623
Worker Vehicles	1,226	0.2	0.2				1,291
Year ~~2007~~2008 Total	**378,374**	**31.5**	**7.3**	**0.06**	**0.13**	**0.07**	**381,901**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project Minus CEQA Baseline	**76,151**	**6.3**	**1.4**	**0.01**	**0.02**	**0.01**	**76,829**
NEPA Baseline	369,017	30.7	7.2	0.06	0.13	0.07	372,462
Project Minus NEPA Baseline	**9,357**	**0.8**	**0.1**	**0.00**	**0.00**	**0.00**	**9,439**
Year 2015							
Ships	112,177	14.9	1.0				112,799
Tugboats	781	0.1	0.0				786
Terminal & Railyard Equipment	31,816	5.2	0.4				32,040
Trucks	415,426	20.4	10.2				419,020
Trains	49,675	6.9	0.5				49,973
Reefer Refrigerant Losses				0.09	0.22	0.11	944
AMP Usage							0
On-Terminal Electricity Usage	7,393	0.1	0.0				7,405
Worker Vehicles	1,942	0.3	0.3				2,037
Year 2015 Total	**619,210**	**47.8**	**12.4**	**0.09**	**0.22**	**0.11**	**625,003**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project Minus CEQA Baseline	**316,986**	**22.6**	**6.5**	**0.04**	**0.11**	**0.05**	**319,931**
NEPA Baseline	494,217	35.2	10.4	0.08	0.18	0.09	498,977
Project minus NEPA Baseline	**124,992**	**12.6**	**2.0**	**0.01**	**0.03**	**0.02**	**126,026**
Year 2025							
Ships	145,730	19.3	1.3				146,539
Tugboats	871	0.1	0.0				876
Terminal & Railyard Equipment	52,220	8.5	0.6				52,587

Table 3.2-32. Annual Operational GHG Emissions - Berths 136-147 Terminal - Proposed Project without Mitigation (continued)

Project Scenario/Source Type	Metric Tons Per Year						
	CO_2	CH_4	N_2O	HFC-125	HFC-134a	HFC-143a	CO_2e
Year 2025 (continued)							
Trucks	489,233	23.6	11.8				493,391
Trains	65,487	9.1	0.7				65,881
Reefer Refrigerant Losses				0.12	0.29	0.15	1,291
AMP Usage							0
On-Terminal Electricity Usage	10,106	0.1	0.0				10,123
Worker Vehicles	2,129	0.3	0.3				2,232
Year 2025 Total	**765,777**	**61.0**	**14.7**	**0.12**	**0.29**	**0.15**	**772,919**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project Minus CEQA Baseline	**463,554**	**35.9**	**8.8**	**0.08**	**0.18**	**0.09**	**467,846**
NEPA Baseline	470,192	35.9	9.2	0.09	0.21	0.10	474,715
Project minus NEPA Baseline	**295,585**	**25.1**	**5.5**	**0.04**	**0.09**	**0.04**	**298,204**
Year 2038							
Ships	145,730	19.3	1.3				146,539
Tugboats	871	0.1	0.0				876
Terminal & Railyard Equipment	52,220	8.5	0.6				52,587
Trucks	489,233	23.6	11.8				493,391
Trains	65,487	9.1	0.7				65,881
Reefer Refrigerant Losses				0.12	0.29	0.15	1,291
AMP Usage							0
On-Terminal Electricity Usage	10,106	0.1	0.0				10,123
Worker Vehicles	2,389	0.3	0.3				2,502
Year 2038 Total	**766,037**	**61.1**	**14.8**	**0.12**	**0.29**	**0.15**	**773,189**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project Minus CEQA Baseline	**463,814**	**35.9**	**8.8**	**0.08**	**0.18**	**0.09**	**468,116**
NEPA Baseline	470,225	35.9	9.2	0.09	0.21	0.10	474,748
Project minus NEPA Baseline	**295,812**	**25.2**	**5.6**	**0.04**	**0.09**	**0.04**	**298,440**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.
CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

Mitigation Measures

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

Mitigation Measure AQ-6: Alternative Maritime Power (AMP). Ships calling at the Berths 136-147 Terminal shall use AMP while hoteling in the Port in the following percentages:

- 2009 - 25 percent of total ship calls
- 2010 - 450 percent of total ship calls
- 2012 - 650 percent of total ship calls
- 2015 - 80 percent of total ship calls
- 2018 - 100 percent of total ship calls

Additionally, by 2010, all ships retrofitted for AMP shall be required to use AMP while hoteling at 100 percent compliance rate, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship.

The use of electricity from the power grid would reduce GHG emissions during hoteling because electricity can be produced more efficiently at centralized power plants than from auxiliary engines on ships. In addition, a fraction of the LADWP's electricity is generated from renewable sources such as hydroelectric, which further reduces its GHG emissions on a per kW-hr basis.[1] As a result, a hoteling ship using AMP would reduce its auxiliary power GHG emissions by about 47 percent compared to a ship using its auxiliary engines for power.

Mitigation Measure AQ-10: Vessel Speed Reduction Program. Vessels that call at the Berths 136-147 Terminal shall comply with the VSRP of 12 knots within 40 nautical miles (nm) of Point Fermin by the following schedule:

- 2008 – 95 percent of total ship calls

The average cruise speed for a container vessel ranges from about 18 to 25 knots, depending on the size of a ship (larger ships generally cruise at higher speeds). For a ship with a 24-knot cruise speed, for example, a reduction in speed to 12 knots reduces the main engine load factor from about 83 to 10 percent, due to the cubic relationship of load factor to speed. The corresponding reduction in overall container ship transit GHG emissions (main and auxiliary engines) from the California overwater border to the Precautionary Area is approximately 70 percent.

Mitigation Measure AQ-14: Clean Rail Yard Standards: The Berth 136-147 on dock rail facility shall incorporate the cleanest locomotive technologies into its operations.

[1] The 2006 power mix for LADWP was 47 percent from coal, 30 percent from natural gas, 13 percent from hydroelectric, 8 percent from nuclear, and 2 percent from other renewable sources (biomass, geothermal, solar, and wind). Source: LADWP, *Power Content Label. Annual Report of Actual Electricity Purchases for LADWP. Calendar Year 2006*.

Technologies that reduce fuel consumption or use alternative fuels would reduce GHG emissions. These include diesel-electric hybrids, multiple engine generator sets, use of alternative fuels, and idling shut-off devices. The on-dock rail yard also would utilize "clean" CHE and HDVs and comply with the CAAP's Technology Advancement Program. Because some of these systems are not yet available, but are expected to be available within the next few years, this measure has not been quantified.

This mitigation measure targets GHG emissions from locomotives operating at the Berth 136-147 railyard. The unmitigated emissions from locomotives at the Berth 136-147 railyard represent about 2 percent of project-generated train emissions and 0.1 percent of overall project GHG emissions. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

Mitigation Measure AQ-16: Truck Idling Reduction Measures. The Berths 136-147 Terminal operator shall ensure that truck idling is reduced at the Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the durations when the main gates are left open, including during off-peak hours, (2) operator shall implement a container tracking and appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck flow capacity to ensure queuing is minimized.

A reduction in truck idling at the terminal would reduce fuel consumption and, therefore, GHG emissions. The unmitigated emissions from trucks idling at the Berth 136-147 Terminal represent about 1 percent of project-generated truck emissions and about 0.5 percent of overall project GHG emissions. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.5 percent.

The following additional mitigation measures specifically target the Project's GHG emissions. They were developed through an applicability and feasibility review of possible measures identified in the *Climate Action Team Report to Governor Schwarzenegger and the California Legislature* (State of California 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB 2007). The strategies proposed in these two reports for the commercial/industrial sector are listed in Table 3.2-33, along with an applicability determination for the proposed Project.

Mitigation Measure AQ-19 (LEED) – The main terminal building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level.

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

- Sustainable Sites
- Water Efficiency

- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design Process

As a result, a LEED-certified building would be more energy efficient, thereby reducing GHG emissions compared to a conventional building design.

Electricity consumption at the on-terminal buildings represents about 7 percent of on-terminal electrical consumption and about 0.1 percent of overall project GHG emissions. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

Table 3.2-33. Project Applicability Review of Potential GHG Emission Reduction Strategies

Operational Strategy	*Applicability to Proposed Project*
Commercial and Industrial Design Features	
Vehicle Climate Change Standards	Regulatory measure implemented by CARB
Diesel Anti-Idling	**Mitigation Measure AQ-14** (locomotives) and AQ-16 (trucks); also a regulatory measure implemented by CARB
Other Light duty Vehicle Technology	Regulatory measure implemented by CARB (standards would phase in starting 2009)
HFCs Reduction	Future regulatory measure planned by CARB
Transportation Refrigeration Units, Off Road Electrification, Port Electrification	**Mitigation Measure AQ-6** (AMP for ships); off-loaded reefers are electrified as part of the project; also a future regulatory measure is planned by CARB
Alternative Fuels: Biodiesel blends	Future regulatory measure planned by CARB
Alternative Fuel: Ethanol vehicles or enhanced ethanol/gasoline blends	Future regulatory measure planned by CARB
Heavy Duty Vehicle Emissions Reduction Measures	**Mitigation Measure AQ-10** (VSRP for ships) and AQ-16 (trucks); Port-wide CAAP measure HDV2 (trucks); also a regulatory measure implemented by CARB
Reduced Venting in Gas Systems	Not applicable to project
Building Operations Strategy	
Recycling	**Mitigation Measure AQ-23;** also a regulatory measure implemented by the Integrated Waste Management Board
Building Energy Efficiency	**Mitigation Measure AQ-19, AQ-20, AQ-21, AQ-24;** also a regulatory measure implemented by the California Energy Commission
Green Buildings Initiative	Future regulatory measure planned by the State and Consumer Services and Cal/EPA
California Solar Initiative	**Mitigation Measure AQ-22**; also a future regulatory measure is planned by the California Public Utilities Commission
Note: These strategies are found in the *California Climate Action Team's report to the Governor* (State of California, 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB, 2007).	

Mitigation Measure AQ-20 (Compact Fluorescent Light Bulbs) – All interior terminal building lighting shall use compact fluorescent light bulbs. Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs.

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

Mitigation Measure AQ-21 (Energy Audit) – The tenant shall conduct a third party energy audit every five years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.

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

Mitigation Measure AQ-22 (Solar Panels) – The applicant shall install solar panels on the main terminal building.

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

Mitigation Measure AQ-23 (Recycling) – The terminal buildings shall achieve a minimum of 40 percent recycling by 2012 and 60 percent recycling by 2015. Recycled materials shall include:

- White and colored paper
- Post-it notes
- Magazines
- Newspaper
- File folders
- All envelopes including those with plastic windows
- All cardboard boxes and cartons
- All metal and aluminum cans
- Glass bottles and jars
- All plastic bottles

In general, products made with recycled materials require less energy and raw materials to produce than products made with unrecycled materials. This savings in energy and raw material use translates into GHG emission reductions. The

effectiveness of this mitigation measure was not quantified due to the lack of a standard emission estimation approach.

Mitigation Measure AQ-24 (Tree Planting) – The applicant shall plant shade trees around the main terminal building. Trees act as insulators from weather thereby decreasing energy requirements. Onsite trees also provide carbon storage (AEP 2007).

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

In addition to the project-specific mitigation measures identified above, the replacement of 6 existing electric shore side gantry cranes with 5 new cranes (as part of the proposed Project) would reduce electricity usage on a per-lift basis. The Port estimates that the new cranes would be 10 to 20 percent more energy efficient than the replaced cranes. Although not quantified, this improvement in gantry crane energy efficiency would reduce the Project's overall GHG emissions by approximately 0.1 percent.

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

Residual Impacts

Table 3.2-34 summarizes the annual mitigated GHG emissions that would occur within California from operation of the Berths 136-147 Terminal Project. The effects of **Mitigation Measures AQ-6** (AMP for ships) and **AQ-10** (VSRP for ships) were included in the emission estimates. The potential effects of the remaining mitigation measures **(AQ-14, AQ-16, AQ-19, AQ-20, AQ-21, AQ-22, AQ-23,** and **AQ-24)** are described qualitatively under each measure's heading (above).

Table 3.2-34. Annual Operational GHG Emissions - Berths 136-147 Terminal —. Proposed Project with Mitigation

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year ~~2007~~2008							
Ships	81,191	10.7	0.7				81,641
Tugboats	731	0.1	0.0				735
Terminal & Railyard Equipment	20,551	3.3	0.2				20,695
Trucks	229,901	11.5	5.8				231,927
Trains	40,158	5.6	0.4				40,399
Reefer Refrigerant Losses				0.06	0.13	0.07	590
AMP Usage	0	0.0	0.0				0
On-Terminal Electricity Usage	4,616	0.0	0.0				4,623
Worker Vehicles	1,226	0.2	0.2				1,291
Year ~~2007~~2008 Total	**378,374**	**31.5**	**7.3**	**0.06**	**0.13**	**0.07**	**381,901**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**76,151**	**6.3**	**1.4**	**0.01**	**0.02**	**0.01**	**76,829**
NEPA Baseline	369,017	30.7	7.2	0.06	0.13	0.07	372,462
Project minus NEPA Baseline	**9,357**	**0.8**	**0.1**	**0.00**	**0.00**	**0.00**	**9,439**
Year 2015							
Ships	49,203	6.7	0.5				49,491
Tugboats	781	0.1	0.0				786
Terminal & Railyard Equipment	31,816	5.2	0.4				32,040
Trucks	415,426	20.4	10.2				419,020
Trains	49,675	6.9	0.5				49,973
Reefer Refrigerant Losses				0.09	0.22	0.11	944
AMP Usage	7,656	0.1	0.0				7,668
On-Terminal Electricity Usage	7,393	0.1	0.0				7,405
Worker Vehicles	1,942	0.3	0.3				2,037
Year 2015 Total	**563,892**	**39.7**	**11.9**	**0.09**	**0.22**	**0.11**	**569,364**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**261,669**	**14.5**	**6.0**	**0.04**	**0.11**	**0.05**	**264,291**
NEPA Baseline	494,217	35.2	10.4	0.08	0.18	0.09	498,977
Project minus NEPA Baseline	**69,675**	**4.5**	**1.5**	**0.01**	**0.03**	**0.02**	**70,387**

Table 3.2-34. Annual Operational GHG Emissions - Berths 136-147 Terminal - Proposed Project with Mitigation (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year 2025							
Ships	59,147	8.1	0.6				59,493
Tugboats	871	0.1	0.0				876
Terminal & Railyard Equipment	52,220	8.5	0.6				52,587
Trucks	489,233	23.6	11.8				493,391
Trains	65,487	9.1	0.7				65,881
Reefer Refrigerant Losses				0.12	0.29	0.15	1,291
AMP Usage	13,281	0.1	0.1				13,302
On-Terminal Electricity Usage	10,106	0.1	0.0				10,123
Worker Vehicles	2,129	0.3	0.3				2,232
Year 2025 Total	**692,475**	**49.9**	**14.1**	**0.12**	**0.29**	**0.15**	**699,175**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**390,252**	**24.7**	**8.1**	**0.08**	**0.18**	**0.09**	**394,102**
NEPA Baseline	470,192	35.9	9.2	0.09	0.21	0.10	474,715
Project minus NEPA Baseline	**222,283**	**14.0**	**4.9**	**0.04**	**0.09**	**0.04**	**224,460**
Year 2038							
Ships	59,147	8.1	0.6				59,493
Tugboats	871	0.1	0.0				876
Terminal & Railyard Equipment	52,220	8.5	0.6				52,587
Trucks	489,233	23.6	11.8				493,391
Trains	65,487	9.1	0.7				65,881
Reefer Refrigerant Losses				0.12	0.29	0.15	1,291
AMP Usage	13,281	0.1	0.1				13,302
On-Terminal Electricity Usage	10,106	0.1	0.0				10,123
Worker Vehicles	2,389	0.3	0.3				2,502
Year 2038 Total	**692,735**	**49.9**	**14.1**	**0.12**	**0.29**	**0.15**	**699,445**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**390,512**	**24.7**	**8.2**	**0.08**	**0.18**	**0.09**	**394,372**
NEPA Baseline	470,225	35.9	9.2	0.09	0.21	0.10	474,748
Project minus NEPA Baseline	**222,510**	**14.0**	**4.9**	**0.04**	**0.09**	**0.04**	**224,697**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

Overall project emissions of CO_2e would be reduced by 8 percent by implementing VSRP. Even when accounting for the electricity used in AMP, overall project emissions of CO_2e would be reduced by 2 percent by fully implementing AMP. The use of electricity from the power grid would reduce GHG emissions during hoteling because electricity can be produced more efficiently at centralized power plants than from auxiliary engines on ships or from renewable generation sources. Table 3.2-34 shows that the mitigated Project's CO_2e emissions would increase relative to CEQA and No Federal Action/NEPA Baseline levels. Therefore, after mitigation, the Project's GHG impacts would remain significant under CEQA.

3.2.4.5 Project Alternatives Impacts and Mitigation

3.2.4.5.1 Alternative 1 - No Project Alternative

As mentioned in Section 3.2.4.3.2, initiation of Project year 1 would occur in 2008. This Final EIS/EIR does not update operational emission estimates for Alternative 1 in year 1, as operational emissions in 2008 would be essentially the same or slightly lower compared to those estimated for the No Project in year 2007. This is the case, as all No Project vehicle fleets except vessels would have an additional year to turn over to vehicles with newer and cleaner emission standards. However, the revised Alternative 1 emissions still would result in exceedances to the significance thresholds identified in this section.

Impact AQ-3: Alternative 1 would result in operational emissions that exceed 10 tons per year of VOCs and SCAQMD thresholds of significance.

Tables 3.2-35 and 3.2-36 summarize the estimates of future unmitigated average and peak daily emissions that would occur from the operation of the No Project Alternative.

Table 3.2-35. Average Daily Emissions Associated with Operation of the No Project Alternative 1

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	80	185	2,355	1,383	197	185
Ships – Precautionary Area Transit	15	31	312	194	27	26
Ships – Harbor Transit	23	29	216	109	22	20
Ships – Docking	8	8	60	26	6	6
Ships – Hoteling Aux. Sources	42	153	1,505	1,440	128	120
Tugs – Cargo Vessel Assist	2	13	79	0	3	3
Terminal Equipment	122	444	1,420	1	61	56
On-road Trucks	916	3,111	8,288	6	576	385
Trains	109	255	1,524	136	58	53
Railyard Equipment	21	82	237	0	11	10
Worker Commuter Vehicles	9	121	16	0	13	12
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,351**	**4,438**	**16,065**	**3,297**	**1,104**	**878**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year ~~2007~~2008	**166**	**361**	**2,593**	**573**	**82**	**47**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	89	202	2,509	1,470	212	199
Ships – Precautionary Area Transit	19	39	370	222	33	31
Ships – Harbor Transit	29	36	275	136	28	26

Table 3.2-35. Average Daily Emissions Associated with Operation of the No Project Alternative 1 (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Ships – Docking	10	10	76	33	8	8
Ships – Hoteling Aux. Sources	57	201	2,038	1,878	173	162
Tugs – Cargo Vessel Assist	3	13	71	0	3	3
Terminal Equipment	64	469	911	1	37	34
On-road Trucks	421	2,287	6,664	8	474	272
Trains	116	318	1,617	1	43	39
Railyard Equipment	11	89	151	0	6	6
Worker Commuter Vehicles	8	109	14	0	15	14
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**829**	**3,782**	**14,726**	**3,749**	**1,032**	**793**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2015	**(356)**	**(294)**	**1,254**	**1,026**	**10**	**(38)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
Project Year 2025						
Ships – Fairway Transit	109	244	2,963	1,728	251	236
Ships – Precautionary Area Transit	25	47	429	249	38	36
Ships – Harbor Transit	36	45	347	168	35	33
Ships – Docking	12	12	96	41	10	10
Ships – Hoteling Aux. Sources	74	255	2,653	2,358	224	210
Tugs – Cargo Vessel Assist	2	13	59	0	3	2
Terminal Equipment	33	676	254	2	10	9
On-road Trucks	211	1,058	2,845	8	292	98
Trains	122	398	1,771	1	45	41
Railyard Equipment	5	108	37	0	1	1
Worker Commuter Vehicles	6	84	11	0	19	17
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**638**	**2,948**	**11,495**	**4,556**	**929**	**693**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2025	**(547)**	**(1,129)**	**(1,977)**	**1,832**	**(92)**	**(138)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**

Table 3.2-35. Average Daily Emissions Associated with Operation of the No Project Alternative 1 (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year 2038						
Ships – Fairway Transit	109	244	2,963	1,728	251	236
Ships – Precautionary Area Transit	25	47	429	249	38	36
Ships – Harbor Transit	36	45	347	168	35	33
Ships – Docking	12	12	96	41	10	10
Ships – Hoteling Aux. Sources	74	255	2,653	2,358	224	210
Tugs – Cargo Vessel Assist	2	13	53	0	2	2
Terminal Equipment	29	676	110	2	8	7
On-road Trucks	244	891	2,366	8	274	81
Trains	104	398	1,554	1	37	34
Railyard Equipment	4	108	14	0	1	1
Worker Commuter Vehicles	3	36	3	0	21	0
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**645**	**2,733**	**10,617**	**4,556**	**904**	**650**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2038	**(540)**	**(1,344)**	**(2,855)**	**1,832**	**(118)**	**(181)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**

Table 3.2-36. Peak Daily Emissions Associated with the No Project Alternative 1

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Aux. Sources	78	267	2,789	2,468	236	221
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	702	2,561	8,184	5	352	324
On-road Trucks	1,254	4,259	11,347	9	788	528
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	137	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**2,269**	**7,757**	**26,665**	**4,191**	**1,685**	**1,361**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year ~~2007~~2008	**292**	**822**	**3,655**	**341**	**78**	**32**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**

Table 3.2-36. Peak Daily Emissions Associated with the No Project Alternative 1 (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	117	265	3,260	1,913	276	258
Ships – Precautionary Area Transit	28	57	527	312	47	44
Ships – Harbor Transit	41	52	392	191	40	37
Ships – Docking	14	14	109	46	12	11
Ships – Hoteling Aux. Sources	100	353	3,562	3,304	303	284
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	413	3,013	5,846	7	237	218
On-road Trucks	576	3,131	9,124	11	648	372
Trains	114	314	1,595	1	42	39
Railyard Equipment	11	88	149	0	6	6
Worker Commuter Vehicles	10	135	17	0	19	17
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**1,432**	**7,454**	**24,738**	**5,785**	**1,635**	**1,291**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2015	**(545)**	**519**	**1,728**	**1,934**	**28**	**(38)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
Project Year 2025						
Ships – Fairway Transit	175	374	4,309	2,489	371	347
Ships – Precautionary Area Transit	43	78	678	381	62	58
Ships – Harbor Transit	61	77	599	286	60	56
Ships – Docking	21	21	166	69	18	17
Ships – Hoteling Aux. Sources	100	353	3,562	3,304	303	284
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	176	3,549	1,334	8	51	47
On-road Trucks	288	1,448	3,896	12	400	134
Trains	96	314	1,396	1	35	32
Railyard Equipment	4	85	29	0	1	1
Worker Commuter Vehicles	7	92	12	0	21	19
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**976**	**6,422**	**16,104**	**6,550**	**1,325**	**999**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2025	**(1,001)**	**(513)**	**(6,906)**	**2,700**	**(281)**	**(330)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	175	374	4,309	2,489	371	347
Ships – Precautionary Area Transit	43	78	678	381	62	58

Table 3.2-36. Peak Daily Emissions Associated with the No Project Alternative 1 (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Ships – Harbor Transit	61	77	599	286	60	56
Ships – Docking	21	21	166	69	18	17
Ships – Hoteling Aux. Sources	100	353	3,562	3,304	303	284
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	154	3,549	575	8	41	38
On-road Trucks	334	1,220	3,239	12	375	111
Trains	82	314	1,224	1	29	27
Railyard Equipment	3	85	11	0	1	1
Worker Commuter Vehicles	4	43	4	0	26	24
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**982**	**6,144**	**14,492**	**6,550**	**1,290**	**966**
CEQA Baseline - Year 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2038	**(995)**	**(791)**	**(8,518)**	**2,700**	**(317)**	**(363)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**

CEQA Impact Determination

The data in Table 3.2-35 show that in the following years, the net change in average daily emissions between the unmitigated Alternative 1 and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, VOC, NO_x, SO_x; (2) in 2015, NO_x and SO_x; and (3) in 2025 and 2038, NO_x. The net change in VOC emissions between Alternative 1 and the CEQA Baseline also would exceed 10 tons in ~~2007~~2008 (See Table D1.2-NP-38 in Appendix D1).

The data in Table 3.2-35 show that in the following years, the net change in peak daily emissions between the unmitigated Alternative 1 and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, all pollutants except PM_{10} and $PM_{2.5}$; (2) in 2015, NO_x and SO_x; and (3) in 2025 and 2038, SO_x. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of Alternative 1 under CEQA.

NEPA Impact Determination

No federal action would occur for the No Project Alternative; thus, no impacts to air quality would result under NEPA

Mitigation Measures

Mitigation measures are not applicable to Alternative 1 during No Project operations, as this alternative would not involve approval of new uses at Berths 136-147.

Residual Impacts

As there are no applicable mitigation measures, impacts would remain significant under CEQA.

Impact AQ-8: Alternative 1 would produce GHG emissions that would exceed CEQA and No Federal Action/NEPA Baseline levels.

Table 3.2-39 summarizes the annual GHG emissions that would occur within California from the operation of the No Project Alternative.

CEQA Impact Determination

The data in Table 3.2-39 show that in each future project year, annual CO_2e emissions would increase from CEQA baseline levels. As a result, the No Project Alternative would produce significant levels of GHG emissions under CEQA.NEPA Impact Determination

The data in Table 3.2-39 show that in ~~2007~~2008, 2025, and 2038, annual CO_2e emissions would increase from No Federal Action/NEPA Baseline levels. CO_2e emissions in 2015 would be less than No Federal Action/NEPA Baseline levels.

Mitigation Measures

Mitigation measures are not applicable to Alternative 1 during No Project operations, as this alternative would not introduce new uses to Berths 136-147.

Table 3.2-39. Annual Operational GHG Emissions - Berths 136-147 Terminal — Alternative 1

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year ~~2007~~2008							
Ships	81,191	10.7	0.7				81,641
Tugboats	731	0.1	0.0				735
Terminal & Railyard Equipment	20,551	3.3	0.2				20,695
Trucks	232,432	11.6	5.8				234,481
Trains	40,158	5.6	0.4				40,399
Reefer Refrigerant Losses				0.06	0.13	0.07	590
AMP Usage							0
On-Terminal Electricity Usage	4,616	0.0	0.0				4,623
Worker Vehicles	1,061	0.2	0.2				1,117
Year ~~2007~~2008 Total	**380,739**	**31.6**	**7.4**	**0.06**	**0.13**	**0.07**	**384,280**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**78,516**	**6.4**	**1.4**	**0.01**	**0.02**	**0.01**	**79,208**
Year 2015							
Ships	98,312	13.0	0.9				98,856
Tugboats	764	0.1	0.0				769

Table 3.2-39. Annual Operational GHG Emissions - Berths 136-147 Terminal — Alternative 1 (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Terminal & Railyard Equipment	25,521	4.2	0.3				25,701
Trucks	292,612	14.4	7.2				295,149
Trains	49,796	6.9	0.5				50,095
Reefer Refrigerant Losses				0.07	0.17	0.08	732
AMP Usage							0
On-Terminal Electricity Usage	5,733	0.0	0.0				5,742
Worker Vehicles	1,499	0.2	0.2				1,572
Year 2015 Total	**474,237**	**38.9**	**9.1**	**0.07**	**0.17**	**0.08**	**478,617**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**172,014**	**13.7**	**3.2**	**0.02**	**0.06**	**0.03**	**173,544**
Year 2025							
Ships	118,573	15.7	1.1				119,231
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	37,623	6.1	0.4				37,887
Trucks	310,880	15.0	7.5				313,529
Trains	62,275	8.7	0.6				62,649
Reefer Refrigerant Losses				0.09	0.21	0.10	917
AMP Usage							0
On-Terminal Electricity Usage	7,180	0.1	0.0				7,192
Worker Vehicles	1,580	0.2	0.2				1,656
Year 2025 Total	**538,875**	**45.9**	**9.9**	**0.09**	**0.21**	**0.10**	**543,829**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**236,652**	**20.7**	**4.0**	**0.04**	**0.10**	**0.05**	**238,757**
Year 2038							
Ships	118,573	15.7	1.1				119,231
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	37,623	6.1	0.4				37,887
Trucks	310,880	15.0	7.5				313,529
Trains	62,275	8.7	0.6				62,649
Reefer Refrigerant Losses				0.09	0.21	0.10	917
AMP Usage							0
On-Terminal Electricity Usage	7,180	0.1	0.0				7,192
Worker Vehicles	1,697	0.2	0.2				1,777
Year 2038 Total	**538,993**	**45.9**	**9.9**	**0.09**	**0.21**	**0.10**	**543,951**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**236,769**	**20.8**	**4.0**	**0.04**	**0.10**	**0.05**	**238,878**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

No federal action would occur for the No Project Alternative; thus, no impacts to air quality would result under NEPA

Residual Impacts

Impacts would remain significant under CEQA.

NEPA Impact Determination

No federal action would occur for the No Project Alternative; thus, no impacts to air quality would result under NEPA

3.2.4.5.2 Alternative 2 - Reduced Project: Proposed Project Without the 10-Acre Fill

The revisions to the construction and operational assumptions/mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change emissions from Alternative 2. As mentioned in the discussion of Impacts AQ-1 through AQ-4 and AQ-6 for the proposed Project, these revised assumptions/mitigation measures for Alternative 2 would slightly reduce (1) mitigated construction emissions, (2) operational unmitigated and mitigated emissions between years 2008 and 2012, and (3) ambient pollutant and health impacts from these activities compared to the analyses presented in the following section. However, the revised mitigated impacts for Alternative 2 still would result in exceedances of significance thresholds, as identified below.

Impact AQ-3: Alternative 2 would result in operational emissions that exceed 10 tons per year of VOCs and SCAQMD thresholds of significance.

Alternative 2 would produce operational emissions that are (1) approximately two percent greater than those estimated for the proposed Project in year ~~2007~~2008 and (2) equal to those estimated for the proposed Project in years 2015, 2025, and 2038. The higher Alternative 2 emissions in ~~2007~~2008 are due to slightly a higher throughput at this time compared to the Project. As a result, emissions and ambient impacts produced from Alternative 2 are essentially equal to those estimated for the proposed Project. Table 3.2-22 summarizes the estimates of unmitigated average daily emissions that would occur from the operation of Alternative 2. Table 3.2-23 summarizes the estimates of unmitigated peak daily emissions that would occur from the operation of Alternative 2.

CEQA Impact Determination

The data in Table 3.2-22 show that in the following Project years, the net change in average daily operational emissions between the unmitigated Project and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, VOC, NO_x, and SO_x; (2) in 2015, all thresholds except VOC; (3) in 2025, NO_x, SO_x, and pm; and (4) in 2038, SO_x. The net change in VOC emissions between the unmitigated Project and CEQA Baseline also would exceed 10 tons in Project year ~~2007~~2008 (See Table D1.2-PP-39 in Appendix D1).

The data in Table 3.2-23 show that during a peak day of activity in the following Project years, operational emissions between the unmitigated Project and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, all thresholds; (2) in 2015, all thresholds except VOC; (3) in 2025 and 2038, the SO_x threshold. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the proposed Project under CEQA.

NEPA Impact Determination

The data in Table 3.2-22 show that during each Project year, the net change in average daily operational emissions between the unmitigated Project and No Federal Action/NEPA Baseline would exceed all SCAQMD daily thresholds. Additionally, the net change in VOC emissions between the unmitigated Project and No Federal Action/NEPA Baseline would exceed 10 tons for each Project year (See Table D1.2-NFAB-Mit-43 in Appendix D1).

The data in Table 3.2-23 show that during a peak day of activity, emissions between the unmitigated Project and No Federal Action/NEPA Baseline would exceed all SCAQMD daily thresholds during each Project year. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the proposed Project under NEPA.

Mitigation Measures

To reduce operational emissions from Alternative 2, **Mitigation Measures AQ-6** through **AQ-18** would apply to this alternative.

Residual Impacts

From a CEQA perspective, Table 3.2-25 shows that proposed Project average daily operational emissions after mitigation would exceed the NO_x and SO_x SCAQMD daily thresholds in ~~2007~~2008. The net change in annual emissions between the mitigated Project and CEQA Baseline would not exceed the criterion of 10 tons per year VOC in any project year (See Table D1.2.PPMit-43 in Appendix D1). By 2015, the mitigated Project would produce lower average daily emissions of all pollutants compared to the CEQA baseline.

The data in Table 3.2-26 show that during a peak day of activity, the net change in emissions between the mitigated Project and CEQA Baseline would exceed the VOC, NO_x, and SO_x SCAQMD daily thresholds in ~~2007~~2008 and would remain below all thresholds in 2015 and thereafter. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the mitigated Project under CEQA. By 2015, the mitigated Project would produce lower peak daily emissions of all pollutants compared to the CEQA baseline.

From a NEPA perspective, the data in Table 3.2-25 show that in the following years, the net change in average daily emissions between the mitigated Project and No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, NO_x; (2) in 2015, VOC and NO_x; (3) in 2025, all pollutants; and (4) in 2038, all pollutants except SO_x. The net change in VOC emissions between the mitigated Project and No Federal Action/NEPA Baseline would exceed the annual threshold of 10 tons in year 2015 and thereafter (See Table D1.2--NFAB-43 in Appendix D1).

The data in Table 3.2-26 show that during a peak day of activity, emissions from the mitigated Project compared to the No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, all thresholds except CO;

(2) in 2015, VOC, CO, and NO_x; and (3) in 2025 and 2038, all pollutants except SO_x. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the Project under NEPA.

Impact AQ-6: Alternative 2 would expose receptors to significant levels of TACs.

Table 3.2-29 presents estimates of individual lifetime cancer risk, chronic non-cancer hazard index, and acute non-cancer hazard index for impacts that correspond to the maximum CEQA increment (Alternative 2 minus CEQA Baseline) and NEPA increment (Alternative 2 minus NEPA). Figures D3-11 through D3-13 in Appendix D3 show the distribution of residential cancer risks predicted for (1) Alternative 2, (2) unmitigated CEQA increment (unmitigated Alternative 2 minus CEQA Baseline), and (3) NEPA increment (unmitigated Alternative 2 minus No Federal Action/NEPA Baseline).

CEQA Impact Determination

The maximum unmitigated CEQA increment for residential cancer risk is predicted to be 88 in a million. This risk value exceeds the significance criterion of 10 in a million. The maximum cancer risk increments at an occupational, sensitive, and recreational receptor also would exceed the 10 in a million significance criterion. The maximum cancer risk increment at a student receptor would be less than significant.

The prediction for the maximum CEQA increment for acute non-cancer effects would exceed the 1.0 hazard index significance criterion at all receptor types in proximity to the Project terminal except student. The prediction for the maximum CEQA increment for chronic non-cancer effects would remain below the significance criterion of 1.0 at all receptor types.

NEPA Impact Determination

The maximum unmitigated NEPA increment for residential cancer risk is 229 in a million, which exceeds the significance criterion of 10 in a million. The prediction for the maximum NEQA increment for acute non-cancer effects would exceed the 1.0 hazard index significance criterion at all receptor types in proximity to the Project terminal. The prediction for the maximum NEPA increment for chronic non-cancer effects would remain below the 1.0 hazard index significance criterion at all receptor types.

Mitigation Measures

Consistent with the approach taken to mitigate health impacts from the proposed Project, the mitigated HRA considered the ability of **Mitigation Measures AQ-6** through **AQ-12** to reduce emissions of TACs from Alternative 2. Table 3.2-30 summarizes the maximum health impacts predicted to occur at each receptor type due to the operation of Alternative 2 with mitigation. Figures D3-14 through D3-16 in Appendix D3 show the distribution of residential cancer risks predicted for (1) mitigated Alternative 2, (2) mitigated CEQA increment, and (3) mitigated NEPA increment.

Residual Impacts

Table 3.2-30 shows that the maximum NEPA increment for residential, occupational, and sensitive cancer risks predicted for the mitigated Project is 20, 10.1, and 13.6 in a million. As a result, the mitigated Project would produce significant cancer risks compared to the No Federal Action/NEPA Baseline to these receptor types. As noted in the discussion of Impact AQ-6 for the proposed Project, these significant incremental cancer risks are in part due to the lower DPM emissions and cancer risks associated with the implementation of CAAP measures under the No Federal Action/NEPA Baseline. Implementation of **Mitigation Measures AQ-6** through **AQ-12** would reduce all other predicted cancer and non-cancer public health impacts from Alternative 2 to less than significant levels under CEQA and NEPA.

3.2.4.5.3 Alternative 3 - Reduced Wharf

The revisions to the construction and operational assumptions/mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change emissions from Alternative 3. As mentioned in the discussion of Impacts AQ-1 through AQ-4 and AQ-6 for the proposed Project, these revised assumptions/mitigation measures for Alternative 3 would slightly reduce (1) mitigated construction emissions, (2) operational unmitigated and mitigated emissions between years 2008 and 2012, and (3) ambient pollutant and health impacts from these activities compared to the analyses presented in the following section. However, the revised mitigated impacts for Alternative 3 still would result in exceedances of significance thresholds, as identified below.

Impact AQ-3: Alternative 3 would result in operational emissions that exceed 10 tons per year of VOCs and SCAQMD thresholds of significance.

Tables 3.2-41 and 3.2-42 present estimates of unmitigated average and peak daily emissions that would occur from the operation of Alternative 3.

CEQA Impact Determination

The data in Table 3.2-41 show that in the following Project years, the net change in average daily emissions between the unmitigated Alternative 3 and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, VOC, NO_x, and SO_x; (2) in 2015, NO_x and SO_x; and (3) in 2025 and thereafter, SO_x. The net change in VOC emissions between the unmitigated Alternative 3 and CEQA Baseline also would exceed 10 tons in ~~2007~~2008 (See Table D1.2-Alt3-38 in Appendix D1).

The data in Table 3.2-42 show that during a peak day of activity, emissions between Alternative 3 and CEQA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, VOC, CO, NO_x, and SO_x; (2) in 2015, NO_x and SO_x; and (3) in 2025 and 2038, SO_x. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of Alternative 3 under CEQA.

NEPA Impact Determination

The data in Table 3.2-41 show that in the following years, the net change in average daily emissions between Alternative 3 and No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, VOC, CO, NO_x, and $PM_{2.5}$ and (2) in 2015 and thereafter, all pollutants. The net change in VOC emissions between Alternative 3 and No Federal Action/NEPA Baseline also would exceed 10 tons in all Project years (See Table D1.2-NFAB-43 in Appendix D1).

Table 3.2-41. Average Daily Operational Emissions Associated with the Reduced Wharf Alternative

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	79	182	2,316	1,361	194	182
Ships – Precautionary Area Transit	14	31	307	190	27	25
Ships – Harbor Transit	22	28	212	107	22	20
Ships – Docking	8	8	59	26	6	6
Ships – Hoteling Aux. Sources	42	150	1,484	1,419	127	119
Tugs – Cargo Vessel Assist	2	12	77	0	3	3
Terminal Equipment	120	437	1,397	1	60	55
On-road Trucks	901	3,060	8,154	6	566	379
Trains	108	251	1,500	134	57	52
Railyard Equipment	21	81	233	0	10	10
Worker Commuter Vehicles	10	137	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,330**	**4,386**	**15,811**	**3,244**	**1,088**	**866**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year ~~2007~~2008	**146**	**309**	**2,340**	**521**	**67**	**35**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**1,099**	**3,475**	**14,136**	**3,197**	**958**	**748**
Net Change from NFAB Year ~~2007~~2008	**232**	**910**	**1,675**	**48**	**130**	**118**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**N**	**N**	**Y**
Project Year 2015						
Ships – Fairway Transit	97	221	2,734	1,602	231	216
Ships – Precautionary Area Transit	21	42	404	244	36	33
Ships – Harbor Transit	31	39	299	148	30	28
Ships – Docking	11	11	83	36	9	8
Ships – Hoteling Aux. Sources	61	214	2,169	2,006	184	173
Tugs – Cargo Vessel Assist	3	15	79	0	3	3
Terminal Equipment	71	516	1,002	1	41	37
On-road Trucks	436	2,466	7,245	9	505	301
Trains	102	280	1,426	1	38	35
Railyard Equipment	9	74	126	0	5	5
Worker Commuter Vehicles	10	135	17	0	19	17
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**854**	**4,023**	**15,615**	**4,048**	**1,101**	**858**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**

Table 3.2-41. Average Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Net Change CEQA Baseline - Year 2015	**(331)**	**(54)**	**2,144**	**1,325**	**79**	**27**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**428**	**2,031**	**5,399**	**906**	**388**	**195**
Net Change from NFAB Year 2015	**426**	**1,992**	**10,216**	**3,142**	**713**	**663**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2025						
Ships – Fairway Transit	131	292	3,552	2,072	301	282
Ships – Precautionary Area Transit	29	57	514	299	46	43
Ships – Harbor Transit	43	54	416	202	42	39
Ships – Docking	15	15	115	49	12	12
Ships – Hoteling Aux. Sources	88	304	3,164	2,815	268	251
Tugs – Cargo Vessel Assist	3	16	71	0	3	3
Terminal Equipment	36	734	276	2	11	10
On-road Trucks	213	1,087	2,905	9	302	106
Trains	128	418	1,859	2	47	43
Railyard Equipment	5	108	37	0	1	1
Worker Commuter Vehicles	7	92	12	0	21	19
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**701**	**3,185**	**12,951**	**5,450**	**1,055**	**809**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2025	**(484)**	**(892)**	**(520)**	**2,727**	**33**	**(22)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**380**	**2,112**	**5,290**	**930**	**359**	**191**
Net Change from NFAB Year 2025	**321**	**1,073**	**7,662**	**4,521**	**696**	**619**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2038						
Ships – Fairway Transit	131	292	3,552	2,072	301	282
Ships – Precautionary Area Transit	29	57	514	299	46	43
Ships – Harbor Transit	43	54	416	202	42	39
Ships – Docking	15	15	115	49	12	12
Ships – Hoteling Aux. Sources	88	304	3,164	2,815	268	251
Tugs – Cargo Vessel Assist	3	16	64	0	3	3
Terminal Equipment	45	1,031	167	2	12	11
On-road Trucks	254	900	2,362	9	282	87
Trains	109	418	1,630	2	39	36
Railyard Equipment	4	108	14	0	1	1
Worker Commuter Vehicles	4	43	4	0	26	24
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**726**	**3,244**	**12,033**	**5,451**	**1,033**	**789**
CEQA Baseline - Year 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2038	**(459)**	**(832)**	**(1,439)**	**2,727**	**11**	**(42)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**

Table 3.2-41. Average Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
NEPA Baseline (NFAB)	**373**	**2,278**	**5,104**	**930**	**357**	**189**
Net Change from NFAB Year 2038	**354**	**967**	**6,930**	**4,521**	**676**	**600**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

Table 3.2-42. Peak Daily Operational Emissions Associated with the Reduced Wharf Alternative

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Aux. Sources	78	267	2,789	2,468	236	221
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	695	2,537	8,105	5	349	321
On-road Trucks	1,234	4,190	11,164	9	775	519
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	137	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**2,242**	**7,664**	**26,404**	**4,191**	**1,669**	**1,349**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year ~~2007~~2008	**265**	**729**	**3,393**	**341**	**62**	**20**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**1,927**	**6,417**	**24,193**	**4,191**	**1,498**	**1,195**
Net Change from NFAB Year ~~2007~~2008	**315**	**1,247**	**2,211**	**0**	**171**	**154**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
Project Year 2015						
Ships – Fairway Transit	175	374	4,309	2,489	371	347
Ships – Precautionary Area Transit	43	78	678	381	62	58
Ships – Harbor Transit	61	77	599	286	60	56
Ships – Docking	21	21	166	69	18	17
Ships – Hoteling Aux. Sources	100	353	3,562	3,304	303	284
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	359	2,622	5,087	6	206	189
On-road Trucks	476	2,638	7,719	9	543	318
Trains	119	326	1,658	1	44	40
Railyard Equipment	11	88	149	0	6	6
Worker Commuter Vehicles	10	135	17	0	19	17
Relocated PHL Rail Yard	2	9	30	0	1	1

Table 3.2-42. Peak Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2015 Total	**1,381**	**6,743**	**24,101**	**6,546**	**1,636**	**1,338**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2015	**(597)**	**(192)**	**1,091**	**2,695**	**30**	**9**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**804**	**4,461**	**7,754**	**1,453**	**542**	**277**
Net Change from NFAB Year 2015	**576**	**2,283**	**16,346**	**5,093**	**1,095**	**1,061**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2025						
Ships – Fairway Transit	175	374	4,309	2,489	371	347
Ships – Precautionary Area Transit	43	78	678	381	62	58
Ships – Harbor Transit	61	77	599	286	60	56
Ships – Docking	21	21	166	69	18	17
Ships – Hoteling Aux. Sources	100	353	3,562	3,304	303	284
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	143	2,882	1,083	7	41	38
On-road Trucks	285	1,450	3,877	12	403	140
Trains	100	326	1,450	1	37	34
Railyard Equipment	4	85	29	0	1	1
Worker Commuter Vehicles	7	92	12	0	21	19
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**944**	**5,769**	**15,890**	**6,550**	**1,320**	**998**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2025	**(1,033)**	**(1,166)**	**(7,121)**	**2,699**	**(286)**	**(331)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**527**	**4,163**	**6,811**	**1,426**	**479**	**249**
Net Change from NFAB Year 2025	**417**	**1,606**	**9,079**	**5,124**	**842**	**749**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Project Year 2038						
Ships – Fairway Transit	175	374	4,309	2,489	371	347
Ships – Precautionary Area Transit	43	78	678	381	62	58
Ships – Harbor Transit	61	77	599	286	60	56
Ships – Docking	21	21	166	69	18	17
Ships – Hoteling Aux. Sources	100	353	3,562	3,304	303	284
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	125	2,882	467	7	33	31
On-road Trucks	348	1,232	3,234	13	387	119
Trains	85	326	1,272	1	30	28
Railyard Equipment	3	85	11	0	1	1
Worker Commuter Vehicles	4	43	4	0	26	24
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**970**	**5,501**	**14,427**	**6,550**	**1,294**	**968**
CEQA Baseline – Year 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**

Table 3.2-42. Peak Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Net Change from CEQA Baseline - Year 2038	**(1,007)**	**(1,434)**	**(8,584)**	**2,700**	**(312)**	**(361)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**513**	**4,102**	**6,634**	**1,426**	**476**	**246**
Net Change from NFAB Year 2038	**456**	**1,399**	**7,793**	**5,124**	**819**	**722**
Exceeds SCAQMD Threshold?	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

The data in Table 3.2-42 show that during a peak day of activity, emissions between Alternative 3 and No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds: (1) in ~~2007~~2008, all pollutants except SO_x and (2) in 2015, 2025, and 2038, all pollutants. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of Alternative 3 under NEPA.

Mitigation Measures

To reduce operational emissions from Alternative 3, **Mitigation Measures AQ-6** through **AQ-18** would apply to this alternative.

Residual Impacts

From a CEQA perspective, Table 3.2-43 shows that Alternative 3 average daily operational emissions after mitigation only would exceed the SCAQMD daily NO_x and SO_x thresholds in ~~2007~~2008. Additionally, the net change in annual VOC emissions between Alternative 3 and CEQA Baseline would not exceed 10 tons in any Project year (See Table D1.2-Alt3Mit-34 in Appendix D1). By 2015, the mitigated Alternative 3 would produce lower average daily emissions of all pollutants compared to the CEQA baseline.

The data in Table 3.2-44 show that during a peak day of activity, the net change in emissions between Alternative 3 and CEQA Baseline only would exceed the SCAQMD daily NO_x threshold in ~~2007~~2008. As a result, this exceedance of the SCAQMD emission thresholds represents significant levels of emissions produced during the operation of the mitigated Alternative 3 under CEQA. By 2015, the mitigated Alternative 3 would produce lower peak daily emissions of all pollutants, compared to the CEQA baseline.

From a NEPA perspective, the data in Table 3.2-43 show that the net change in average daily mitigated emissions between Alternative 3 and No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds during the following Project years: (1) in ~~2007~~2008, NO_x and (2) in 2025 and 2038, VOC, NO_x, and SO_x. The net change in annual VOC emissions between Alternative 3 and the No Federal Action/NEPA Baseline would not exceed 10 tons in any future year (See Table D1.2-NFAB-43 in Appendix D1). In 2015, the mitigated Alternative 3 would produce the

same daily emissions as the No Federal Action/NEPA Baseline, since operations and throughputs are identical between the two scenarios.

The data in Table 3.2-44 show that during a peak day of activity, mitigated emissions between Alternative 3 and No Federal Action/NEPA Baseline would exceed the following SCAQMD daily thresholds during the following Project years: (1) in ~~2007~~2008, NO_x and (2) in 2025 and 2038, VOC and NO_x. As a result, these exceedances of the SCAQMD emission thresholds represent significant levels of emissions produced during the operation of the mitigated Alternative 3 under NEPA.

Table 3.2-43. Mitigated Average Daily Operational Emissions Associated with the Reduced Wharf Alternative

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	79	182	2,316	1,361	194	182
Ships – Precautionary Area Transit	14	31	307	190	27	25
Ships – Harbor Transit	22	28	212	107	22	20
Ships – Docking	8	8	59	26	6	6
Ships – Hoteling Aux. Sources	42	150	1,484	1,419	127	119
Tugs – Cargo Vessel Assist	2	12	77	0	3	3
Terminal Equipment	120	437	1,397	1	60	55
On-road Trucks	687	2,203	6,709	6	451	273
Trains	108	251	1,500	134	57	52
Railyard Equipment	21	81	233	0	10	10
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,117**	**3,530**	**14,366**	**3,244**	**973**	**760**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year ~~2007~~2008	**(68)**	**(547)**	**895**	**521**	**(48)**	**(71)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
NEPA Baseline (NFAB)	**1,099**	**3,475**	**14,136**	**3,197**	**958**	**748**
Net Change from NFAB Year ~~2007~~2008	**18**	**55**	**230**	**48**	**15**	**12**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**N**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	20	144	1,081	65	23	22
Ships – Precautionary Area Transit	6	42	292	43	7	6
Ships – Harbor Transit	9	39	240	32	6	6
Ships – Docking	3	11	66	8	2	2
Ships – Hoteling Aux. Sources	16	92	551	746	28	26
Tugs – Cargo Vessel Assist	3	15	79	0	3	3
Terminal Equipment	69	516	77	1	4	4
On-road Trucks	176	620	1,544	9	255	71
Trains	102	280	1,408	1	37	34
Railyard Equipment	9	102	9	0	0	0

Table 3.2-43. Mitigated Average Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Worker Commuter Vehicles	12	161	21	0	22	21
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**428**	**2,031**	**5,399**	**906**	**389**	**196**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2015	**(757)**	**(2,046)**	**(8,073)**	**(1,818)**	**(633)**	**(635)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**428**	**2,031**	**5,399**	**906**	**388**	**195**
Net Change from NFAB Year 2015	**-**	**-**	**-**	**-**	**1**	**1**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2025						
Ships – Fairway Transit	28	193	1,364	80	30	28
Ships – Precautionary Area Transit	9	57	376	49	9	8
Ships – Harbor Transit	13	54	334	38	8	8
Ships – Docking	4	15	92	10	2	2
Ships – Hoteling Aux. Sources	7	79	210	924	26	24
Tugs – Cargo Vessel Assist	3	16	71	0	3	3
Terminal Equipment	36	734	115	2	6	5
On-road Trucks	185	654	1,647	9	269	75
Trains	128	418	1,832	2	46	42
Railyard Equipment	14	153	14	0	1	1
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2025 Total	**437**	**2,489**	**6,099**	**1,114**	**424**	**219**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2025	**(748)**	**(1,588)**	**(7,372)**	**(1,609)**	**(598)**	**(612)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**380**	**2,112**	**5,290**	**930**	**359**	**191**
Net Change from NFAB Year 2025	**57**	**378**	**810**	**185**	**65**	**28**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	28	193	1,364	80	30	28
Ships – Precautionary Area Transit	9	57	376	49	9	8
Ships – Harbor Transit	13	54	334	38	8	8
Ships – Docking	4	15	92	10	2	2
Ships – Hoteling Aux. Sources	7	79	210	924	26	24
Tugs – Cargo Vessel Assist	3	16	64	0	3	3
Terminal Equipment	51	1,031	162	2	8	7
On-road Trucks	190	652	1,666	9	267	73
Trains	109	418	1,604	2	38	35
Railyard Equipment	14	153	14	0	1	1
Worker Commuter Vehicles	4	43	4	0	26	24

Table 3.2-43. Mitigated Average Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2038 Total	**433**	**2,717**	**5,920**	**1,115**	**417**	**213**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2038	**(752)**	**(1,359)**	**(7,552)**	**(1,608)**	**(604)**	**(618)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**373**	**2,278**	**5,104**	**930**	**357**	**189**
Net Change from NFAB Year 2038	**60**	**440**	**816**	**185**	**60**	**24**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**Y**	**N**	**N**

Table 3.2-44. Mitigated Peak Daily Operational Emissions Associated with the Reduced Wharf Alternative

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	349	219	28	27
Ships – Harbor Transit	22	28	204	93	19	18
Ships – Docking	8	8	57	22	6	5
Ships – Hoteling Aux. Sources	78	267	2,747	1,996	187	175
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	695	2,536	8,104	5	349	321
On-road Trucks	941	3,016	9,185	9	617	374
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,949**	**6,492**	**24,379**	**3,686**	**1,458**	**1,155**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year ~~2007~~2008	**(28)**	**(443)**	**1,369**	**(165)**	**(148)**	**(174)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**1,927**	**6,417**	**24,193**	**4,191**	**1,498**	**1,195**
Net Change from NFAB Year ~~2007~~2008	**22**	**75**	**186**	**(505)**	**(39)**	**(40)**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**N**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	20	135	684	1,222	42	39

Table 3.2-44. Mitigated Peak Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	349	2,622	392	6	20	18
On-road Trucks	241	849	2,114	12	349	98
Trains	119	326	1,636	1	43	40
Railyard Equipment	2	24	2	0	0	0
Worker Commuter Vehicles	12	161	21	0	22	21
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**821**	**4,585**	**7,773**	**1,453**	**543**	**278**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2015	**(1,157)**	**(2,350)**	**(15,237)**	**(2,397)**	**(1,064)**	**(1,051)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**804**	**4,461**	**7,754**	**1,453**	**542**	**277**
Net Change from NFAB Year 2015	**17**	**124**	**19**	**0**	**1**	**1**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2025						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	105	0	5	4
Terminal Equipment	131	2,640	414	6	21	19
On-road Trucks	251	887	2,238	13	365	101
Trains	100	326	1,429	1	36	33
Railyard Equipment	11	120	11	0	1	1
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**587**	**4,652**	**7,256**	**1,429**	**546**	**269**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2025	**(1,390)**	**(2,283)**	**(15,754)**	**(2,421)**	**(1,061)**	**(1,060)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**527**	**4,163**	**6,811**	**1,426**	**479**	**249**
Net Change from NFAB Year 2025	**61**	**489**	**446**	**3**	**67**	**20**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**N**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	131	2,640	414	6	21	19
On-road Trucks	258	885	2,265	13	362	99

Table 3.2-44. Mitigated Peak Daily Operational Emissions Associated with the Reduced Wharf Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Trains	85	326	1,251	1	30	27
Railyard Equipment	11	120	11	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**575**	**4,591**	**7,084**	**1,429**	**542**	**266**
CEQA Baseline – Year 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2038	**(1,402)**	**(2,344)**	**(15,926)**	**(2,421)**	**(1,065)**	**(1,063)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
NEPA Baseline (NFAB)	**513**	**4,102**	**6,634**	**1,426**	**476**	**246**
Net Change from NFAB Year 2038	**62**	**488**	**450**	**3**	**66**	**20**
Exceeds SCAQMD Threshold?	**Y**	**N**	**Y**	**N**	**N**	**N**

Impact AQ-4: Operation of Alternative 3 would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.

Table 3.2-45 presents the maximum offsite ground level concentrations of criteria pollutants estimated to occur from Alternative 3 operations without mitigation. These data show that total maximum NO_2 concentrations would exceed the 1-hour and annual SCAQMD thresholds. Additionally, operation of the alternative would exceed the SCAQMD $PM_{10}/PM_{2.5}$ threshold of 2.5 µg/m^3 under CEQA and NEPA.

Table 3.2-45. Maximum Offsite Ambient Concentrations – Alternative 3 Operations Without Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from Alternative 3 Emissions (µg/m^3)*	*Background Pollutant Concentration (µg/m^3)*	*Total Maximum Alternative 3 Impact (µg/m^3)*	*SCAQMD Threshold[a] (µg/m^3)*
NO_2	1-hour	1,661	263	**1,924**	338
	Annual	33	54	**87**	56
CO	1-hour	2,373	6,629	9,002	23,000
	8-hour	615	5,371	5,886	10,000
				Maximum CEQA Increment (µg/m^3)[b]	
PM_{10}	24-hour			**20.4**	2.5
$PM_{2.5}$	24-hour			**18.8**	2.5
				Maximum NEPA Increment (µg/m^3)[c]	
PM_{10}	24-hour			**18.5**	2.5
$PM_{2.5}$	24-hour			**17.4**	2.5

Table 3.2-45. Maximum Offsite Ambient Concentrations – Alternative 3 Operations Without Mitigation (continued)

[a] Exceedances of the thresholds are indicated in bold. The thresholds for $PM_{10}/PM_{2.5}$ are incremental thresholds and therefore only impacts from project emissions without background pollutant concentrations are compared to the thresholds. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from project emissions plus background pollutant concentrations are compared to the thresholds.
[b] Equal to Alternative 3 impact minus CEQA Baseline impact.
[c] Equal to Alternative 3 impact minus NEPA Baseline (NFAB) impact.
[d] NO_2 concentrations based upon source/maximum impact locations distances of either 500 or 1000 meters. The NO_x to NO_2 conversion rates for these distances were 25.8 and 46.7 percent (SCAQMD, 2003c). This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are closer than 500 meters from this location.

CEQA Impact Determination

Operation of Alternative 3 would contribute to significant levels of 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations under CEQA.

NEPA Impact Determination

Operation of Alternative 3 would contribute to significant levels of 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations under NEPA.

Mitigation Measures

Implementation of **Mitigation Measures AQ-6** through **AQ-18** would substantially reduce the ambient impact of unmitigated operational emissions from Alternative 3. However, given the uncertainty of implementing some measures, the mitigated dispersion modeling analysis only considered the effects of **Mitigation Measures AQ-6** through **AQ-12.** Table 3.2-46 presents the maximum off-site ground level concentrations of criteria pollutants estimated for Alternative 3 operations after mitigation.

Table 3.2-46. Maximum Offsite Ambient Concentrations – Alternative 3 Operations After Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from Alternative 3 Emissions ($\mu g/m^3$)*	*Background Pollutant Concentration ($\mu g/m^3$)*	*Total Maximum Alternative 3 Impact ($\mu g/m^3$)*	*SCAQMD Threshold[a] ($\mu g/m^3$)*
NO_2	1-hour	1,324	263	**1,587**	470
	Annual	23	54	**77**	100
CO	1-hour	2,079	6,629	8,708	23,000
	8-hour	449	5,371	5,820	10,000
				Maximum CEQA Increment ($\mu g/m^3$)[b]	
PM_{10}	24-hour			**8.2**	2.5
$PM_{2.5}$	24-hour			**7.5**	2.5
				Maximum NEPA Increment ($\mu g/m^3$)[c]	
PM_{10}	24-hour			**0.0**	2.5
$PM_{2.5}$	24-hour			**0.0**	2.5

Table 3.2-46. Maximum Offsite Ambient Concentrations – Alternative 3 Operations After Mitigation (continued)

[a] Exceedances of the thresholds are indicated in bold. The thresholds for PM_{10}/$PM_{2.5}$ are incremental thresholds and therefore only impacts from project emissions without background pollutant concentrations are compared to the thresholds. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from project emissions plus background pollutant concentrations are compared to the thresholds.

[b] Equal to Alternative 3 impact minus CEQA Baseline impact.

[c] Equal to Alternative 3 impact minus NEPA Baseline (NFAB) impact. Since operations and emissions are identical for both scenarios, the difference in impacts between the 2 scenarios is 0.

[d] NO_2 concentrations based upon source/maximum impact locations distances of either 500 or 1000 meters. The NO_x to NO_2 conversion rates for these distances were 25.8 and 46.7 percent (SCAQMD, 2003c). This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are closer than 500 meters of this location.

Residual Impacts

Alternative 3 residual air quality impacts would be significant for 1-hour and annual NO_2 under NEPA and CEQA and 24-hour PM_{10} and $PM_{2.5}$ concentrations under CEQA ~~and NEPA~~.

Impact AQ-8: Alternative 3 would produce GHG emissions that would exceed 2003 baseline levels.

Table 3.2-49 summarizes the total GHG construction emissions associated with Alternative 3. Table 3.2-50 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 3.

Table 3.2-49. Total GHG Emissions from Berths 136-147 Terminal Construction Activities — Alternative 3

Construction Activity	TOTAL EMISSIONS (METRIC TONS)			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
Wharf Improvements at Berths 144-147	237	0.03	0.00	238
78 Acres of Backland Improvement at Berths 142-147	392	0.05	0.01	395
Construct a New Admin. Bldg, Main Gate, and Worker Parking Lot	217	0.03	0.00	219
Construct a New Maintenance and Repair Facility-Berths 136-147	300	0.05	0.00	303
Harry Bridges Blvd. Realignment	447	0.05	0.01	451
Construction of a 46-Acre Rail Yard at Berth 200	1,410	0.17	0.03	1,422
9 Acres of Backland Improvements at Berths 134-135	19	0.00	0.00	19
Construction of B142-147 12-Acre ICTF and 19-Acre Backlands	548	0.07	0.01	553
Existing Cranes Removal at Berth 136	8	0.00	0.00	8
Construction of Harry Bridges Blvd. Buffer	1,198	0.17	0.02	1,207
Install Cranes at Berth 136 & Berth 144	120	0.02	0.00	121
Worker Vehicles	1,613	0.26	0.26	1,698
Total Emissions	**6,509**	**0.90**	**0.34**	**6,631**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

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

Table 3.2-50. Annual Operational GHG Emissions - Berths 136-147 Terminal - Alternative 3

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year ~~2007~~2008							
Ships	81,191	10.7	0.7				81,641
Tugboats	731	0.1	0.0				735
Terminal & Railyard Equipment	20,551	3.3	0.2				20,695
Trucks	228,683	11.5	5.7				230,699
Trains	40,158	5.6	0.4				40,399
Reefer Refrigerant Losses				0.06	0.13	0.07	590
AMP Usage							0
On-Terminal Electricity Usage	4,616	0.0	0.0				4,623
Worker Vehicles	1,207	0.2	0.2				1,270
Year ~~2007~~2008 Total	**377,136**	**31.5**	**7.3**	**0.06**	**0.13**	**0.07**	**380,652**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**74,913**	**6.3**	**1.4**	**0.01**	**0.02**	**0.01**	**75,579**
NEPA Baseline	369,017	30.7	7.2	0.06	0.13	0.07	372,462
Project minus NEPA Baseline	**8,119**	**0.8**	**0.1**	**0.00**	**0.00**	**0.00**	**8,190**
Year 2015							
Ships	106,523	14.1	0.9				107,113
Tugboats	854	0.1	0.0				859
Terminal & Railyard Equipment	27,147	4.4	0.3				27,337
Trucks	359,790	17.7	8.8				362,902
Trains	42,576	5.9	0.4				42,832
Reefer Refrigerant Losses				0.08	0.18	0.09	806
AMP Usage							0
On-Terminal Electricity Usage	6,308	0.1	0.0				6,318
Worker Vehicles	1,649	0.2	0.2				1,730
Year 2015 Total	**544,847**	**42.5**	**10.8**	**0.08**	**0.18**	**0.09**	**549,898**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**242,624**	**17.3**	**4.9**	**0.03**	**0.07**	**0.04**	**244,825**
NEPA Baseline	494,217	35.2	10.4	0.08	0.18	0.09	498,977
Project minus NEPA Baseline	**50,630**	**7.3**	**0.4**	**0.00**	**0.00**	**0.00**	**50,921**
Year 2025							
Ships	141,978	18.8	1.3				142,766
Tugboats	924	0.1	0.0				930
Terminal & Railyard Equipment	40,487	6.6	0.5				40,771
Trucks	376,402	18.2	9.1				379,601
Trains	63,600	8.9	0.6				63,983
Reefer Refrigerant Losses				0.11	0.25	0.13	1,100
AMP Usage							0
On-Terminal Electricity Usage	8,609	0.1	0.0				8,623
Worker Vehicles	1,811	0.2	0.3				1,898
Year 2025 Total	**633,811**	**52.9**	**11.8**	**0.11**	**0.25**	**0.13**	**639,671**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**331,588**	**27.7**	**5.8**	**0.06**	**0.14**	**0.07**	**334,598**
NEPA Baseline	470,192	35.9	9.2	0.09	0.21	0.10	474,715
Project minus NEPA Baseline	**163,619**	**17.0**	**2.6**	**0.02**	**0.04**	**0.02**	**164,955**

Table 3.2-50. Annual Operational GHG Emissions - Berths 136-147 Terminal — Alternative 3 (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year 2038							
Ships	141,978	18.8	1.3				142,766
Tugboats	924	0.1	0.0				930
Terminal & Railyard Equipment	40,487	6.6	0.5				40,771
Trucks	376,402	18.2	9.1				379,601
Trains	63,600	8.9	0.6				63,983
Reefer Refrigerant Losses				0.11	0.25	0.13	1,100
AMP Usage							0
On-Terminal Electricity Usage	8,609	0.1	0.0				8,623
Worker Vehicles	2,035	0.3	0.3				2,131
Year 2038 Total	**634,035**	**52.9**	**11.8**	**0.11**	**0.25**	**0.13**	**639,903**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**331,812**	**27.7**	**5.9**	**0.06**	**0.14**	**0.07**	**334,831**
NEPA Baseline	470,225	35.9	9.2	0.09	0.21	0.10	474,748
Project minus NEPA Baseline	**163,810**	**17.0**	**2.6**	**0.02**	**0.04**	**0.02**	**165,155**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

CEQA Impact Determination

The data in Table 3.2-50 show that in each future project year, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 3 would produce significant levels of GHG emissions under CEQA.

NEPA Analysis

The data in Table 3.2-50 show that in each future project year, annual operational CO_2e emissions would increase from No Federal Action/NEPA Baseline levels.

Mitigation Measures

Measures that reduce fuel usage and electricity consumption from Alternative 3 emission sources would reduce proposed GHG emissions. Project mitigation measures that would accomplish this effect include **AQ-6, AQ-10, AQ-14, AQ-16, AQ-19, AQ-20, AQ-21, AQ-22, AQ-23,** and **AQ-24.**

The annual GHG emissions that would occur within California from the operation of Alternative 3 with mitigation are shown in Table 3.2-51. The effects of **Mitigation Measures AQ-6** (AMP for ships) and AQ-10 (VSRP for ships) were included in the emission estimates. The potential effects of the remaining mitigation measures (**AQ-14, AQ-16, AQ-19, AQ-20, AQ-21, AQ-22, AQ-23,** and **AQ-24**) are described qualitatively under each measure's heading in Section 3.2.4.4, **Impact AQ-8**, for the proposed Project.

Table 3.2-51. Annual Operational GHG Emissions - Berths 136-147 Terminal — Alternative 3 with Mitigation

Project Scenario/Source Type	Metric Tons Per Year						
	CO_2	CH_4	N_2O	HFC-125	HFC-134a	HFC-143a	CO_2e
Year ~~2007~~2008							
Ships	81,191	10.7	0.7				81,641
Tugboats	731	0.1	0.0				735
Terminal & Railyard Equipment	20,551	3.3	0.2				20,695
Trucks	228,683	11.5	5.7				230,699
Trains	40,158	5.6	0.4				40,399
Reefer Refrigerant Losses				0.06	0.13	0.07	590
AMP Usage	0	0.0	0.0				0
On-Terminal Electricity Usage	4,616	0.0	0.0				4,623
Worker Vehicles	1,207	0.2	0.2				1,270
Year ~~2007~~2008 Total	**377,136**	**31.5**	**7.3**	**0.06**	**0.13**	**0.07**	**380,652**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**74,913**	**6.3**	**1.4**	**0.01**	**0.02**	**0.01**	**75,579**
NEPA Baseline	369,017	30.7	7.2	0.06	0.13	0.07	372,462
Project minus NEPA Baseline	**8,119**	**0.8**	**0.1**	**0.00**	**0.00**	**0.00**	**8,190**
Year 2015							
Ships	49,184	6.7	0.5				49,471
Tugboats	854	0.1	0.0				859
Terminal & Railyard Equipment	27,147	4.4	0.3				27,338
Trucks	359,790	17.7	8.8				362,902
Trains	42,576	5.9	0.4				42,832
Reefer Refrigerant Losses				0.08	0.18	0.09	806
AMP Usage	6,710	0.1	0.0				6,720
On-Terminal Electricity Usage	6,308	0.1	0.0				6,318
Worker Vehicles	1,649	0.2	0.2				1,730
Year 2015 Total	**494,217**	**35.2**	**10.4**	**0.08**	**0.18**	**0.09**	**498,977**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**191,994**	**10.0**	**4.4**	**0.03**	**0.07**	**0.04**	**193,904**
NEPA Baseline	494,217	35.2	10.4	0.08	0.18	0.09	498,977
Project minus NEPA Baseline	**0**	**0.0**	**0.0**	**0.00**	**0.00**	**0.00**	**0**
Year 2025							
Ships	60,473	8.2	0.6				60,826
Tugboats	924	0.1	0.0				930
Terminal & Railyard Equipment	40,487	6.6	0.5				40,773
Trucks	376,402	18.2	9.1				379,601
Trains	63,600	8.9	0.6				63,983
Reefer Refrigerant Losses				0.11	0.25	0.13	1,100
AMP Usage	12,366	0.1	0.1				12,386
On-Terminal Electricity Usage	8,609	0.1	0.0				8,623
Worker Vehicles	1,811	0.2	0.3				1,898
Year 2025 Total	**564,672**	**42.4**	**11.1**	**0.11**	**0.25**	**0.13**	**570,118**

Table 3.2-51. Annual Operational GHG Emissions - Berths 136-147 Terminal — Alternative 3 with Mitigation (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**262,449**	**17.2**	**5.2**	**0.06**	**0.14**	**0.07**	**265,046**
NEPA Baseline	470,192	35.9	9.2	0.09	0.21	0.10	474,715
Project minus NEPA Baseline	**94,480**	**6.5**	**2.0**	**0.02**	**0.04**	**0.02**	**95,403**
Year 2038							
Ships	60,473	8.2	0.6				60,826
Tugboats	924	0.1	0.0				930
Terminal & Railyard Equipment	40,487	6.6	0.5				40,773
Trucks	376,402	18.2	9.1				379,601
Trains	63,600	8.9	0.6				63,983
Reefer Refrigerant Losses				0.11	0.25	0.13	1,100
AMP Usage	12,366	0.1	0.1				12,386
On-Terminal Electricity Usage	8,609	0.1	0.0				8,623
Worker Vehicles	2,035	0.3	0.3				2,131
Year 2038 Total	**564,896**	**42.4**	**11.2**	**0.11**	**0.25**	**0.13**	**570,351**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**262,673**	**17.2**	**5.2**	**0.06**	**0.14**	**0.07**	**265,279**
NEPA Baseline	470,225	35.9	9.2	0.09	0.21	0.10	474,748
Project minus NEPA Baseline	**94,671**	**6.5**	**2.0**	**0.02**	**0.04**	**0.02**	**95,603**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

Residual Impacts

Impacts would remain significant under CEQA.

3.2.4.5.4 Alternative 4 - Omni Terminal

The revisions to the construction and operational assumptions/mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change emissions from Alternative 4. As mentioned in the discussion of Impacts AQ-1 through AQ-4 and AQ-6 for the proposed Project, these revised assumptions/mitigation measures for Alternative 4 would slightly reduce (1) mitigated construction emissions, (2) operational unmitigated and mitigated emissions between years 2008 and 2012, and (3) ambient pollutant and health impacts from these activities compared to the analyses presented in the following section. However, the revised mitigated impacts for Alternative 4 still would result in exceedances of significance thresholds, as identified below.

Impact AQ-3: Operational emissions from Alternative 4 would remain below the 10 tons per year of VOC and SCAQMD daily emission significance thresholds.

Tables 3.2-53 and 3.2-54 provide summaries of the unmitigated average and peak daily emissions that would occur from the operation of Alternative 4.

CEQA Impact Determination

The data in Table 3.2-53 show that operation of the unmitigated Alternative 4 during all Project years would produce less than average daily emissions of all pollutant compared to the CEQA Baseline. Additionally, operation of the unmitigated Alternative 4 would produce lower annual VOC emissions compared to the CEQA Baseline during all project years (See Table D1.2-Alt4-41 in Appendix D1). As a result, average daily operations of Alternative 4 would produce less than significant air quality impacts under CEQA in regard to criterion **AQ-3**.

The data in Table 3.2-54 also show that during a peak day of operation for all Project years, the unmitigated Alternative 4 would produce lower peak daily emissions of all pollutant compared to the CEQA Baseline. As a result, peak daily operations of Alternative 4 would produce less than significant air quality impacts under CEQA in regard to criterion **AQ-3**.

NEPA Impact Determination

No federal action would occur for the Alternative 4; thus, no impacts to air quality would result under NEPA.

Mitigation Measures

Mitigation is not required, although implementation of **Mitigation Measures AQ-6** through **AQ-12** would substantially reduce annual average and peak daily emissions from the operation of Alternative 4 in all Project years.

Residual Impacts

Impacts would be less than significant under CEQA.

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

Ambient pollutant impacts produced from the operation of Alternative 4 were estimated by multiplying the results of the operational dispersion modeling analysis for the proposed Project by the ratio of Alternative 4 to proposed Project operational emissions that would occur within Berths 136-147 Terminal and in direct proximity to the facility during the year 2010. Since Alternative 4 would produce lower $PM_{10}/PM_{2.5}$ emissions and impacts compared to the CEQA Baseline, no analysis was performed for these pollutants.

Table 3.2-53. Average Daily Operational Emissions Associated with the Omni Terminal Alternative

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year ~~2007~~2008						
Ships – Fairway Transit	26	59	749	440	63	59
Ships – Precautionary Area Transit	5	10	99	61	9	8
Ships – Harbor Transit	7	9	70	35	7	7
Ships – Docking	3	2	19	9	2	2
Ships – Hoteling Aux. Sources	14	49	487	462	41	39
Tugs – Cargo Vessel Assist	1	5	33	0	1	1
Terminal Equipment	39	144	461	0	20	18
On-road Trucks	297	1,009	2,689	2	320	150
Trains	36	83	495	44	19	17
Railyard Equipment	7	27	77	0	3	3
Worker Commuter Vehicles	3	45	6	0	5	4
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**441**	**1,450**	**5,238**	**1,053**	**492**	**310**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year ~~2007~~2008	**(744)**	**(2,627)**	**(8,234)**	**(1,670)**	**(530)**	**(521)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	37	83	1,037	609	88	82
Ships – Precautionary Area Transit	7	16	153	94	13	13
Ships – Harbor Transit	11	14	110	55	11	10
Ships – Docking	4	4	29	13	3	3
Ships – Hoteling Aux. Sources	21	76	765	709	65	61
Tugs – Cargo Vessel Assist	2	9	48	0	2	2
Terminal Equipment	25	185	353	0	14	13
On-road Trucks	157	854	2,488	3	359	137
Trains	43	117	596	0	16	14
Railyard Equipment	4	33	56	0	2	2
Worker Commuter Vehicles	3	45	6	0	6	6
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**317**	**1,444**	**5,671**	**1,484**	**581**	**344**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2015	**(868)**	**(2,633)**	**(7,801)**	**(1,240)**	**(441)**	**(487)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-53. Average Daily Operational Emissions Associated with the Omni Terminal Alternative (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2025						
Ships – Fairway Transit	40	90	1,095	640	93	87
Ships – Precautionary Area Transit	9	17	158	93	14	13
Ships – Harbor Transit	13	16	125	62	13	12
Ships – Docking	4	4	34	14	4	3
Ships – Hoteling Aux. Sources	26	88	913	811	77	72
Tugs – Cargo Vessel Assist	1	8	35	0	2	1
Terminal Equipment	10	200	75	0	3	3
On-road Trucks	71	358	965	3	329	78
Trains	41	133	590	0	15	14
Railyard Equipment	2	36	12	0	0	0
Worker Commuter Vehicles	2	31	4	0	7	6
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**221**	**989**	**4,037**	**1,624**	**556**	**291**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2025	**(964)**	**(3,088)**	**(9,435)**	**(1,100)**	**(466)**	**(541)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	40	90	1,095	640	93	87
Ships – Precautionary Area Transit	9	17	158	93	14	13
Ships – Harbor Transit	13	16	125	62	13	12
Ships – Docking	4	4	34	14	4	3
Ships – Hoteling Aux. Sources	26	88	913	811	77	72
Tugs – Cargo Vessel Assist	1	8	32	0	1	1
Terminal Equipment	12	281	46	1	3	3
On-road Trucks	83	302	803	3	322	72
Trains	35	133	518	0	12	11
Railyard Equipment	1	36	5	0	0	0
Worker Commuter Vehicles	1	12	1	0	7	7
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**227**	**995**	**3,760**	**1,624**	**548**	**283**
CEQA Baseline – Year 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2038	**(958)**	**(3,082)**	**(9,712)**	**(1,100)**	**(474)**	**(548)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-54. Peak Daily Operational Emissions Associated with the Omni Terminal Alternative 4.

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Aux. Sources	22	86	773	836	67	63
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	261	951	3,040	2	131	120
On-road Trucks	407	1,382	3,681	3	256	171
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	137	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**925**	**3,090**	**11,839**	**2,550**	**762**	**643**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year ~~2007~~2008	**(1,053)**	**(3,845)**	**(11,171)**	**(1,300)**	**(844)**	**(686)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Aux. Sources	22	86	762	712	54	51
Tugs – Cargo Vessel Assist	4	24	127	2	5	5
Terminal Equipment	151	1,106	2,145	2	87	80
On-road Trucks	218	1,184	3,451	4	245	141
Trains	76	209	1,063	1	28	26
Railyard Equipment	7	59	99	0	4	4
Worker Commuter Vehicles	10	135	17	0	19	17
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2015 Total	**601**	**3,038**	**10,382**	**2,320**	**674**	**540**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2015	**(1,376)**	**(3,897)**	**(12,628)**	**(1,531)**	**(933)**	**(789)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-54. Peak Daily Operational Emissions Associated with the Omni Terminal Alternative 4 (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2025						
Ships – Fairway Transit	117	265	3,260	1,913	276	258
Ships – Precautionary Area Transit	28	57	527	312	47	44
Ships – Harbor Transit	41	52	392	191	40	37
Ships – Docking	14	14	109	46	12	11
Ships – Hoteling Aux. Sources	35	122	1,246	1,139	106	99
Tugs – Cargo Vessel Assist	4	24	105	2	5	4
Terminal Equipment	58	1,174	441	3	17	15
On-road Trucks	99	496	1,336	4	137	46
Trains	64	209	930	1	23	22
Railyard Equipment	2	57	19	0	1	1
Worker Commuter Vehicles	7	92	12	0	21	19
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2025 Total	**473**	**2,571**	**8,408**	**3,611**	**684**	**557**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2025	**(1,504)**	**(4,364)**	**(14,603)**	**(240)**	**(922)**	**(772)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	117	265	3,260	1,913	276	258
Ships – Precautionary Area Transit	28	57	527	312	47	44
Ships – Harbor Transit	41	52	392	191	40	37
Ships – Docking	14	14	109	46	12	11
Ships – Hoteling Aux. Sources	35	122	1,246	1,139	106	99
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	50	1,155	187	3	13	12
On-road Trucks	115	418	1,110	4	129	38
Trains	54	209	816	1	20	18
Railyard Equipment	2	57	8	0	1	0
Worker Commuter Vehicles	4	43	4	0	26	24
Relocated PHL Rail Yard	2	9	30	0	1	1
Project Year 2038 Total	**467**	**2,424**	**7,784**	**3,609**	**673**	**547**
CEQA Baseline – Year 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2038	**(1,510)**	**(4,511)**	**(15,227)**	**(242)**	**(934)**	**(782)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-55 presents the maximum offsite ground level concentrations of criteria pollutants estimated to occur from the operation of Alternative 4 without mitigation. These data show that total maximum NO_2 concentrations would exceed the 1-hour and annual SCAQMD thresholds.

Table 3.2-55. Maximum Offsite Ambient Concentrations – Alternative 4 Operations Without Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from No Project Emissions ($\mu g/m^3$)*	*Background Pollutant Concentration ($\mu g/m^3$)*	*Total Maximum No Project Impact ($\mu g/m^3$)*	*SCAQMD Threshold [a] ($\mu g/m^3$)*
NO_2	1-hour	624	263	**887**	338
	Annual	12	54	**66**	56
CO	1-hour	869	6,629	7,498	23,000
	8-hour	225	5,371	5,596	10,000

[a] Exceedances of the thresholds are indicated in bold. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from project emissions plus background pollutant concentrations are compared to the thresholds.
[d] NO_2 concentrations based upon source/maximum impact locations distances of either 500 or 1000 meters. The NO_x to NO_2 conversion rates for these distances were 25.8 and 46.7 percent (SCAQMD, 2003c). This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are closer than 500 meters from this location.

CEQA Impact Determination

Operational emissions from Alternative 4 would contribute to significant levels of 1-hour and annual NO_2 concentrations under CEQA.

NEPA Impact Determination

No federal action would occur for the Alternative 4; thus, no impacts to air quality would result under NEPA.

Mitigation Measures

Implementation of **Mitigation Measures AQ-6** through **AQ-18** would substantially reduce the ambient impact of unmitigated operational emissions from Alternative 4. However, given the uncertainty of implementing some measures, the mitigated dispersion modeling analysis only considered the effects of **Mitigation Measures AQ-6** through **AQ-12.** Table 3.2-56 presents the maximum off-site ground level concentrations of criteria pollutants estimated for Alternative 4 operations after mitigation.

Residual Impacts

Alternative 4 residual air quality impacts would be significant for 1-hour and annual NO_2 under CEQA.

~~**Impact AQ-5: Alternative 4 would not create objectionable odors at the nearest sensitive receptor.**~~

Table 3.2-56. Maximum Offsite Ambient Concentrations – Alternative 4 Operations after Mitigation

Pollutant	*Averaging Time*	*Maximum Impact from No Project Emissions (µg/m³)*	*Background Pollutant Concentration (µg/m³)*	*Total Maximum No Project Impact (µg/m³)*	*SCAQMD Threshold [a] (µg/m³)*
NO_2	1-hour	485	263	**748**	338
	Annual	9	54	**63**	56
CO	1-hour	747	6,629	7,376	23,000
	8-hour	161	5,371	5,532	10,000

[a] Exceedances of the thresholds are indicated in bold. The thresholds for NO_2 and CO are combined thresholds and therefore impacts from project emissions plus background pollutant concentrations are compared to the thresholds.

[d] NO_2 concentrations based upon source/maximum impact locations distances of either 500 or 1000 meters. The NO_x to NO_2 conversion rates for these distances were 25.8 and 46.7 percent (SCAQMD, 2003c). This is a conservative approach, as the majority of emission sources that contribute to the maximum NO_2 impact are closer than 500 meters from this location.

Impact AQ-5: Alternative 4 would not create objectionable odors at the nearest sensitive receptor.

CEQA Impact Determination

Operation of the proposed Project would not create objectionable odors at the nearest sensitive receptors. Since Alternative 4 would produce lower operational emissions compared to the proposed Project, this alternative would produce less than significant impacts under CEQA in regard to criterion **AQ-5**.

NEPA Impact Determination

No federal action would occur for the Alternative 4; thus, no impacts to air quality would result under NEPA.

Mitigation Measures

Mitigation is not required.

Residual Impacts

There would be less than significant residual impacts under CEQA.

AQ-6: Alternative 4 would not expose receptors to significant levels of TACs.

An analysis to evaluate public cancer risks generated by Alternative 4 operational emissions of TACs was performed by the same methods used for the proposed Project cancer analysis. Non-cancer effects from Alternative 4 TACs were estimated by multiplying the results of the proposed Project non-cancer analysis with the ratio of Alternative 4 to proposed Project operational emissions that would occur within Berths 136-147 Terminal and in direct proximity to the facility during the year 2010. Table 3.2-57 presents the results of these analyses for each receptor type. Figures

D3-26 and D3-27 in Appendix D3 show the distribution of predicted residential cancer risks for (1) unmitigated Alternative 4 and (2) unmitigated CEQA increment (unmitigated Alternative 4 minus CEQA Baseline).

CEQA Impact Determination

Table 3.2-57 shows that the maximum cancer and non-cancer CEQA increments due to Alternative 4 would less than zero and therefore remain below all significance criteria.

Table 3.2-57. Maximum Health Impacts due to Alternative 4 Without Mitigation

Health Impact	*Receptor Type*	MAXIMUM PREDICTED IMPACT[1]			*Significance Threshold*[3]
		Alternative 3	*CEQA Baseline*	*CEQA Increment*[2]	
Cancer Risk	Residential	3.2×10^{-6}	4.5×10^{-6}	-1.3×10^{-6}	10×10^{-6}
	Occupational	0.5×10^{-6}	0.7×10^{-6}	-0.21×10^{-6}	
	Sensitive	4.0×10^{-6}	5.7×10^{-6}	-1.6×10^{-6}	
	Student	0.1×10^{-6}	0.1×10^{-6}	0.0×10^{-6}	
	Recreational	9.4×10^{-6}	12.2×10^{-6}	-2.8×10^{-6}	
Chronic Hazard Inde-x	Residential			-0.16	1.0
	Occupational			-0.29	
	Sensitive			-0.10	
	Student			-0.10	
	Recreational			-0.20	
Acute Hazard Index[4]	Residential			-1.33	1.0
	Occupational			-1.35	
	Sensitive			-1.27	
	Student			-1.04	
	Recreational			-1.74	

Notes:
(1) Data represent project scenario impacts that contribute to maximum CEQA incremental impacts.
(2) The CEQA Increment represents Alternative 4 impact minus CEQA Baseline impact. However, non-cancer increments estimated by factoring proposed Project incremental results with the ratio of Alternative 4/proposed Project emissions.
(3) Exceedances of the significance criteria are in bold. The significance thresholds only apply to the CEQA increments.
(4) For the acute hazard index, two possible maximum 1-hour scenarios were modeled: (1) one ship hoteling and one ship harbor transiting, turning, and docking; and (2) two ships hoteling. The scenario that yielded the highest result is reported for each impact type.
No federal action would occur for the No Project Alternative; thus, no impacts to air quality would result under NEPA.

NEPA Impact Determination

No federal action would occur for the Alternative 4; thus, no impacts to air quality would result under NEPA.

Mitigation Measures

Mitigation is not required.

Residual Impacts

Impacts would be less than significant under CEQA.

Impact AQ-7: Alternative 4 would not conflict with or obstruct implementation of an applicable AQMP.

Similar to the proposed Project, Alternative 4 would comply with the 2003 AQMP emission reduction measures that are designed to bring the SCAB into attainment of the state and national ambient air quality standards. Alternative 4 would accommodate lower cargo throughputs at the Port compared to the proposed Project or CEQA Baseline. Since the 2003 AQMP assumes growth associated with the proposed Project, Alternative 4 would not exceed the future growth projections in the 2003 AQMP and it would not conflict with or obstruct implementation of the SIP.

CEQA Impact Determination

In regard to criterion **AQ-7**, Alternative 4 would produce less than significant impacts under CEQA.

NEPA Impact Determination

No federal action would occur for the Alternative 4; thus, no impacts to air quality would result under NEPA.

Mitigation Measures

Mitigation is not required.

Residual Impacts

Impacts would be less than significant under CEQA.

Impact AQ-8: Alternative 4 would produce GHG emissions that would not exceed 2003 baseline levels.

Table 3.2-58 summarizes the total GHG construction emissions associated with Alternative 4. Table 3.2-59 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 4.

CEQA Impact Determination

The data in Table 3.2-59 show that in each future project year, annual operational CO_2e emissions would remain below CEQA baseline levels. As a result, Alternative 4 would produce less than significant levels of GHG emissions under CEQA.

NEPA Impact Determination

No federal action would occur for the Alternative 4; thus, no impacts to air quality would result under NEPA..

Mitigation Measures

Mitigation is not required.

Residual Impacts

Impacts would remain less than significant under CEQA.

Table 3.2-58. Total GHG Emissions from Berths 136-147 Terminal Construction Activities — Alternative 4

Construction Activity	TOTAL EMISSIONS (METRIC TONS)			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
78 Acres of Backland Improvement at Berths 142-147	392	0.05	0.01	395
Construct a New Admin. Bldg, Main Gate, and Worker Parking Lot	217	0.03	0.00	219
Construct a New Maintenance and Repair Facility-Berths 136-147	300	0.05	0.00	303
Harry Bridges Blvd. Realignment	447	0.05	0.01	451
9 Acres of Backland Improvements at Berths 134-135	19	0.00	0.00	19
Construction of Harry Bridges Blvd. Buffer	1,198	0.17	0.02	1,207
Worker Vehicles	714	0.12	0.11	752
Total Emissions	**3,287**	**0.47**	**0.15**	**3,344**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

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

Table 3.2-59. Annual Operational GHG Emissions - Berths 136-147 Terminal - Alternative 4

Project Scenario/Source Type	*Metric Tons Per Year*						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year ~~2007~~2008							
Ships	25,896	3.4	0.2				26,040
Tugboats	304	0.0	0.0				306
Terminal & Railyard Equipment	6,669	1.1	0.1				6,716
Trucks	75,404	3.8	1.9				76,069
Trains	13,244	1.8	0.1				13,323
Reefer Refrigerant Losses				0.02	0.04	0.02	191
AMP Usage							0
On-Terminal Electricity Usage	1,498	0.0	0.0				1,500
Worker Vehicles	391	0.1	0.1				412
Year ~~2007~~2008 Total	**123,406**	**10.3**	**2.4**	**0.02**	**0.04**	**0.02**	**124,557**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**-178,817**	**-14.9**	**-3.5**	**-0.03**	**-0.07**	**-0.03**	**-180,516**
Year 2015							
Ships	39,449	5.2	0.4				39,667
Tugboats	514	0.1	0.0				517

Table 3.2-59. Annual Operational GHG Emissions - Berths 136-147 Terminal - Alternative 4 (continued)

Project Scenario/Source Type	Metric Tons Per Year						
	CO_2	CH_4	N_2O	HFC-125	HFC-134a	HFC-143a	CO_2e
Terminal & Railyard Equipment	9,979	1.6	0.1				10,049
Trucks	108,412	5.3	2.7				109,353
Trains	18,545	2.6	0.2				18,656
Reefer Refrigerant Losses				0.03	0.06	0.03	270
AMP Usage							0
On-Terminal Electricity Usage	3,383	0.0	0.0				3,388
Worker Vehicles	549	0.1	0.1				575
Year 2015 Total	**180,830**	**14.9**	**3.4**	**0.03**	**0.06**	**0.03**	**182,476**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**-121,393**	**-10.2**	**-2.5**	**-0.02**	**-0.05**	**-0.02**	**-122,597**
Year 2025							
Ships	42,708	5.7	0.4				42,945
Tugboats	462	0.1	0.0				464
Terminal & Railyard Equipment	11,284	1.8	0.1				11,363
Trucks	104,269	5.0	2.5				105,157
Trains	20,973	2.9	0.2				21,099
Reefer Refrigerant Losses				0.03	0.07	0.03	306
AMP Usage							0
On-Terminal Electricity Usage	3,664	0.0	0.0				3,670
Worker Vehicles	554	0.1	0.1				581
Year 2025 Total	**183,913**	**15.6**	**3.3**	**0.03**	**0.07**	**0.03**	**185,584**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**-118,311**	**-9.6**	**-2.6**	**-0.02**	**-0.04**	**-0.02**	**-119,488**
Year 2038							
Ships	42,708	5.7	0.4				42,945
Tugboats	462	0.1	0.0				464
Terminal & Railyard Equipment	11,284	1.8	0.1				11,363
Trucks	104,269	5.0	2.5				105,157
Trains	20,973	2.9	0.2				21,099
Reefer Refrigerant Losses				0.03	0.07	0.03	306
AMP Usage							0
On-Terminal Electricity Usage	3,664	0.0	0.0				3,670
Worker Vehicles	566	0.1	0.1				592
Year 2038 Total	**183,924**	**15.6**	**3.3**	**0.03**	**0.07**	**0.03**	**185,596**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**-118,299**	**-9.6**	**-2.6**	**-0.02**	**-0.04**	**-0.02**	**-119,477**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

No federal action would occur for the No Project Alternative; thus, no impacts to air quality would result under NEPA

3.2.4.5.5 Alternative 5 – Landside Terminal Improvements

The revisions to the construction and operational assumptions/mitigation measures proposed in the Draft EIS/EIR that are included in this Final EIS/EIR were not evaluated for their potential to change emissions from Alternative 5. As mentioned in the discussion of Impacts AQ-1 through AQ-4 and AQ-6 for the proposed Project, these revised assumptions/mitigation measures for Alternative 5 would slightly reduce (1) mitigated construction emissions, (2) operational unmitigated and mitigated emissions between years 2008 and 2012, and (3) ambient pollutant and health impacts from these activities compared to the analyses presented in the following section. However, the revised mitigated impacts for Alternative 5 still would result in exceedances of significance thresholds, as identified below.

Impact AQ-3: Alternative 5 would result in operational emissions that exceed 10 tons per year of VOCs and SCAQMD thresholds of significance.

Tables 3.2-60 and 3.2-61 present estimates of average and peak daily emissions that would occur from the operation of Alternative 5.

CEQA Impact Determination

The data in Table 3.2-60 show that the net change in average daily emissions between Alternative 5 and CEQA Baseline would exceed the NO_x and SO_x SCAQMD daily thresholds in ~~2007~~2008 and would remain below all thresholds thereafter. The net change in VOC emissions between the unmitigated Alternative 5 and CEQA Baseline would not exceed the threshold of 10 tons in any Project year (See Table D1.2-Alt5-44 in Appendix D1).

The data in Table 3.2-61 show that during a peak day of activity, emissions between Alternative 5 and CEQA Baseline would exceed the NO_x SCAQMD daily threshold in ~~2007~~2008 and would remain below all thresholds thereafter.

NEPA Impact Determination

No federal action would occur for Alternative 5; thus, no impacts to air quality would result under NEPA.

Mitigation Measures

Since Alternative 5 includes incorporation of **Mitigation Measures AQ-6** through **AQ-12**, no additional measures are proposed to reduce emissions from this scenario.

Residual Impacts

Average daily emissions of NO_x and SO_x and peak daily emissions of NO_x in year ~~2007~~2008 would remain significant under CEQA.

Table 3.2-60. Average Daily Operational Emissions Associated with the Landside Terminal Improvements Alternative 5

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	80	185	2,354	1,373	196	184
Ships – Precautionary Area Transit	15	31	312	194	27	26
Ships – Harbor Transit	23	29	216	109	22	20
Ships – Docking	8	8	60	26	6	6
Ships – Hoteling Aux. Sources	42	153	1,505	1,440	128	120
Tugs – Cargo Vessel Assist	2	13	79	0	3	3
Terminal Equipment	122	444	1,420	1	61	56
On-road Trucks	698	2,239	6,819	6	458	278
Trains	109	255	1,524	136	58	53
Railyard Equipment	21	82	237	0	11	10
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,135**	**3,585**	**14,597**	**3,286**	**988**	**771**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year ~~2007~~2008	**(50)**	**(491)**	**1,126**	**562**	**(34)**	**(60)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	18	131	986	59	21	20
Ships – Precautionary Area Transit	6	39	267	39	6	6
Ships – Harbor Transit	9	36	220	29	6	5
Ships – Docking	3	10	61	8	2	2
Ships – Hoteling Aux. Sources	15	86	516	692	26	24
Tugs – Cargo Vessel Assist	3	13	71	0	3	3
Terminal Equipment	62	469	70	1	4	3
On-road Trucks	159	561	1,394	8	231	65
Trains	93	255	1,282	1	34	31
Railyard Equipment	8	92	8	0	0	0
Worker Commuter Vehicles	12	161	21	0	22	21
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**390**	**1,862**	**4,927**	**837**	**355**	**180**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change CEQA Baseline - Year 2015	**(795)**	**(2,214)**	**(8,545)**	**(1,887)**	**(667)**	**(651)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-60. Average Daily Operational Emissions Associated with the Landside Terminal Improvements Alternative 5 (continued)

Project Scenario/Activity	EMISSIONS (POUNDS PER DAY)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Project Year 2025						
Ships – Fairway Transit	23	161	1,136	67	25	23
Ships – Precautionary Area Transit	7	47	314	41	7	7
Ships – Harbor Transit	11	45	279	31	7	6
Ships – Docking	3	12	77	8	2	2
Ships – Hoteling Aux. Sources	5	66	176	772	22	20
Tugs – Cargo Vessel Assist	2	13	59	0	3	2
Terminal Equipment	28	561	88	1	4	4
On-road Trucks	151	534	1,347	8	220	61
Trains	124	406	1,781	1	45	41
Railyard Equipment	14	148	14	0	1	1
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**380**	**2,112**	**5,290**	**930**	**359**	**191**
CEQA Baseline 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2025	**(805)**	**(1,965)**	**(8,182)**	**(1,794)**	**(663)**	**(641)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	23	161	1,136	67	25	23
Ships – Precautionary Area Transit	7	47	314	41	7	7
Ships – Harbor Transit	11	45	279	31	7	6
Ships – Docking	3	12	77	8	2	2
Ships – Hoteling Aux. Sources	5	66	176	772	22	20
Tugs – Cargo Vessel Assist	2	13	53	0	2	2
Terminal Equipment	39	787	123	2	6	6
On-road Trucks	155	533	1,363	8	218	59
Trains	106	406	1,559	1	37	34
Railyard Equipment	14	148	14	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**373**	**2,278**	**5,104**	**930**	**357**	**189**
CEQA Baseline - Year 2003	**1,185**	**4,077**	**13,472**	**2,724**	**1,022**	**831**
Net Change from CEQA Baseline - Year 2038	**(812)**	**(1,799)**	**(8,368)**	**(1,793)**	**(665)**	**(643)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-61. Peak Daily Operational Emissions Associated with the Landside Terminal Improvements Alternative

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year ~~2007~~2008						
Ships – Fairway Transit	68	160	2,076	1,230	174	163
Ships – Precautionary Area Transit	13	31	350	231	30	28
Ships – Harbor Transit	22	28	205	110	21	20
Ships – Docking	8	8	57	27	6	6
Ships – Hoteling Aux. Sources	78	267	2,789	2,468	236	221
Tugs – Cargo Vessel Assist	5	24	147	0	6	6
Terminal Equipment	702	2,561	8,184	5	352	324
On-road Trucks	956	3,065	9,336	9	628	380
Trains	89	208	1,245	111	47	43
Railyard Equipment	17	67	193	0	9	8
Worker Commuter Vehicles	10	140	18	0	15	14
Relocated PHL Rail Yard	4	7	54	1	1	1
Project Year ~~2007~~2008 Total	**1,971**	**6,566**	**24,654**	**4,191**	**1,525**	**1,213**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year ~~2007~~2008	**(6)**	**(369)**	**1,644**	**341**	**(82)**	**(115)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**Y**	**Y**	**N**	**N**
Project Year 2015						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	20	135	684	1,222	42	39
Tugs – Cargo Vessel Assist	4	24	127	0	5	5
Terminal Equipment	317	2,381	356	5	18	16
On-road Trucks	218	768	1,909	11	316	88
Trains	119	326	1,636	1	43	40
Railyard Equipment	2	24	2	0	0	0
Worker Commuter Vehicles	12	161	21	0	22	21
Relocated PHL Rail Yard	2	9	30	0	0	0
Project Year 2015 Total	**766**	**4,263**	**7,532**	**1,451**	**508**	**267**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change CEQA Baseline - Year 2015	**(1,212)**	**(2,672)**	**(15,478)**	**(2,399)**	**(1,099)**	**(1,062)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Table 3.2-61. Peak Daily Operational Emissions Associated with the Landside Terminal Improvements Alternative (continued)

Project Scenario/Activity	Emissions (pounds per day)					
	VOC	*CO*	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Project Year 2025						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	105	0	5	4
Terminal Equipment	114	2,307	362	5	18	17
On-road Trucks	207	731	1,845	10	301	83
Trains	100	326	1,429	1	36	33
Railyard Equipment	11	120	11	0	1	1
Worker Commuter Vehicles	8	109	14	0	24	22
Relocated PHL Rail Yard	2	9	6	0	0	0
Project Year 2025 Total	**527**	**4,163**	**6,811**	**1,426**	**479**	**249**
CEQA Baseline 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2025	**(1,451)**	**(2,772)**	**(16,200)**	**(2,424)**	**(1,128)**	**(1,080)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**
Project Year 2038						
Ships – Fairway Transit	34	260	1,658	94	35	32
Ships – Precautionary Area Transit	12	78	493	58	11	11
Ships – Harbor Transit	19	77	482	47	12	11
Ships – Docking	6	21	133	12	3	3
Ships – Hoteling Aux. Sources	8	102	273	1,198	34	31
Tugs – Cargo Vessel Assist	4	24	94	0	4	4
Terminal Equipment	114	2,307	362	5	18	17
On-road Trucks	213	729	1,866	11	298	81
Trains	85	326	1,251	1	30	27
Railyard Equipment	11	120	11	0	1	1
Worker Commuter Vehicles	4	50	5	0	30	28
Relocated PHL Rail Yard	2	9	5	0	0	0
Project Year 2038 Total	**513**	**4,102**	**6,634**	**1,426**	**476**	**246**
CEQA Baseline - Year 2003	**1,977**	**6,935**	**23,010**	**3,851**	**1,607**	**1,329**
Net Change from CEQA Baseline - Year 2038	**(1,464)**	**(2,833)**	**(16,376)**	**(2,424)**	**(1,131)**	**(1,083)**
SCAQMD Daily Significance Thresholds	**55**	**550**	**55**	**150**	**150**	**55**
Exceeds SCAQMD Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

Impact AQ-8: Alternative 5 would produce GHG emissions that would exceed 2003 baseline levels.

Table 3.2-64 summarizes the total GHG construction emissions associated with Alternative 5. Table 3.2-65 summarizes the annual GHG emissions that would occur within California from the operation of Alternative 5. Implementation of AMP and

VSRP for ships, consistent with **Mitigation Measures AQ-6** and **AQ-10**, were included in the operational emission estimates for Alternative 5.

CEQA Impact Determination

The data in Table 3.2-65 show that in each future project year, annual operational CO_2e emissions would increase from CEQA baseline levels. As a result, Alternative 5 would produce significant levels of GHG emissions under CEQA.

Table 3.2-64. Total GHG Emissions from Berths 136-147 Terminal Construction Activities — Alternative 5

Construction Activity	TOTAL EMISSIONS (METRIC TONS)			
	CO_2	*CH_4*	*N_2O*	*CO_2e*
78 Acres of Backland Improvement at Berths 142-147	392	0.05	0.01	395
Construct a New Admin. Bldg, Main Gate, and Worker Parking Lot	217	0.03	0.00	219
Construct a New Maintenance and Repair Facility-Berths 136-147	300	0.05	0.00	303
Harry Bridges Blvd. Realignment	447	0.05	0.01	451
Construction of a 46-Acre Rail Yard at Berth 200	1,410	0.17	0.03	1,422
9 Acres of Backland Improvements at Berths 134-135	19	0.00	0.00	19
Construction of B142-147 12-Acre ICTF and 19-Acre Backlands	548	0.07	0.01	553
Construction of Harry Bridges Blvd. Buffer	1,198	0.17	0.02	1,207
Worker Vehicles	857	0.14	0.14	902
Total Emissions	**5,388**	**0.73**	**0.21**	**5,469**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.
CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; and 310 for N_2O.

Table 3.2-65. Annual Operational GHG Emissions - Berths 136-147 Terminal – Alternative 5

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year ~~2007~~2008							
Ships	81,191	10.7	0.7				81,641
Tugboats	731	0.1	0.0				735
Terminal & Railyard Equipment	20,551	3.3	0.2				20,695
Trucks	232,432	11.6	5.8				234,481
Trains	40,158	5.6	0.4				40,399
Reefer Refrigerant Losses				0.06	0.13	0.07	590
AMP Usage	0	0.0	0.0				0
On-Terminal Electricity Usage	4,616	0.0	0.0				4,623
Worker Vehicles	1,349	0.2	0.2				1,420
Year ~~2007~~2008 Total	**381,028**	**31.7**	**7.4**	**0.06**	**0.13**	**0.07**	**384,584**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**78,804**	**6.5**	**1.5**	**0.01**	**0.02**	**0.01**	**79,511**

Table 3.2-65. Annual Operational GHG Emissions - Berths 136-147 Terminal – Alternative 5 (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year 2015							
Ships	45,085	6.1	0.4				45,348
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	24,671	4.0	0.3				24,846
Trucks	326,564	16.1	8.0				329,389
Trains	38,748	5.4	0.4				38,981
Reefer Refrigerant Losses				0.07	0.17	0.08	732
AMP Usage	6,313	0.1	0.0				6,323
On-Terminal Electricity Usage	5,733	0.0	0.0				5,742
Worker Vehicles	1,649	0.2	0.2				1,730
Year 2015 Total	**449,527**	**32.0**	**9.4**	**0.07**	**0.17**	**0.08**	**453,859**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**147,304**	**6.9**	**3.5**	**0.02**	**0.06**	**0.03**	**148,787**
Year 2025							
Ships	50,377	6.9	0.5				50,671
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	31,842	5.2	0.4				32,066
Trucks	306,195	14.8	7.4				308,798
Trains	61,799	8.6	0.6				62,170
Reefer Refrigerant Losses				0.09	0.21	0.10	917
AMP Usage	10,371	0.1	0.0				10,387
On-Terminal Electricity Usage	7,180	0.1	0.0				7,192
Worker Vehicles	1,664	0.2	0.2				1,744
Year 2025 Total	**470,192**	**35.9**	**9.2**	**0.09**	**0.21**	**0.10**	**474,715**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**167,969**	**10.7**	**3.3**	**0.04**	**0.10**	**0.05**	**169,643**

Table 3.2-65. Annual Operational GHG Emissions - Berths 136-147 Terminal – Alternative 5 (continued)

Project Scenario/Source Type	METRIC TONS PER YEAR						
	CO_2	*CH_4*	*N_2O*	*HFC-125*	*HFC-134a*	*HFC-143a*	*CO_2e*
Year 2038							
Ships	50,377	6.9	0.5				50,671
Tugboats	764	0.1	0.0				769
Terminal & Railyard Equipment	31,842	5.2	0.4				32,066
Trucks	306,195	14.8	7.4				308,798
Trains	61,799	8.6	0.6				62,170
Reefer Refrigerant Losses				0.09	0.21	0.10	917
AMP Usage	10,371	0.1	0.0				10,387
On-Terminal Electricity Usage	7,180	0.1	0.0				7,192
Worker Vehicles	1,697	0.2	0.2				1,777
Year 2038 Total	**470,225**	**35.9**	**9.2**	**0.09**	**0.21**	**0.10**	**474,748**
CEQA Baseline	302,223	25.2	5.9	0.05	0.11	0.05	305,073
Project minus CEQA Baseline	**168,002**	**10.7**	**3.3**	**0.04**	**0.10**	**0.05**	**169,676**

One metric ton equals 1000 kilograms, 2205 lbs, or 1.1 U.S. (short) tons.

CO_2e = the carbon dioxide equivalent emissions of all GHGs combined. The carbon dioxide equivalent emission rate for each GHG represents the emission rate multiplied by its global warming potential (GWP). The GWPs are 1 for CO_2; 21 for CH_4; 310 for N_2O; 2800 for HFC-125; 1300 for HFC-134a; and 3800 for HFC-143a.

No federal action would occur for Alternative 5; thus, no impacts to air quality would result under NEPA

NEPA Impact Determination

No federal action would occur for Alternative 5; thus, no impacts to air quality would result under NEPA

Mitigation Measures

Measures that reduce fuel usage and electricity consumption from Alternative 5 emission sources would reduce proposed GHG emissions. Project mitigation measures that would accomplish this effect include **AQ-6** (already included in Table 3.2-65), **AQ-10** (already included in Table 3.2-65), **AQ-14, AQ-16, AQ-19, AQ-20, AQ-21, AQ-22, AQ-23,** and **AQ-24.**

Residual Impacts

Impacts would remain significant under CEQA.

3.2.4.6 Summary of Impact Determinations

Table 3.2-66 summarizes the CEQA and NEPA impact determinations of the proposed Project and its Alternatives related to Air Quality, as described in the detailed discussion in Sections 3.2.4.4 and 3.2.4.5. This table is meant to allow easy comparison between the potential impacts of the Project and its Alternatives with respect to this resource.

Identified potential impacts may be based on Federal, State, or City of Los Angeles significance criteria, Port criteria, and the scientific judgment of the report preparers.

For each type of potential impact, the table describes the impact, notes the CEQA and NEPA impact determinations, describes any applicable mitigation measures, and notes the residual impacts (i.e.: the impact remaining after mitigation). All impacts, whether significant or not, are included in this table. Note that impact descriptions for each of the Alternatives are the same as for the Project, unless otherwise noted.

3.2.4.8 Significant Unavoidable Adverse Impacts

3.2.4.8.1 Construction

The proposed Project impact analysis determined that implementation of **Mitigation Measures AQ-1** through **AQ-5**~~, and~~ **AQ-18A, and AQ-25** would not reduce peak daily construction emissions of VOC, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ to below their respective SCAQMD significance thresholds. No feasible mitigation measures are available that would further reduce these significant impacts. Therefore, these air quality impacts are considered significant, adverse, and unavoidable.

3.2.4.8.2 Operations

The proposed Project impact analysis determined that implementation of **Mitigation Measures AQ-6** through **AQ-18B** would not reduce daily operational emissions of VOC, NO_x, and SO_x to below their respective SCAQMD significance thresholds in Project year ~~2007~~2008. Implementation of these measures would be unable to mitigate significant 1-hour and annual NO_2 concentrations and 24-hour PM_{10} and $PM_{2.5}$ increments under CEQA and NEPA. Additionally, implementation of these measures would be unable to mitigate significant cancer risks under NEPA. As noted in the discussion of Impact AQ-6 for the proposed Project, these significant incremental cancer risks are in part due to the lower DPM emissions and cancer risks associated with the implementation of CAAP measures under the No Federal Action/NEPA Baseline. Under CEQA, GHG emissions remain significant and unavoidable even after implementation of **Mitigation Measure AQ-6, AQ-9-10, AQ-14, AQ-16** and **AQ-19** through **Mitigation Measure AQ-24.** No feasible mitigation measures are available that would further reduce these significance impacts. Therefore, these air quality impacts are considered significant, adverse, and unavoidable.

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology				
Proposed Project	**AQ-1:** Construction would produce emissions that would exceed SCAQMD emission significance thresholds.	CEQA: **Significant** impact for VOC, NO_x, SO_x, PM_{10} and $PM_{2.5}$ emissions in Phase 1 **Significant** impact for VOC, NO_x and $PM_{2.5}$ emissions in Phase 2 Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10} and $PM_{2.5}$	**AQ-1:** Crane and Sheet-pile Deliveries and Construction Harbor Craft ~~Expanded VSR Program~~ **AQ-2:** Fleet Modernization for On-Road Trucks **AQ-3:** Fleet Modernization for Construction Equipment **AQ-4:** Best Management Practices (BMPs) **AQ-5:** Additional Fugitive Dust Controls **AQ-18A:** General Mitigation Measure	CEQA*. **Significant** impact after mitigation from NO_x, SO_X, PM_{10} and $PM_{2.5}$ emissions in Phase 1. **Significant** impact after mitigation from NO_x and $PM_{2.5}$ emissions in Phase 2. Less than significant impact after mitigation for all other pollutants for Phase 2
		NEPA: **Significant** impact for VOC, NO_x, PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact for all other pollutants for Phase	**AQ-1** through **AQ-5**	NEPA*: **Significant** impact after mitigation from NO_x, PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact after mitigation for all other pollutants in Phases 1 and 2
	AQ-2: Construction would result in offsite ambient air pollutant concentrations that would exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact for all other pollutants in Phase 1 Phase 2 impacts not applicable Measured pollutants: 1-hr NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10} and 24-hr $PM_{2.5}$	**AQ-1** through **AQ-5**	CEQA: **Significant** impact after mitigation for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1
		NEPA: **Significant** impact for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact for all other pollutants in Phase 1	**AQ-1** through **AQ-5**	NEPA: **Significant** impact after mitigation for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Proposed Project (continued)	**AQ-3:** Operational emissions would exceed 10 tons per year of VOCs and SCAQMD daily thresholds of significance.	CEQA: **Significant** impact for the following project years and pollutants†: ~~2007~~2008: All daily pollutant thresholds. Annual VOC threshold. 2015: All pollutants except VOC 2025: Daily: NO_x, SO_x, and PM_{10} 2038: Daily SO_x Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10} and $PM_{2.5}$ Project Years: ~~2007~~2008, 2015, 2025 and 2038	**AQ-6:** Alternative Maritime Power (AMP) **AQ-7:** Alternative Fuel Yard Tractors **AQ-8:** Low- NO_x and low–PM standards **AQ-9:** Fleet Modernization for On-Road Trucks **AQ-10:** Vessel Speed Reduction Program **AQ-11:** Ship Auxiliary Engine, Main Engine and Boiler Fuel Improvement Program **AQ-12:** Slide Valves in Ship Main Engines **AQ-13:** New Vessel Builds **AQ-14:** Clean Rail Yard Standards **AQ-15:** Reroute Cleaner Ships **AQ-16:** Truck Idling Reduction Measures **AQ-17:** Periodic Review of New Technology and Regulations **AQ-18B:** General Mitigation Measure	CEQA‡. **Significant** impact after mitigation for the following years and pollutants ~~2007~~2008: Daily emissions of VOC, NO_x, and SO_x. Less than significant impact for all other pollutants and years
		NEPA: **Significant** impact for the following project years and pollutants†: ~~2007~~2008, 2015, 2025 and 2038: All daily pollutant thresholds and annual VOC threshold.	**AQ-6** through **AQ-18**	NEPA‡: **Significant** impact after mitigation for the following years and pollutants ~~2007~~2008: All pollutants except CO. 2015: VOC, CO, and NO_x. 2025: All pollutants 2038: All pollutants except SO_x

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Proposed Project (continued)	**AQ-4:** Operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance.	CEQA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, and 24-hr $PM_{2.5}$	**AQ-6** through **AQ-18**	CEQA‡: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants
		NEPA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants	**AQ-6** through **AQ-18**	NEPA‡: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants
	AQ-5: Operations would not create objectionable odors at the nearest sensitive receptor.	CEQA: Less than significant impact NEPA: Less than significant impact	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Less than significant impact
	AQ-6: Operations would expose receptors to significant levels of TACs.	CEQA: **Significant** impact for cancer risk and acute non-cancer effects. Less than significant impact for chronic non-cancer effects	**AQ-6** through **AQ-12**	CEQA: Less than significant impacts after mitigation
		NEPA: **Significant** impact for cancer risk and acute non-cancer effects Less than significant impact for chronic non-cancer effects	**AQ-6** through **AQ-12**	NEPA: Significant impact for cancer risk after mitigation
	AQ-7: Operations would not conflict with or obstruct implementation of an applicable AQMP.	CEQA: Less than significant impact NEPA: Less than significant impact	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Less than significant impact
	AQ-8: The proposed Project would produce Green House Gas (GHG) emissions that would exceed 2003 baseline levels.	CEQA: **Significant** impact	**AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24**	CEQA: **Significant** impact after mitigation
		NEPA: No determination of significance	**AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24**	NEPA: No determination of significance

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 1	No construction impacts would occur in association with the No Project Alternative, therefore there are no impacts under CEQA for **AQ-1** or **AQ-2**	CEQA: No impact NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: No impact NEPA: Not applicable
	AQ-3	CEQA: **Significant** impact[†] for the following project years and pollutants: ~~2007~~2008: VOC, CO, NO_x, and SO_x 2015: NO_x and SO_x 2025 and 2038: SO_x NEPA: Not applicable	No mitigation measures are applicable Mitigation not required	CEQA: **Significant** impact for the same project years and pollutants NEPA: Not applicable
	AQ-4	CEQA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants NEPA: Not applicable	No mitigation measures are applicable Mitigation not required	CEQA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants NEPA: Not applicable
	AQ-5	CEQA: Less than significant impact NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable
	AQ-6	CEQA: **Significant** impact for cancer risk Less than significant impact for acute and chronic non-cancer effects NEPA: Not applicable	No mitigation measures are applicable Mitigation not required	CEQA: **Significant** impact for cancer risk Less than significant impact for acute and chronic non-cancer effects NEPA: Not applicable
	AQ-7	CEQA: Less than significant impact	Mitigation not required	CEQA: Less than significant impact
	AQ-8	CEQA: **Significant** impact NEPA: Not applicable	No mitigation measures are applicable Mitigation not required	CEQA: **Significant** impact after mitigation NEPA: Not applicable

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 2	**AQ-1**	CEQA: **Significant** impact for VOC, NO_x, SO_x, PM_{10} and $PM_{2.5}$ emissions in Phase 1 **Significant** impact for VOC, NO_x and $PM_{2.5}$ emissions in Phase 2 Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10} and $PM_{2.5}$	**AQ-1** through **AQ-5**	CEQA*. **Significant** impact after mitigation from NO_x, SO_x, PM_{10} and $PM_{2.5}$ emissions in Phase 1. **Significant** impact after mitigation from NO_x and $PM_{2.5}$ emissions in Phase 2. Less than significant impact after mitigation for all other pollutants for Phase 2
		NEPA: **Significant** impact for VOC, NO_x, PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact for all other pollutants for Phase	**AQ-1** through **AQ-5**	NEPA*: **Significant** impact after mitigation from NO_x, PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact after mitigation for all other pollutants in Phases 1 and 2
	AQ-2	CEQA: **Significant** impact for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact for all other pollutants in Phase 1 Phase 2 impacts not applicable Measured pollutants: 1-hr NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10} and 24-hr $PM_{2.5}$	**AQ-1** through **AQ-5**	CEQA: **Significant** impact after mitigation for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1
		NEPA: **Significant** impact for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1 Less than significant impact for all other pollutants in Phase 1	**AQ-1** through **AQ-5**	NEPA: **Significant** impact after mitigation for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions in Phase 1

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 2 (continued)	**AQ-3:** Operational emissions would exceed 10 tons per year of VOCs and SCAQMD daily thresholds of significance.	CEQA: **Significant** impact for the following project years and pollutants†: ~~2007~~2008: All daily pollutant thresholds. Annual VOC threshold. 2015: All pollutants except VOC 2025: NO_x, SO_x, and PM_{10} 2038: SO_x Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10} and $PM_{2.5}$ Project Years: ~~2007~~2008, 2015, 2025 and 2038	**AQ-6:** Alternative Maritime Power (AMP) **AQ-7:** Alternative Fuel Yard Tractors **AQ-8:** Low- NO_x and low–PM standards **AQ-9:** Fleet Modernization for On-Road Trucks **AQ-10:** Vessel Speed Reduction Program **AQ-11:** Ship Auxiliary Engine, Main Engine and Boiler Fuel Improvement Program **AQ-12:** Slide Valves in Ship Main Engines **AQ-13:** New Vessel Builds **AQ-14:** Clean Rail Yard Standards **AQ-15:** Reroute Cleaner Ships **AQ-16:** Truck Idling Reduction Measures **AQ-17:** Periodic Review of New Technology and Regulations **AQ-18:** General Mitigation Measure	CEQA‡. **Significant** impact after mitigation for the following years and pollutants ~~2007~~2008: Daily emissions of VOC, NO_x, and SO_x. Less than significant impact for all other pollutants and years

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 2 (continued)	**AQ-3** (Continued)	NEPA: **Significant** impact for the following project years and pollutants[†]: ~~2007~~2008, 2015, 2025 and 2038: All daily pollutant thresholds and annual VOC threshold.	**AQ-6** through **AQ-18**	NEPA[‡]: **Significant** impact after mitigation for the following years and pollutants ~~2007~~2008: All pollutants except CO. 2015: VOC, CO, and NO_x. 2025: All pollutants 2038: All pollutants except SO_x
	AQ-4	CEQA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants Measured pollutants: 1-hr NO_2, annual NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10}, and 24-hr $PM_{2.5}$	**AQ-6** through **AQ-18**	CEQA[‡]: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants
		NEPA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants	**AQ-6** through **AQ-18**	NEPA[‡]: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants
	AQ-5	CEQA: Less than significant impact NEPA: Less than significant impact	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Less than significant impact
	AQ-6	CEQA: **Significant** impact for cancer risk and acute non-cancer effects. Less than significant impact for chronic non-cancer effects	**AQ-6** through **AQ-12**	CEQA: Less than significant impacts after mitigation
		NEPA: **Significant** impact for cancer risk and acute non-cancer effects Less than significant impact for chronic non-cancer effects	**AQ-6** through **AQ-12**	NEPA: Significant impact for cancer risk after mitigation
	AQ-7	CEQA: Less than significant impact NEPA: Less than significant impact	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Less than significant impact

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 2 (continued)	**AQ-8**	CEQA: **Significant** impact NEPA: No determination of significance	**AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24** **AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24**	CEQA: **Significant** impact after mitigation NEPA: No determination of significance
Alternative 3	**AQ-1**	CEQA: **Significant** impact for VOC, NO_x, SO_x, PM_{10} and $PM_{2.5}$ emissions Measured pollutants: VOC, CO, NO_x, SO_x, PM_{10} and $PM_{2.5}$ NEPA: **Significant** impact for VOC and NO_x emissions in Phase 1 Less than significant impact for all other pollutants	**AQ-1** through **AQ-5** **AQ-1** through **AQ-5**	CEQA*. **Significant** impact after mitigation from VOC, NO_x, SO_x, PM_{10} and $PM_{2.5}$ emissions Less than significant impact after mitigation for all other pollutants NEPA*: **Significant** impact after mitigation from NO_x and SO_x emissions. Less than significant impact after mitigation for all other pollutants
	AQ-2	CEQA: **Significant** impact for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for all other pollutants in Phase 1 Measured pollutants: 1-hr NO_2, 1-hr CO, 8-hr CO, 24-hr PM_{10} and 24-hr $PM_{2.5}$ NEPA: **Significant** impact for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions Less than significant impact for all other pollutants	**AQ-1** through **AQ-5** **AQ-1** through **AQ-5**	CEQA: **Significant** impact after mitigation for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions NEPA: **Significant** impact after mitigation for 1-hr NO_2, 24-hr PM_{10}, and $PM_{2.5}$ emissions
	AQ-3	CEQA: **Significant** impact† for the following project years and pollutants: ~~2007~~2008: Daily VOC, CO, NO_x, and SO_x and annual VOC thresholds. 2015: NO_x and SO_x 2025 and 2038: SO_x	**AQ-6** through **AQ-18**	CEQA: **Significant** impact after mitigation for the following project years and pollutants: ~~2007~~2008: NO_x and SO_x Less than significant impact for all other pollutants and years

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 3 (continued)	**AQ-3 (continued)**	NEPA: **Significant** impact[†] for the following project years and pollutants: ~~2007~~2008: All daily pollutant thresholds except SO_x and annual VOC threshold. 2015, 2025, and 2038: All daily pollutant thresholds and annual VOC threshold.	**AQ-6** through **AQ-18**	NEPA: **Significant** impact after mitigation for the following project years and pollutants: ~~2007~~2008: NO_x 2025 and 2038: VOC, NO_x, and SO_x Less than significant impact for all other pollutants and years
	AQ-4	CEQA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants	**AQ-6** through **AQ-18**	CEQA[‡]: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants
		NEPA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants	**AQ-6** through **AQ-18**	NEPA[‡]: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants
	AQ-5	CEQA: Less than significant impact NEPA: Less than significant impact	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Less than significant impact
	AQ-6	CEQA: **Significant** impact for cancer risk Less than significant impact for acute and chronic non-cancer effects	**AQ-6** through **AQ-12**	CEQA: Less than significant impact after mitigation
		NEPA: **Significant** impact for cancer risk and acute non-cancer effects. Less than significant impact for chronic non-cancer effects	**AQ-6** through **AQ-12**	NEPA: Less than significant impact after mitigation

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 3 (continued)	**AQ-7**	CEQA: Less than significant impact NEPA: Less than significant impact	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Less than significant impact
	AQ-8	CEQA: **Significant** impact NEPA: No determination of significance	**AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24** **AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24**	CEQA: **Significant** impact after mitigation NEPA: No determination of significance
Alternative 4	**AQ-1**	CEQA: **Significant** impact for VOC, NO_x, and $PM_{10}/PM_{2.5}$ emissions NEPA: Not applicable	**AQ-1** through **AQ-5** Mitigation not required	CEQA: **Significant** impact after mitigation for NO_x and $PM_{10}/PM_{2.5}$ emissions Less than significant impact after mitigation for all other pollutants NEPA: Not applicable
	AQ-2	CEQA: **Significant** impact for 1-hour NO_2 and 24-hr $PM_{10}/PM_{2.5}$ emissions NEPA: Not applicable	**AQ-1** through **AQ-5** Mitigation not required	CEQA: **Significant** impact after mitigation for 1-hour NO_2 and 24-hr $PM_{10}/PM_{2.5}$ emissions NEPA: Not applicable
	AQ-3	CEQA: Less than significant impact[†] for all project years. NEPA: Not applicable	**AQ-6** though **AQ-12** Mitigation not required	CEQA: Less than significant impact after mitigation. NEPA: Not applicable
	AQ-4	CEQA: **Significant** impact for 1-hr and annual NO_2 concentrations Less than significant impact for all other pollutants	**AQ-6** through **AQ-18**	CEQA[‡]: **Significant** impact after mitigation for 1-hr and annual NO_2 concentrations
	AQ-5	CEQA: Less than significant impact NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable
	AQ-6	CEQA: Less than significant impact. NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable
	AQ-7	CEQA: Less than significant impact NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 4 (continued)	**AQ-8**	CEQA: **Significant** impact NEPA: Not applicable	**AQ-6, AQ-10**, **AQ-14**, **AQ-16**, **AQ-19 to AQ-24** Mitigation not required	CEQA: **Significant** impact after mitigation NEPA: Not applicable
Alternative 5	**AQ-1**	CEQA: **Significant** impact for VOC, NO_x, and $PM_{10}/PM_{2.5}$ emissions NEPA: Not applicable	**AQ-1** through **AQ-5** Mitigation not required	CEQA: **Significant** impact after mitigation for NO_x and $PM_{10}/PM_{2.5}$ emissions Less than significant impact after mitigation for all other pollutants NEPA: Not applicable
	AQ-2	CEQA: **Significant** impact for 1-hour NO_2 and 24-hr $PM_{10}/PM_{2.5}$ emissions NEPA: Not applicable	**AQ-1** through **AQ-5** Mitigation not required	CEQA: **Significant** impact after mitigation for 1-hour NO_2 and 24-hr $PM_{10}/PM_{2.5}$ emissions NEPA: Not applicable
	AQ-3	CEQA: **Significant** impact[†] for the following project years and pollutants: ~~2007~~2008: NO_x and SO_x NEPA: Not applicable	No additional mitigation measures are proposed Mitigation not required	CEQA: **Significant** impact[†] for the following project years and pollutants: ~~2007~~2008: NO_x and SO_x NEPA: Not applicable
	AQ-4	CEQA: **Significant** impact for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact for all other pollutants NEPA: Not applicable	No additional mitigation measures are proposed Mitigation not required	CEQA[‡]: **Significant** impact after mitigation for 1-hr and annual NO_2 and 24-hr $PM_{10}/PM_{2.5}$ Less than significant impact after mitigation for all other pollutants NEPA: Not applicable
	AQ-5	CEQA: Less than significant impact NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable

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

Alternative	*Environmental Impacts*	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.2 Air Quality and Meteorology (continued)				
Alternative 5 (continued)	**AQ-6**	CEQA: Less than significant impact. NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable
	AQ-7	CEQA: Less than significant impact NEPA: Not applicable	Mitigation not required Mitigation not required	CEQA: Less than significant impact NEPA: Not applicable
	AQ-8	CEQA: **Significant** impact NEPA: Not applicable	No additional mitigation measures are proposed Mitigation not required	CEQA: **Significant** impact after mitigation NEPA: Not applicable

*. Since the final construction equipment mix has not yet been determined, mitigation measure **AQ-4** is not quantified by this study; residual impacts are based on **AQ-1** – **AQ-3** and **AQ-5**.
†. Includes consideration of differences between either annual average or peak day operational emissions from each Project alternative and the CEQA or NEPA Baselines.
‡. Given the uncertainty of implementing mitigation measures **AQ-13** – **AQ-18**, the mitigated emission analysis only considers the effects of mitigation measures **AQ-6** – **AQ-12.**

3.2.4.7 Mitigation Monitoring

Table 3.2-67. Summary of Applicable Mitigation Measures

AQ-1 **The proposed Project construction would produce emissions that would exceed SCAQMD daily emission thresholds of significance.** **AQ-2** **The proposed Project construction would result in off-site ambient air pollutant concentrations that would exceed SCAQMD thresholds of significance.**	
Mitigation Measure	**Mitigation Measure AQ-1:** All cargo ships used for terminal crane and sheet pile deliveries shall comply with the expanded Vessel Speed Reduction Program (VSRP) of 12 knots from 40 nm from Point Fermin to the Precautionary Area. In addition, ships used for sheetpile deliveries in Phase 2 construction (post-2014) shall use low-sulfur fuel (maximum sulfur content of 0.2%) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin. This measure shall also require all harbor craft used during the construction phase of the project to, at a minimum, be repowered to meet the cleanest existing marine engine emission standards or U.S. EPA Tier 2. Additionally, where available, harbor craft shall meet the proposed U.S. EPA Tier 3 (which are proposed to be phased-in beginning 2009) or cleaner marine engine emission standards. ~~Ships used for marine terminal crane delivery shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin to the Precautionary Area~~. **Mitigation Measure AQ-2:** All on-road heavy-duty diesel trucks with a GVWR of 33,000 pounds or greater used ~~in the execution of the construction work~~ on-site or ~~used~~ to transport ~~convey to or from the site concrete reinforcing steel, piles for pile driving, rock products, ready-mix concrete, fill~~ material to and from the site shall comply with the USEPA 2007 Heavy-Duty Highway Rule PM emission standards and have the cleanest available NOx emissions for Phase 1. In addition, for Phase 2 construction (post-2014), all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 33,000 pounds or greater used on-site or to transport materials to and from the site shall comply with year 2010 USEPA emission standards. Trucks hauling materials such as debris or fill shall be fully covered while operation off Port property~~, base material, or asphalt concrete shall be 2007 model year, or shall be 1994 model year or later and retrofitted with a CARB-verified Level 3 diesel particulate filter~~. **Mitigation Measure AQ-3:** All off-road diesel-powered construction equipment greater than 50 hp, except derrick barges and ocean-going cargo vessels, shall meet the cleanest non-road diesel emission levels available, but no greater than Tier 2 emission standards for projects starting construction prior to December 2011. Tier 3 emission standards shall be applied to projects starting construction between December 2011 and January 2015. The contractor could meet Tier 3 equivalent PM emission limits through the use of new or re-powered engines designed to meet Tier 2 PM standards and/or the use of CARB-approved diesel particulate traps. For Phase 2 construction (post-2014), equipment shall meet the Tier 4 non-road emission standards where available. In addition, construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards. ~~and marine vessels, shall achieve the Tier 2 emission standards in Phase 1 construction~~

	~~and Tier 4 emission standards in Phase 2 construction, as defined in the USEPA Nonroad Diesel Engine Rule (USEPA 1998 and 2004). Equipment not designated Tier 2 by the manufacturer might meet the emissions requirement by retrofitting the equipment with a CARB VDECS or by the use of a CARB verified emulsified fuel.~~ **Mitigation Measure AQ-4:** LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction if it is determined that the proposed construction equipment exceed any SCAQMD significance threshold. The following types of measures would be required on construction equipment: (a) use of diesel oxidation catalysts and catalyzed diesel particulate traps; (b) maintain equipment according to manufacturers' specifications; (c) restrict idling of construction equipment to a maximum of 10 minutes when not in use; and (d) install high-pressure fuel injectors on construction equipment vehicles. **Mitigation Measure AQ-5:** Additional Fugitive Dust Controls. The construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels. The Project construction contractor shall specify dust-control methods that would achieve this control level in a SCAQMD Rule 403 dust control plan. **Mitigation Measure AQ-18A:** General. Any of the above mitigation measures can be replaced by a new and/or alternative technology, provided the technology (1) is CARB-certified, (2) is equal to or exceeds emissions savings as analyzed in this EIS/EIR and, (3) is approved by the Port of Los Angeles. **Mitigation Measure AQ-25:** Special Precautions near Sensitive Sites. For construction activities that occur within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals), the Port shall notify each of these sites in writing at least 30 days before construction activities begin.
Timing	During all construction phases for **Mitigation Measure AQ-1** through **Mitigation Measure AQ-5** and **Mitigation Measure AQ-18A and Mitigation Measure AQ-25**.
Methodology	The LAHD shall include Mitigation Measure AQ-1 through Mitigation Measure AQ-5 and Mitigation Measure AQ-18A and Mitigation Measure AQ-25 in the contract specifications for construction. The LAHD shall determine BMPs once the contractor identifies and secures a final equipment list. LAHD shall monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant CEQA impacts after mitigation: (1) during Phase 1 construction, VOC, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions and 1-hr NO_2 and 24-hr PM_{10} and $PM_{2.5}$ ambient impacts and (2) during Phase 2 construction NO_x and $PM_{2.5}$ emissions. Significant NEPA impacts after mitigation: (1) during Phase 1 construction, NO_x, PM_{10}, and $PM_{2.5}$ emissions and 1-hr NO_2 and 24-hr PM_{10} and $PM_{2.5}$ ambient impacts and (2) during Phase 2 construction, NO_x and $PM_{2.5}$.

AQ-3 **The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or an SCAQMD threshold of significance.** **AQ-4** **The proposed Project would result in off-site ambient air pollutant concentrations that would exceed a SCAQMD threshold of significance.** **AQ-6** **The proposed Project would expose the public to significant levels of TACs.**	
Mitigation Measure	Mitigation Measure AQ-6: Ships calling at Berth 136-147 shall use AMP while hoteling at the Port in the following percentages: (a) 2009: 25% of ship calls; (b) 2010: 540% of ship calls; (c) 2012: ~~5~~60% of ship calls; (d) 2015: ~~75~~80% of ship calls; and (e) 20~~20~~18: ~~95~~100% of ship calls. Additionally, by 2010, all ships retrofitted for AMP shall be required to use AMP while hoteling at 100% compliance rate, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship. Mitigation Measure AQ-7: All yard tractors operated at the Berths 136-147 Terminal, including the on-dock rail facility, shall implement the following measures. • Beginning in ~~2007~~2008, all new yard tractors shall be either (1) the cleanest available NOx alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (2) the cleanest available NOx diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and would have the cleanest Verified Diesel Emissions Controls (VDEC). • By the end of 2010, all Project yard tractors would meet the USEPA Tier 4 non-road engine standards. Mitigation Measure AQ-8: All diesel-powered terminal equipment other then yard tractors at the Berths 136-147 Terminal, including the on-dock rail facility, shall implement the following measures. • Beginning in ~~2007~~2008, all terminal equipment shall be either (1) the cleanest available NO_x alternative-fueled engine meeting 0.015 Gm/Hp-Hr for PM or (2) the cleanest available NO_x diesel-fueled engine meeting 0.015 Gm/Hp-Hr for PM. If there are no engines available that meet 0.015 Gm/Hp-Hr for PM, the new engines shall be the cleanest available (either fuel type) and would have the cleanest VDEC. • By the end of 2012, all non-yard tractor terminal equipment less than 750 Hp shall meet the USEPA Tier 4 ~~on-road or Tier 4~~ non-road engine standards. • By the end of 2014, all terminal equipment shall meet USEPA Tier 4 non-road engine standards. Mitigation Measure AQ-9: Heavy-duty diesel trucks entering the Berths 136-147 Terminal shall achieve the USEPA 2007 ~~Tier 4~~ Heavy Duty Highway Rule emission standards for on-road heavy-duty diesel engines (USEPA 2001) in the following percentages: 15% in ~~2007, 30% in~~ 2008, 50% in 2009, 70% in 2010, 90% in 2010, and 100% in ~~or newer~~ 2012 and thereafter. Mitigation Measure AQ-10: All ships calling at Berth 136-147 shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: 95% in 2008 and thereafter.

	Mitigation Measure AQ-11: Ships calling at Berth 136-147 shall use low-sulfur fuel (maximum sulfur content of 0.2% ~~percent~~) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) at the following annual participation rates: (a) 2009: 2~~1~~0% ~~percent of auxiliary engines, main engines, and boilers~~; (b) 2010: ~~2~~30 ~~percent~~% ~~of auxiliary engines, main engines, and boilers~~; (c) 2012: 50% ~~percent of auxiliary engines, main engines, and boilers~~; (d) 2015~~: 90 percent of auxiliary engines, main engines, and boilers; and (e) 2018~~ and thereafter: ~~95~~100% ~~percent of auxiliary engines, main engines, and boilers~~. Additionally, by 2012, all frequent caller ships (three or more calls per year) shall comply with this requirement. Mitigation Measure AQ-12: Ships calling at Berth 136-147 shall be equipped with slide valves or equivalent on main engines in the following percentages: (a) 15% ~~percent~~ in 2008; (b) ~~2~~50% ~~percent~~ in 2010; and (c) 950 ~~percent~~% in ~~2012; (d) 90 percent in~~ 2015~~; and (e) 100 percent in 2020~~. Additionally, by 2012, all frequent caller ships (three or more calls per year) shall comply with this requirement. Mitigation Measure AQ-13: New Vessel Builds All new vessel builds shall incorporate ~~NO_x~~ NO_x, ~~and~~ PM, and GHG control devices on auxiliary and main engines. ~~NO_x and PM~~ These control devices include, but are not limited to the following technology where appropriate: (1) Selective Catalytic Reduction (SCR) technology, (2) exhaust gas recirculation, (3) in line fuel emulsification technology, (4) Diesel Particulate Filters (DPFs), or exhaust scrubbers (5) common rail and (6) Low NO_x burners for boilers, (7) implementation of fuel economy standards by vessel class and engines, and (8) diesel-electric pod-propulsion system. Mitigation Measure AQ-14: Clean Rail Yard Standards. The Berth 136-147 on-dock rail yard would incorporate the cleanest locomotive technologies into their operations. These include use of diesel-electric hybrids, multiple engine generator sets, alternative fuels, DPFs, SCR, idling shut-off devices, and idling exhaust hoods. The on-dock rail yard would utilize "clean" CHE and HDVs and comply with the CAAP's Technology Advancement Program. Additionally, the Port shall require DPTs on all PHL switcher locomotives that operate within the Project rail yard beginning in 2015. Mitigation Measure AQ-15: The Berths 136-147 Terminal operator shall use ships meeting IMO MARPOL Annex VI NO_x emissions limits for Category 3 engines to the greatest extent possible when scheduling ship visits. Mitigation Measure AQ-16: The Berths 136-147 Terminal operator shall ensure that truck idling is reduced at the Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the durations when the main gates are left open, including during off-peak hours, (2) operator shall implement a container tracking and appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck flow capacity to ensure queuing is minimized. Mitigation Measure AQ-17: The Port shall require the Berths 136-147 tenant to review, in terms of feasibility, any Port-identified or other new emissions-reduction technology, and report to the Port. Such technology feasibility reviews shall take place at the time of the Port's consideration of any lease amendment, facility modification or other discretionary decision for the Berths 136-147 property. If the technology is determined by the Port to be feasible in terms of cost, technical and operational feasibility, the tenant

	shall work with the Port to implement such technology. As partial consideration for the Port's agreement to issue the permit to the tenant, tenant shall implement not less frequently than once every 7 years following the effective date of the permit, new air quality technological advancements, subject to the parties mutual agreement on operational feasibility and cost sharing which shall not be unreasonably withheld. Mitigation Measure AQ-18B: General. Any of the above mitigation measures can be replaced by a new and/or alternative technology, provided the technology (1) is CARB-certified, (2) is equal to or exceeds emissions savings as analyzed in this EIS/EIR and, (3) is approved by the Port of Los Angeles. Mitigation Measure AQ-26: Throughput Tracking. If the project exceeds project throughput assumptions/projections anticipated through the years 2015, 2025, or 2030, staff shall evaluate the effects of this on the emission sources (ship calls, locomotive activity, backland equipment, and truck calls) relative to the EIR. If it is determined that these emission sources exceed EIR assumptions, staff would evaluate actual air emissions for comparison with the EIR and if the criteria pollutant emissions exceed those in the EIR, then new/additional mitigations would be applied through Mitigation Measure AQ-17.
Timing	During operation for Mitigation Measure AQ-6 through Mitigation Measure AQ-1~~8B~~7 and Mitigation Measure AQ-18B and Mitigation Measure AQ-26.
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD (for USEPA 2007 trucks, AMP equipment (terminal side), VSRP monitoring, and plan approvals and monitoring) TraPac (for AMP equipment (ship side), Terminal Equipment, Low Sulfur Fuel, VSRP, Slide Valves, and gate operations).
Residual Impacts	Significant CEQA impacts after mitigation: (1) in ~~2007~~2008, VOC, NO_x, and SO_x emissions and (2) 1-hr and annual NO_2 and 24-hr PM_{10} and $PM_{2.5}$ ambient impacts. Significant NEPA impacts after mitigation: (1) in ~~2007~~2008, NO_x; in 2015, VOC and NO_x; and 2025 and 2038, all pollutants except SO_x emissions, (2) 1-hr and annual NO_2 and 24-hr PM_{10} and $PM_{2.5}$ ambient impacts, and (3) significant cancer risk.
AQ-8 **The Proposed Project would produce GHG emissions that would not exceed 2003 baseline levels**	
	Mitigation Measure AQ-6: Ships calling at Berth 136-147 shall use AMP while hoteling at the Port in the following percentages: (a) 2009: 25% of ship calls; (b) 2010: 50% of ship calls; (c) 2012: 60% of ship calls; (d) 2015: 80% of ship calls; and (e) 2018: 100% of ship calls. Additionally, by 2010, all ships retrofitted for AMP shall be required to use AMP while hoteling at 100% compliance rate, with the exception of circumstances when an AMP-capable berth is unavailable due to utilization by another AMP-capable ship. ~~(a) 2009: 25% of ship calls; (b) 2010: 40% of ship calls; (c) 2012: 50% of ship calls; (d) 2015: 75% of ship calls; and (e) 2020: 95% of ship calls.~~ The use of electricity from the power grid would reduce GHG emissions during hoteling because electricity can be produced more efficiently at centralized power plants than from auxiliary engines on ships. In addition, a fraction of the LADWP's electricity is generated from clean sources such as hydroelectric, wind, and solar energy, which further reduces its GHG emissions on a per kW-hr basis **Mitigation Measure AQ-9:** Heavy-duty diesel trucks entering the Berths 136-147 Terminal shall meet the USEPA 2007 emission standards for on-road heavy-duty diesel

	engines (USEPA, 2001a) in the following percentages: 15% in 2008, 50% in 2009, 70% in 2010, 90% in 2010, and 100% in 2012 and thereafter ~~(a) 15 percent in 2007; (b) 30 percent in 2008; (c) 50 percent in 2009; (d) 70 percent in 2010; (e) 90 percent in 2011; and (f) 100 percent in 2012 and thereafter~~. New trucks would generally have better fuel efficiency than older trucks, thereby reducing fuel use and GHG emissions on a per-mile basis **Mitigation Measure AQ-10:** All ships calling at Berth 136-147 shall comply with the expanded VSRP of 12 knots between 40 nm from Point Fermin and the Precautionary Area in the following implementation schedule: 95% in 2008 and thereafter. Because of the cubic relationship of propulsion engine horsepower to ship speed, ships that slow to 12 knots within 40 nm of Point Fermin would use much less fuel on a per-mile basis. **Mitigation Measure AQ-14:** Clean Rail Yard Standards. The Berth 136-147 on-dock rail yard would incorporate the cleanest locomotive technologies into their operations. The use of idling shutoff devices and diesel-electric hybrid locomotives would reduce fuel consumption and, therefore, GHG emissions. **Mitigation Measure AQ-16:** The Berths 136-147 Terminal operator shall ensure that truck idling is reduced at the Terminal. Potential methods to reduce idling include, but are not limited to, the following: (1) operator shall maximize the durations when the main gates are left open, including during off-peak hours, (2) operator shall implement a container tracking and appointment-based truck delivery and pick-up system to minimize truck queuing, and (3) operator shall design gate to exceed truck flow capacity to ensure queuing is minimized. A reduction in truck idling would reduce fuel consumption and, therefore, GHG emissions **Mitigation Measure AQ-19:** LEED. The main terminal building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level. LEED certification is made at one of the following four levels, in ascending order of environmental sustainability: certified, silver, gold, and platinum. The certification level is determined on a point-scoring basis, where various points are given for design features that address the following areas (U.S. Green Building Council, 2005): • Sustainable Sites • Water Efficiency • Energy & Atmosphere • Materials & Resources • Indoor Environmental Quality • Innovation & Design Process As a result, a LEED-certified building would be more energy efficient, thereby reducing GHG emissions compared to a conventional building design. **Mitigation Measure AQ-20:** Compact Fluorescent Light Bulbs. All interior terminal building lighting shall use compact fluorescent light bulbs. Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. **Mitigation Measure AQ-21** Energy Audit. The tenant shall conduct a third party energy audit every five years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators.

	Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use. **Mitigation Measure AQ-22:** Solar Panels. The applicant shall install solar panels on the main terminal building. Solar panels would provide the terminal building with a clean source of electricity to replace some of its fossil fuel-generated electricity use. **Mitigation Measure AQ-23:** Recycling. The terminal buildings shall achieve a minimum of 40 percent recycling by 2012 and 60 percent recycling by 2015. Recycled materials shall include: • White and colored paper • Post-it notes • Magazines • Newspaper • File folders • All envelopes including those with plastic windows • All cardboard boxes and cartons • All metal and aluminum cans • Glass bottles and jars • All plastic bottles **Mitigation Measure AQ-24:** Tree Planting. The applicant shall plant shade trees around the main terminal building
Timing	During operation for Mitigation Measure AQ-6, AQ-9-10, AQ-14, AQ-16 and AQ-19 through Mitigation Measure AQ-24.
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD (Mitigation Measure AQ-19 Mitigation Measure), Tenant (Mitigation Measure AQ-6, -10, -14 & -23) LAHD and Tenant (AQ-9, -20, -22 & -24)
Residual Impacts	Significant CEQA impacts after mitigation

3.2.5 Health Risk Assessment

Table 3.2-69 summarizes the maximum health impacts predicted to occur from the operation of the proposed Project with mitigation. An analysis was not performed for mitigated chronic non-cancer effects, due to the minimal unmitigated values of the Project increments. Table 3.2-69 shows that the maximum CEQA increment for residential cancer risk predicted for the mitigated Project is reduced to 1.4 in a million (1.4×10^{-6}), which is less than the significance criterion of 10 in a million. The location of this impact is near Berth 202 within the Consolidated Slip Marina in association with a live aboard. Table 3.2-69 also shows that the maximum mitigated Project CEQA cancer risk increments at other receptor types would remain below the 10 in a million significance criterion. Review of Figure D3-16 in Appendix D3 shows that the mitigated Project would produce lower residential cancer risks compared to the CEQA Baseline within the entire modeling domain except for a small area that encompasses the Consolidated Slip that is northeast of the Berths 136-147 Terminal.

Table 3.2-69. Maximum Health Impacts due to the Proposed Project After Mitigation

Health Impact	*Receptor Type*	MAXIMUM PREDICTED IMPACT[1]						*Significance Threshold*[3]
		Mitigated Proposed Project	*CEQA Baseline*	*CEQA Increment*[2]	*Mitigated Proposed Project*	*No Federal Action Baseline*	*NEPA Increment*[2]	
Cancer Risk	Residential	15.0×10^{-6}	13.6×10^{-6}	1.4×10^{-6}	62.7×10^{-6}	42.7×10^{-6}	**20.0×10^{-6}**	10×10^{-6}
	Occupational	2.9×10^{-6}	1.6×10^{-6}	1.3×10^{-6}	29.6×10^{-6}	19.5×10^{-6}	**10.1×10^{-6}**	
	Sensitive	4.8×10^{-6}	7.3×10^{-6}	$-2.5. \times 10^{-6}$	43.2×10^{-6}	29.6×10^{-6}	**13.6×10^{-6}**	
	Student	$.01 \times 10^{-6}$	0.2×10^{-6}	-0.1×10^{-6}	0.9×10^{-6}	0.6×10^{-6}	0.3×10^{-6}	
	Recreational	14.7×10^{-6}	16.7×10^{-6}	-2.0×10^{-6}	28.0×10^{-6}	19.8×10^{-6}	8.2×10^{-6}	
Acute Hazard Index[4]	Residential	1.85	1.72	0.13	2.51	1.87	0.64	1.0
	Occupational	2.44	2.23	0.21	3.19	2.38	0.81	
	Sensitive	1.12	1.05	0.07	2.32	1.72	0.60	
	Student	1.53	1.45	0.08	1.93	1.42	0.51	
	Recreational	3.19	3.21	(0.02)	3.32	2.47	0.85	

Notes:

(1) Data represent project scenario impacts that contribute to maximum CEQA/NEPA incremental impacts.

(2) The CEQA Increment represents proposed Project impact minus CEQA Baseline impact. The NEPA Increment represents proposed Project impact minus No Federal Action baseline impact.

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

(4) For the acute hazard index, two possible maximum 1-hour scenarios were modeled: (1) one ship hoteling and one ship harbor transiting, turning, and docking; and (2) two ships hoteling. The scenario that yielded the highest result is reported for each impact type.

(5) Mitigation measures quantified in this HRA for the Mitigated Project include **AQ-6** through **AQ-12.** The HRA did not consider mitigated chronic non-cancer effects, as these unmitigated effects were less than significant.

The main contributors of Project emissions to the maximum mitigated CEQA residential cancer risk location within the Consolidated Slip Marina include (1) 30 percent by locomotives that haul cargo along the rail line that parallels Alameda Street, (2) 20 percent by ships hoteling (mainly from boiler emissions), (3) 17 percent by locomotives within the relocated PHL rail yard, and (4) 12 percent by off-site trucks. Container vessel emissions that occur outside of the Port within the Precautionary area and fairway zones would contribute approximately 2 percent of the total cancer risk at this location.

Table 3.2-69 shows that the mitigated Project would reduce maximum CEQA increments for acute non-cancer effects to below the 1.0 hazard index significance criterion at all receptor types.

The maximum NEPA increment for residential, occupational, and sensitive cancer risks predicted for the mitigated Project is 20, 10.1, and 13.6 in a million, meaning that the mitigated Project would produce significant cancer risks compared to the No Federal Action/NEPA Baseline to these receptor types. As noted in the discussion of Impact AQ-6 for the proposed Project, these significant incremental cancer risks are in part due to the lower DPM emissions and cancer risks associated with the implementation of CAAP measures under the No Federal Action/NEPA Baseline. The location of the maximum residential impact is just northeast of the intersection of C Street and Mar Vista Avenue, in the same location as the maximum NEPA incremental impact for the unmitigated Project. This location differs from the location of the maximum CEQA

incremental residential cancer risk for the mitigated Project. This is due to the differences in the locations and magnitudes of emissions between these four scenarios. As an example, the following main contributors of Project emissions to maximum mitigated NEPA residential cancer risk at this impact location differ from those that produced the maximum mitigated CEQA residential cancer risk: (1) 39 percent by ships hoteling (mainly from boiler emissions), (2) 31 percent by terminal and rail yard equipment, (3) 16 percent by off-site trucks, and (4) 5 percent by on-terminal trucks. Container vessel emissions that occur outside of the Port within the Precautionary area and fairway zones would contribute approximately 0.5 percent of the total cancer risk at this location.

Table 3.2-69 shows that the mitigated Project would reduce maximum NEPA increments for acute non-cancer effects to below the 1.0 hazard index significance criterion at all receptor locations. As a result, acute non-cancer impacts from the mitigated Project would be less than significant under NEPA.

Figures D3-15 through D3-17 in Appendix D3 show the distribution of predicted residential cancer risks for the (1) mitigated Project, (2) mitigated CEQA increment (mitigated Project minus CEQA Baseline) (also shown in Figure 3.2-2), and (3) mitigated NEPA increment (mitigated Project minus No Federal Action/NEPA Baseline).