Appendix B2

Air Dispersion Modeling

Contents

1.0 Introduction 1
2.0 Emissions Used in the Air Dispersion Modeling 3
2.1 Construction Emission Sources 3
2.2 Operational Emission Sources 3
2.3 Derivation of Peak Hour, Peak Day, and Annual Emissions 4
3.0 Dispersion Modeling Approach 4
3.1 Dispersion Model Selection and Inputs 4
3.1.1 Construction Emission Source Representation 4
3.1.2 Operational Emission Source Representation 5
3.1.3 Meteorological Data 11
3.1.4 Model Options 11
3.1.5 Temporal Distribution Assumptions 12
3.1.6 Receptor Locations 13
3.2 Methodology for Determination of Impacts 15
3.2.1 Methodology for NO_2 16
3.2.2 Methodology for PM_{10} and $PM_{2.5}$ 17
3.3 Predicted Air Quality Impacts 17
3.3.1 Proposed Project 17
3.3.2 Alternative 2 – Reduced Project Alternative Scenario 20
3.3.3 Alternative 3 – Product Import Terminal Project Alternative 23
4.0 CO Hot Spots Analysis 27
5.0 References 28

List of Tables

Table B2-1. Comparison of Proposed Project Emissions to SCAQMD Localized Significance Thresholds 1
Table B2-2. AERMOD Source Release Parameters – Construction Sources 5
Table B2-3. AERMOD Source Release Parameters – Operational Sources 7
Table B2-4. Temporal Distribution of Emissions in AERMOD 12
Table B2-5: SCAQMD Significance Thresholds for Operations 16
Table B2-6. Background NO_2 Concentrations Measured at the Wilmington Community Station 17
Table B2-7. Maximum Off-Site Ambient NO_2 Concentrations - Proposed Project Operations 18

Table B2-8. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentration Increments - Proposed Project Operations 19
Table B2-9. Maximum Off-Site Ambient NO_2 Concentrations - Reduced Project Alternative Operations 21
Table B2-11. Maximum Off-Site Ambient NO_2 Concentrations - Product Import Terminal Alternative Operations 24
Table B2-12. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentration Increments - Product Import Terminal Alternative Operations 25

List of Figures

Figure B2-1. AERMOD Source Representation – Operational Sources (Far Field) 8
Figure B2-2. AERMOD Source Representation – Operational Sources (Near Field) 9
Figure B2-3. AERMOD Source Representation – Operational Sources (On-Site) 10
Figure B2-4. AERMOD Source Representation - Construction Sources 11
Figure B2-5. AERMOD Modeled Receptors (Far Field) 13
Figure B2-6. AERMOD Modeled Receptors (Near Field) 14
Figure B2-7. AERMOD Modeled Receptors and Land Use (Near Field) 15
Figure B2-8. Maximum Air Quality Impact – Proposed Project Operations 20
Figure B2-9. Maximum Air Quality Impact – Reduced Project Alternative Operations 23
Figure B2-10. Maximum Air Quality Impact – Product Import Terminal Alternative Operations 26

1.0 Introduction

This appendix describes the methods and results of air dispersion modeling used to predict the ground-level concentrations of criteria pollutants for the Proposed Project at Berths 191-194.

The South Coast Air Quality Management District (SCAQMD) has established thresholds of significance (SCAQMD 2023) to assess the impacts of Project-related construction and operational emissions on regional and local ambient air quality. This report evaluates the localized ambient air quality impacts from onsite construction and operational activities using SCAQMD's localized significance threshold (LST) methodology (SCAQMD 2018). In accordance with SCAQMD guidance, if onsite emission estimates for the Proposed Project activities are below the LST emission levels found in the SCAQMD's published LST mass "look-up" tables, the proposed construction or operational activity would not significantly impact localized ambient air quality. If Proposed Project onsite emissions are above the LST mass look up tables, then site-specific modeling would be required to determine the potential impact on localized ambient air quality.

Operational emissions included within the localized analysis were engine exhaust from offroad equipment, on-road haul trucks and worker vehicles moving and idling onsite, ocean going vessels (OGV) while hotelling and transiting, harbor craft (HC) emissions taking place in the immediacy of the Berth 191, and fugitive dust from onsite paved and unpaved surfaces, material handling, and wind erosion. For this analysis, only 10 percent of HC emissions were categorized as onsite emissions as the rest were assumed to take place during transit away from site. Construction emissions included within the localized analysis were engine exhaust from off-road construction equipment and on-road haul trucks moving and idling onsite, tire and brake wear and road dust emissions associated with on-road haul trucks moving onsite, HC emissions for wharf repairs, and fugitive dust emissions associated with material handling and wind erosion. Similarly, on-site construction emissions excluded any off-site driving activity from construction vehicles and harbor craft. The maximum onsite daily construction or operation emissions were compared against the appropriate SCAQMD localized significance thresholds in Table B2-1.

Table B2-1. Comparison of Proposed Project Emissions to SCAQMD Localized Significance Thresholds

Scenario	Maximum Daily On-site Emissions[a] (lb/day)			
	CO	NOx	PM_{10}	$PM_{2.5}$
Construction				
2024 Construction Emissions	43.0	45.9	9.8	2.3
2025 Construction Emissions	38.6	32.0	2.2	1.2
Maximum Construction Year (2024)	43.0	45.9	9.8	2.3
SCAQMD LSTs[a]	1530.0	123.0	14.0	8.0
Exceeds SCAQMD LSTs?	NO	NO	NO	NO
Operation				
2025 Operational Emissions	36.0	181.22	12.6	8.9

Scenario	Maximum Daily On-site Emissions[a] (lb/day)			
	CO	NOx	PM_{10}	$PM_{2.5}$
2027 Operational Emissions	53.2	**190.2**	**22.2**	**15.0**
2049 Operational Emissions	53.2	185.0	22.2	15.0
Maximum Operational Year (2027)	53.2	**190.2**	**22.2**	**15.0**
SCAQMD LSTs[a]	1530.0	123.0	4.0	2.0
Exceeds SCAQMD LSTs?	NO	**YES**	**YES**	**YES**

Notes:
[a] LSTs based on a receptor located 25 meters from a 5-acre Project site within SRA 4 (South Los Angeles County Coastal). Distance was measured using Google Earth. LSTs were obtained from the 2008 SCAQMD Final Localized Significance Threshold Methodology, Appendix C, Mass Rate LST Look-up Tables. Available at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds. Accessed: September 2022.

Based on the LST analysis from Table B2-1, it was determined that the following pollutants be modelled to evaluate operational air concentration. Annual construction emissions from January 2025 through July 2025 were also modelled together with 2025 operational emissions to evaluate 2025 NO2 and PM10 concentrations to capture a full year of proposed Project impacts operation would only occur during the last five months of 2025.

- 1-hour and annual nitrogen dioxide (NO_2);
- 24-hour and annual particulate matter less than ten microns (PM10); and
- 24-hour particulate matter less than 2.5 microns (PM2.5).

As displayed in Table B2-1, CO concentrations were determined to be less than significant without the need for additional modelling and therefore was not further evaluated. Air quality impacts under the following CEQA Project alternatives were analyzed:

- **Proposed Project:** this scenario represents activities associated with restoring the wharf located at Berth 191, construction of GGBFS processing facility at Berths 192-194, and future operational activities.
- **Reduced Project Alternative (Alternative 2):** this scenario represents the same construction related activities as described in the Proposed Project with similar future operational activities albeit with a smaller throughput.
- **Product Import Terminal Project Alternative (Alternative 3):** this scenario represents activities associated with restoring the wharf at Berth 191, construction of storage facilities at Berths 192-194, and future operational activities. Unique to this scenario, it is assumed that the GGBFS product will arrive pre-processed, stored on-site, then distributed.

More details about these alternatives are available in Chapter 2 Project Description and in Section 3.1.5 (Air Quality). The air dispersion modeling methodology was performed using the U.S. Environmental Protection Agency's (USEPA) Air Quality Dispersion Modeling System (AERMOD), version 22112, based on the Guideline on Air Quality Models (40 Code of Federal Regulation [CFR], Part 51, Appendix W November 2017). NO2, PM10, and PM2.5 were modeled for the Proposed Project, Reduced Project Alternative (Alternative 2), and Product Import Terminal Project Alternative (Alternative 3) scenarios. The predicted ground-level concentrations were compared to the relevant

SCAQMD air quality significance thresholds to determine localized ambient air quality impacts.

2.0 Emissions Used in the Air Dispersion Modeling

2.1 Construction Emission Sources

Even though LST screening of construction emissions dismissed the need to model ambient pollutant concentrations related to construction alone, dispersion modeling of construction sources to evaluate 2025 annual criteria air pollutants concentrations and for the Health Risk Analysis (described in more detail in Appendix B3) would be necessary. Therefore, on-site construction sources were modelled in AERMOD for that purpose. Construction equipment incorporated within the dispersion model include:

- Off-road construction equipment (e.g. excavator, paver, and forklift); and
- On-road construction vehicles (e.g. haul trucks, and worker vehicles) operating on-site (on-site driving, on-site idling); and
- Harbor craft (e.g. tug boats);
- Fugitive dust from sources from construction earth moving activities, material handling, and wind erosion

In accordance with SCAQMD guidance, only onsite construction emission sources were modeled for criteria pollutant impacts (LAHD 2014E).Fugitive dust emissions are only used for the criteria pollutant analysis but not the HRA because the SCAQMD does not consider fugitive dust to be a significant source of toxic air contaminants. Details of this calculation are in Appendix B1 where a summary of construction emissions from the Proposed Project is presented.

Emission inventories were developed for the Proposed Project and Alternatives for each year of the construction period (2024-2025). A detailed description of the methodology used to derive the construction emissions can be found in Section 4 of Appendix B1.

2.2 Operational Emission Sources

The following operational emission sources were modeled in AERMOD:

- Off-road equipment (e.g. front end loader and excavator) exhaust and fugitive dust emissions from off-road equipment moving material from the storage piles in the Project site backlands to the stationary equipment;
- Dry bulk ocean going vessels (OGVs) exhaust from propulsion engines and auxiliary engines while vessels transit between the South Coast Air Basin (SCAB) overwater boundary to the berth, and from auxiliary engines where they hotel while unloading raw material. The vessel boilers were excluded from this analysis as they will be electric;
- Harbor craft exhaust from the propulsion engines and auxiliary engines of tugs assisting OGVs with maneuvering from precautionary zone to/from berth, as well as tugs that install and remove Yokahama fenders before and after vessel visits. Tugboat activity is assumed to take place within the harbor and the precautionary zone;
- Material handling fugitive dust emissions from sources such as electrical hoppers, conveyor belt systems and stationary process equipment.
- Dryer natural gas combustion;

- Particulate emissions associated with material transport to silos, silo vents, and loading chutes; and
- Heavy duty trucks (e.g. hauling raw material and product delivery trucks) engine exhaust from driving onsite and offsite, and engine starts and idling onsite. Truck emission sources include engine exhaust, tire wear, brake wear, and road dust.

Since there are only 20 facility workers during operation and are likely to be working in shifts, worker gasoline light duty vehicles were considered de minimis sources and were not modeled with the operations. Details of the operational emission sources are described for each operational source category in Section 5 of Appendix B1.

2.3 Derivation of Peak Hour, Peak Day, and Annual Emissions

Appendix B1 describes the methodology for estimating annual, peak day, and peak hour emissions associated with terminal construction and operations. In general, annual emission values were calculated based on the assumptions for Proposed Project and alternatives as displayed in Table 3.1-3 of Section 3.1 Air Quality. Peak day emissions were calculated for each source category (e.g., vessels, tugboats, trucks, stationary sources, and off-road equipment) based on expected maximum daily activity levels within the annual period being modeled. Peak hour emissions were similarly calculated for each source category based on an hour within the peak day, as described in Section 5.0 of Appendix B1. These values were then inputted directly into AERMOD for modelling.

3.0 Dispersion Modeling Approach

3.1 Dispersion Model Selection and Inputs

Air dispersion modeling was performed using the U.S. EPA AERMOD dispersion model, version 22112 (U.S. EPA 2022), based on the Guideline on Air Quality Models (U.S. EPA 2017b). The AERMOD model is a steady-state, multiple source, Gaussian dispersion model designed for applications which include flat areas as well as areas of ground elevations that exceed emission source stack heights. Selection of the AERMOD model is well suited for this analysis because it is: (1) accepted by the modeling community and regulatory agencies due to its ability to provide reasonable results for large industrial projects with multiple emission sources; (2) the model can handle various source types, including point, area, line, and volume; and (3) AERMOD has been approved by the U.S. EPA and SCAQMD for its analysis of mobile sources.

3.1.1 Construction Emission Source Representation

All construction sources, including harbor craft, offroad construction equipment, trucks, and fugitive dust, were modeled as poly-area sources covering the portions of the construction site where those sources would be active. Table B2-2 presents source parameters used in the dispersion modeling for Project construction. The source parameters are consistent with those developed and used in prior Los Angeles Harbor Department (LAHD) National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) documents (LAHD 2008; LAHD 2011).

Table B2-2. AERMOD Source Release Parameters – Construction Sources

Source Description	AERMOD Source Type	Release Height (m)	Initial Vertical Dimension (m) [a]	Exit Velocity (m/s)	Exit Temperature (K)	Stack Diameter (m)
Harbor craft [b]	Area	15.20	3.53	--	--	--
Offroad construction equipment [c]	Area	5.0	1.4	--	--	--
Haul/delivery trucks idling and transiting onsite [b,d]	Area	4.0	1.86	--	--	--
Construction fugitive dust and truck tire wear and brake wear[e]	Area	0	1.0	--	--	--

Notes:

[a] The initial vertical dimension of the plume (σz) was estimated by dividing the initial vertical thickness by 4.3 for elevated releases and by 2.15 for ground-based releases (USEPA 2021). Fugitive dust emissions are treated as a ground-level source with a 1 m initial vertical plume (SCAQMD 2008).

[b] Source parameters are consistent with prior LAHD documents (LAHD 2008; LAHD 2011).

[c] Release height is consistent with exhaust emissions assumptions from SCAQMD LST methodology (SCAQMD 2008).

[d] Release height is consistent with CARB Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angles and Long Beach (CARB 2006).

[e] Including entrained road dusts as well as on-road tire wear and brake wear.

3.1.2 Operational Emission Source Representation

The following identifies how operational emission sources are represented in the AERMOD:

- Ocean-going (dry bulk) vessels in transit were simulated as a series of separated volume sources extending from Berths 191-194 to the SCAB overwater boundary. Volume source spacing was 100 meters within the harbor, 500 meters in the precautionary zone, 1,000 meters between the precautionary zone and 20 nautical miles from Point Fermin, and 2,000 meters between 20 nautical miles and the SCAB overwater boundary;
- Ocean-going vessels hotelling at berth were modeled as a point source located adjacent to Berth 191;
- Ocean-going vessels at anchorage were modeled as an area source within the harbor;
- Tugboats (harbor craft) were modeled as a series of separated volume sources extending from Berths 191-194 to the precautionary zone. The volume source spacing was 100 meters;
- Ground Granulated Blast Furnace Slag (GGBFS) and gypsum trucks idling on-site and driving on-site were modeled as area sources. Trucks driving off-site and gypsum trucks driving on-site were modeled as a series of contiguous line sources along the primary travel routes. Truck emission sources include engine exhaust, tire wear, brake wear, and road dust. Off-site travel routes were provided by the Port and are shown in Figure B2-2;
- Mill and dryer natural gas combustion was modeled as a point source;
- Particulate emissions associated with material transport to silos, silo vents, and loading chutes were modeled as point sources;
- Off-road equipment (e.g. front end loader and excavator) assisting in backyard were modelled as area sources near the expected locations of the stockpiles, including entrained road dust;

- Fugitive dust emissions from GBFS and gypsum storage piles were modelled as area sources; and
- Fugitive dust emissions from material handling were modeled as area sources near material handling locations (e.g., hopper, conveyors) at the terminal and backlands of the project grounds.

Table B2-3 presents source parameters used in the dispersion modeling of operational emissions. The locations of the emission sources for construction and operation as modeled are shown in Figures B2-1 through B2-4.

Table B2-3. AERMOD Source Release Parameters – Operational Sources

Source Description	AERMOD Source Type	Release Height (m) [a]	Initial Vertical Dimension (m) [b]	Stack Exit Velocity (m/s)	Stack Exit Temp. (K)	Stack Inside Diameter (m)	Initial Lateral Dimension (m) [b]
Ships –Transit[d,g]	Volume	31.80	7.39	--	--	--	232.5-930.23
Ships – Maneuvering[d,g]	Volume	38.16	8.87	--	--	--	46.51
Ships - At Berth - Auxiliary Engines[d,g]	Point	25.44	--	7.5	583	0.6	--
Ships - At Anchorage[d,g]	Area	25.44	5.92	--	--	--	--
Tugboats[d]	Volume	15.20	3.53	--	--	--	46.51-232.56
Truck Exhaust (Running and Idling)[e]	Area/Line-Area[d]	4	1.86	--	--	--	--
Truck Tire and Brake Wear[e,f]	Area/Line-Area[d]	2.6	2.37	--	--	--	--
Grinding Dryer/Mill Exhaust[g]	Point	50	--	20.5	326.6	2	--
Transport to Silos[g]	Point	0	--	0.35	373.15	1.6	--
Storage Silo Vents[g]	Pont	28	--	0.35	373.15	1.6	--
Outload Silo Vents[g]	Point	18	--	0.46	373.15	1.8	--
Loading Chutes[g]	Point	4	--	0.35	373.15	1.6	--
Off-Road Equipment Exhaust[b,g]	Area	5	1.16	--	--	--	--
Off-Road Equipment Unpaved Fugitive Road Dust[b]	Area	0	1	--	--	--	--
Gypsum Storage Pile[g]	Area	3	0.70	--	--	--	--
GBFS Storage Pile[g]	Area	12	4.65	--	--	--	--
Material Handling Fugitive Dust[g]	Area	2.5 – 22.5	0.58 – 5.23	--	--	--	--

Notes:

[a] The release height for point sources in this table represents the actual release height of the exhaust above ground (or water, in the case of an at-berth vessel). AERMOD then accounts for additional plume rise due to the upward momentum and buoyancy of the stack exhaust gas, based on the exit velocity, exit temperature, and stack diameter. By contrast, AERMOD does not calculate any additional plume rise for volume, area, and line sources. Therefore, the release heights presented in this table for volume, area, and line sources have been adjusted higher than the actual exhaust release heights for ships in transit, ships maneuvering, and tugboats to account for a nominal amount of plume rise due to upward momentum and buoyancy of the exhaust gas.

[b] The initial vertical dimension of the plume (σ_z) was determined by dividing the initial vertical thickness by 4.3 for elevated releases and by 2.15 for ground or water-based releases. The initial lateral dimension of the plume (σ_y) was determined by dividing the initial lateral thickness by 4.3. Fugitive dust emissions from unpaved roads are treated as a ground-level source with a 1 m initial vertical plume (SCAQMD 2008).

[c] On-site truck idling and GBFS trucks were modeled as area sources. Off-site truck and on-site gypsum truck travel were modeled as line-area sources.

[d] Source parameters are consistent with prior LAHD CEQA documents (LAHD 2008; LAHD 2011).

[e] Release height is consistent with CARB Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angles and Long Beach (CARB 2006).

[f] Release height is calculated based on vehicle height and U.S. EPA Haul Road Workgroup Memorandum (USEPA 2012).

[g] Source parameters for dryer/mill exhaust, silo vents, loading chutes, material handling, and storage piles are provided by Orcem. Vessel heights are estimated from vessel diagrams provided by Orcem.

Figure B2-1. AERMOD Source Representation – Operational Sources (Far Field)

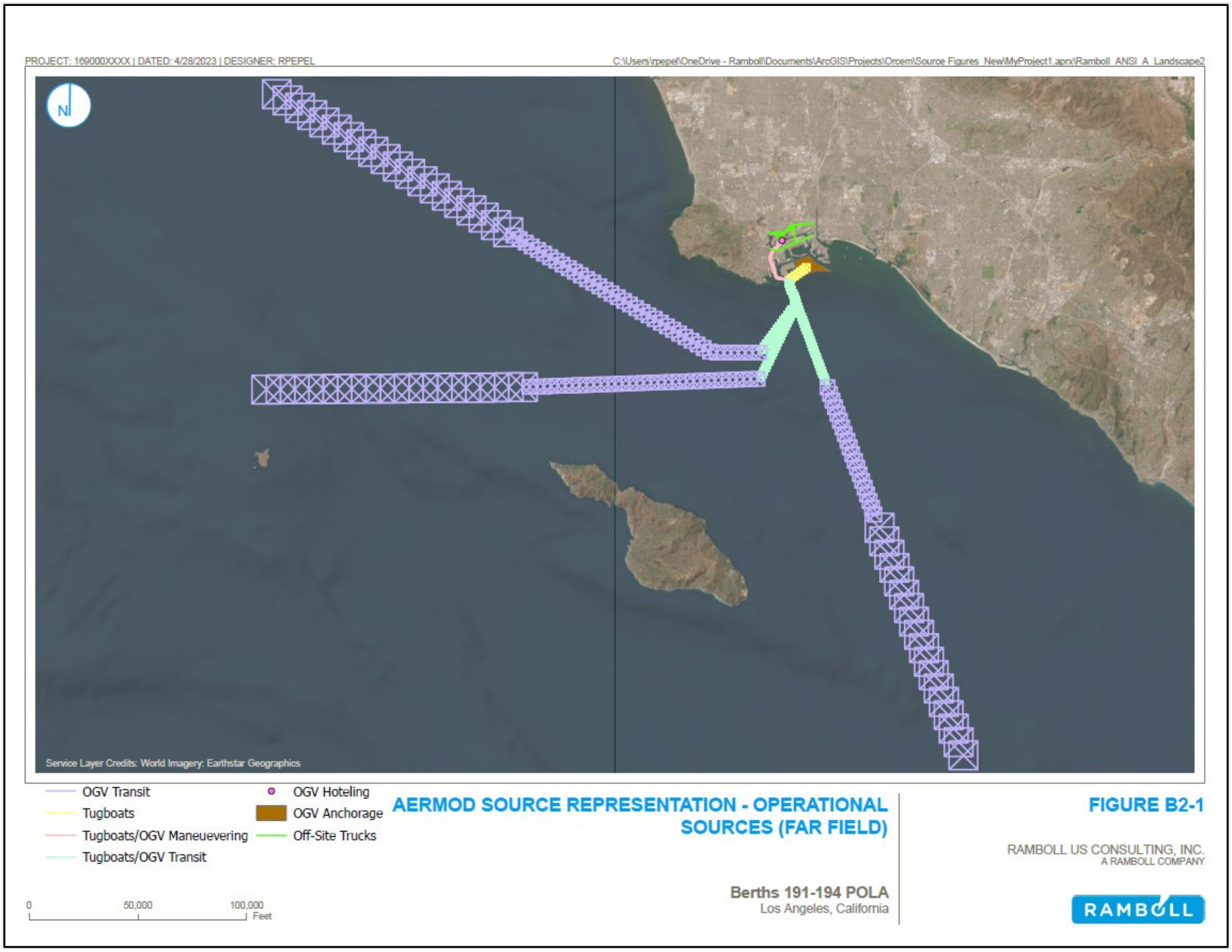


Figure B2-2. AERMOD Source Representation – Operational Sources (Near Field)

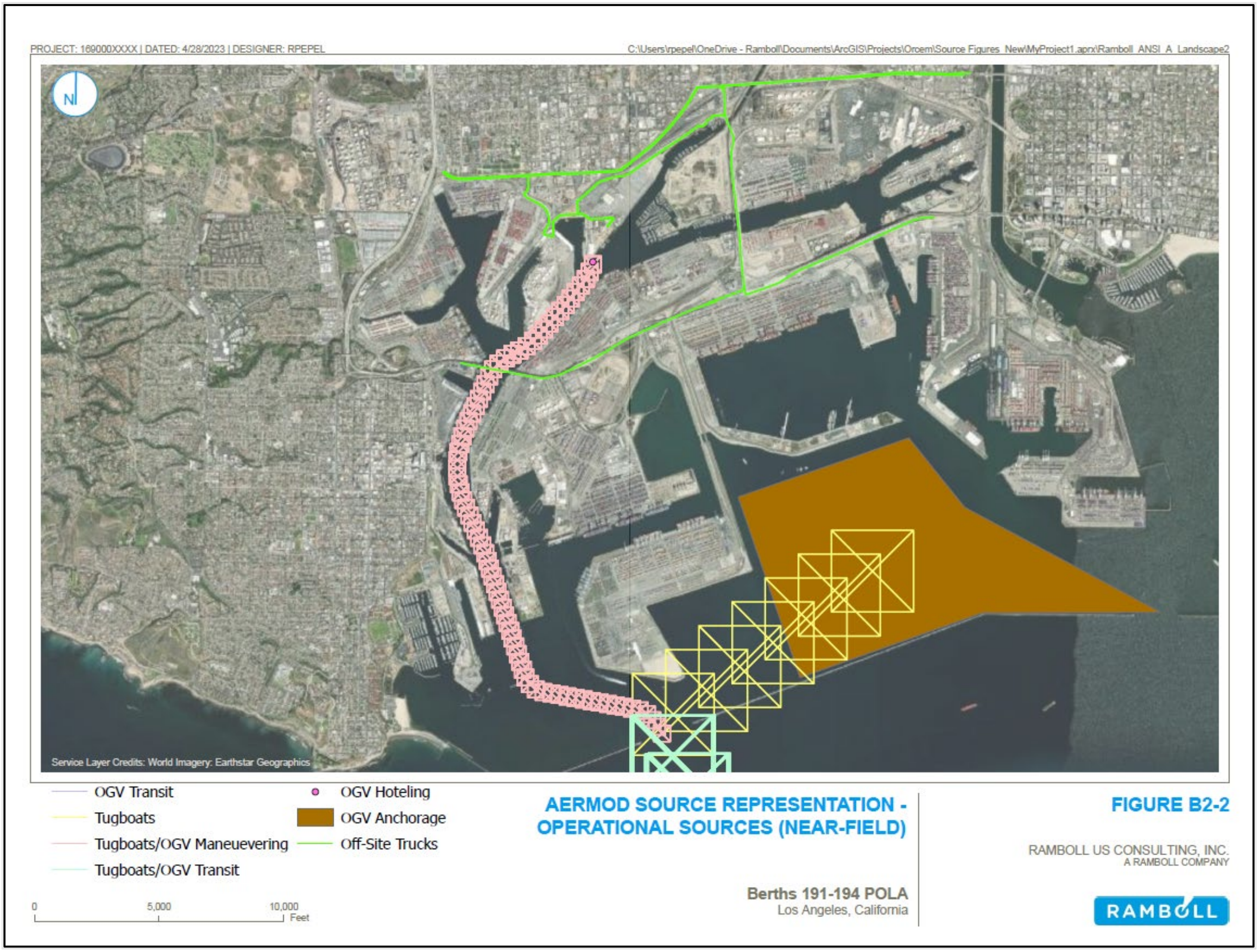


Figure B2-3. AERMOD Source Representation – Operational Sources (On-Site)

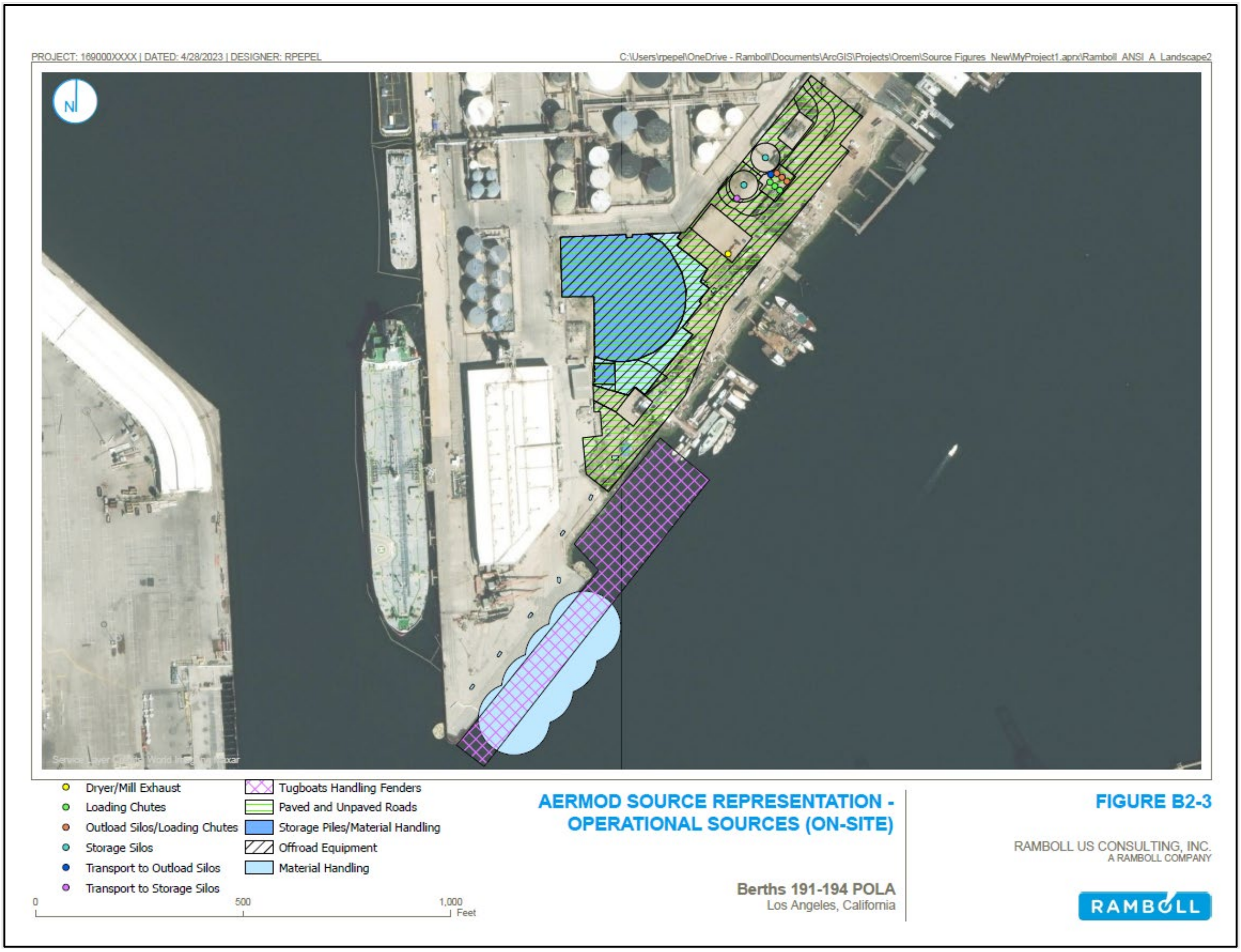
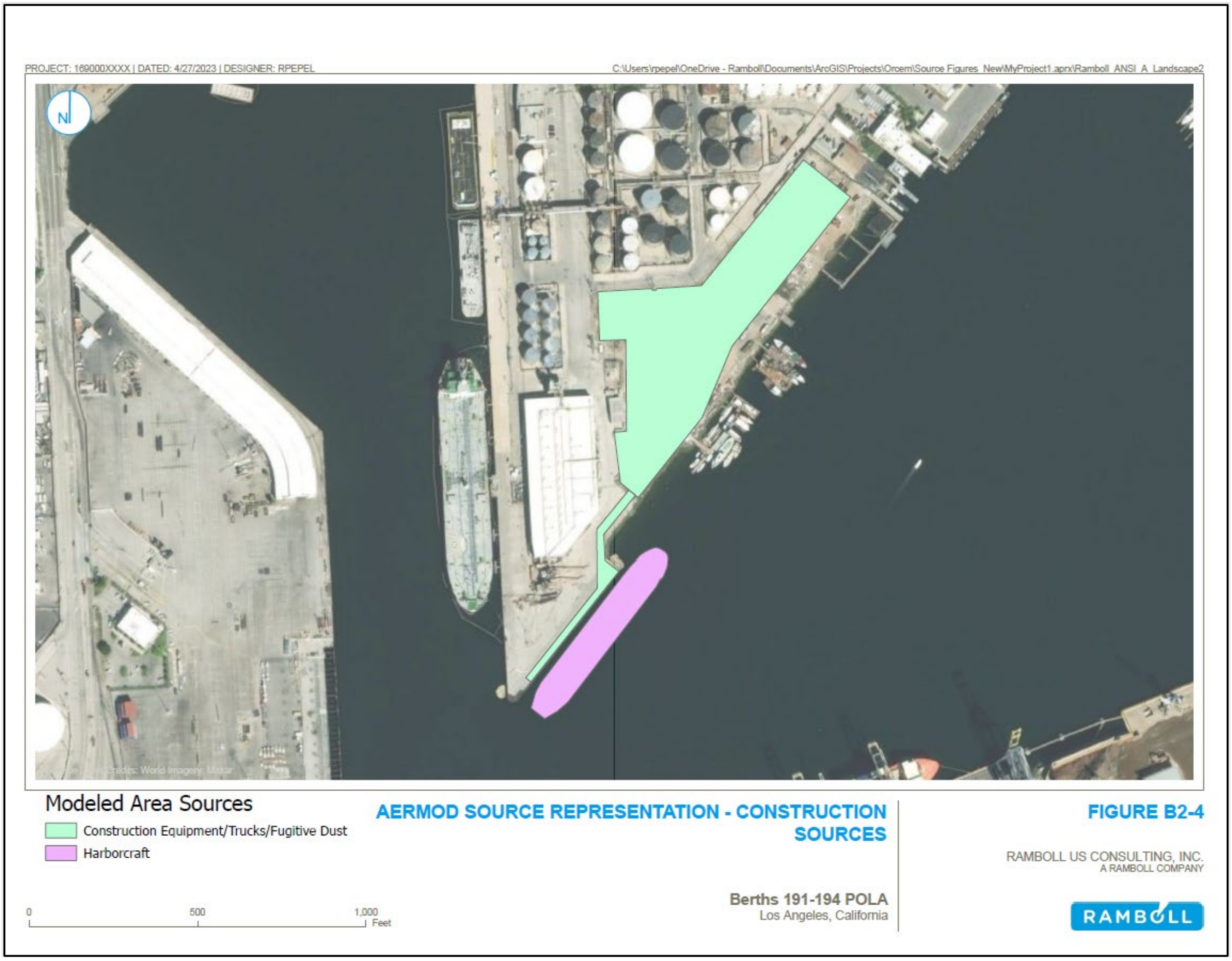


Figure B2-4. AERMOD Source Representation - Construction Sources



3.1.3 Meteorological Data

The complex interaction of the ocean, land, and Palos Verdes Hills near the Port may result in significant variations in wind patterns over relatively short distances (LAHD 2010). POLA and POLB currently operate monitoring stations that collect meteorological data from several locations within and near Port boundaries. For this dispersion analysis, the meteorological data collected at the Wilmington Community Station, located at Saints Peter and Paul School (SPPS) from 2012 to 2016 was used for dispersion modeling. SPPS is located about 1.2 miles north-northwest of the Berths 191-194 terminal and is considered the most representative meteorological station for the terminal in accordance with an analysis conducted by POLA and POLB in 2010 (LAHD 2010). For project-to-project consistency, this meteorological period has been used in several recent POLA and POLB EIRs.

3.1.4 Model Options

Regulatory default technical options were selected in AERMOD in accordance with U.S. EPA modeling guidance (USEPA 2017b). Consistent with SCAQMD AERMOD modeling guidance (SCAQMD 2023), and U.S. EPA guidance (U.S. EPA 2017b), the conversion of nitrogen oxide (NOx) to NO2 in ambient air was simulated in AERMOD using the Tier 2 Ambient Ratio Method (ARM) with EPA default NOx to NO2 conversion factors.

As recommended by the SCAQMD, all sources were modeled with urban dispersion coefficients. An urban population of 9,818,605, representative of Los Angeles County, was used in AERMOD. Receptor and source base elevations were determined from USGS National Elevation Dataset (NED) files using AERMAP, version 18081 (U.S. EPA 2011b). All coordinates were referenced to UTM NAD83, Zone 11.

3.1.5 Temporal Distribution Assumptions

For dispersion modeling purposes, operational emissions were assumed to occur during the times specified in Table B2-4. Emissions were assumed to be uniformly distributed during the specific time periods described in the table. The temporal distribution assumptions are identical for the Proposed Project and alternatives scenarios.

Table B2-4. Temporal Distribution of Emissions in AERMOD

Source Description	Temporal Distribution			
Construction				
Construction activities	7 a.m. – 5 p.m., 5 days/week			
Operations				
Trucks and Related Loading Equipment (Monday-Friday)	12AM - 1AM	3%	Noon - 1 PM	7%
	1 - 2 AM	4%	1 - 2 PM	3%
	2 - 3 AM	6%	2 - 3 PM	3%
	3 - 4 AM	7%	3 - 4 PM	0%
	4 - 5 AM	8%	4 - 5 PM	0%
	5 - 6 AM	8%	5 - 6 PM	0%
	6 - 7 AM	8%	6 - 7 PM	0%
	7 - 8 AM	8%	7 - 8 PM	0%
	8 - 9 AM	8%	8 - 9 PM	0%
	9 - 10 AM	8%	9 - 10 PM	0%
	10 - 11 AM	8%	10 - 11 PM	1%
	11 - Noon	8%	11PM - 12AM	2%
Other Operational Sources	24 hours per day			

3.1.6 Receptor Locations

Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the Project area to assess ground-level pollution concentrations, identify the extent of impacts, and identify maximum impact locations. AERMOD modeling was conducted with a 50 by 50 meter (m) grid up to 500 m from the facility fence line; a 100 by 100 m grid from 500 m to 1 kilometer (km) from the facility fence line; a 250 by 250 m grid from 1 km to 5 km from the facility fence line; and a 500 by 500 m grid from 5 km to 10 km from the facility fence line.

In addition to the gridded receptor sets, previously identified sensitive receptors near the Berths 191-194 facility were also included. These receptors included schools, child care facilities, hospitals, recreational facilities, parks, and elder care facilities. Receptors were also located at 20 m spacing along the Berths 191-194 facility fence line. Receptors located over water were excluded in the determination of maximum impact concentration and location.

Figures B2-5 and B2-6 show the receptors used in AERMOD for criteria pollutants.

Figure B2-5. AERMOD Modeled Receptors (Far Field)

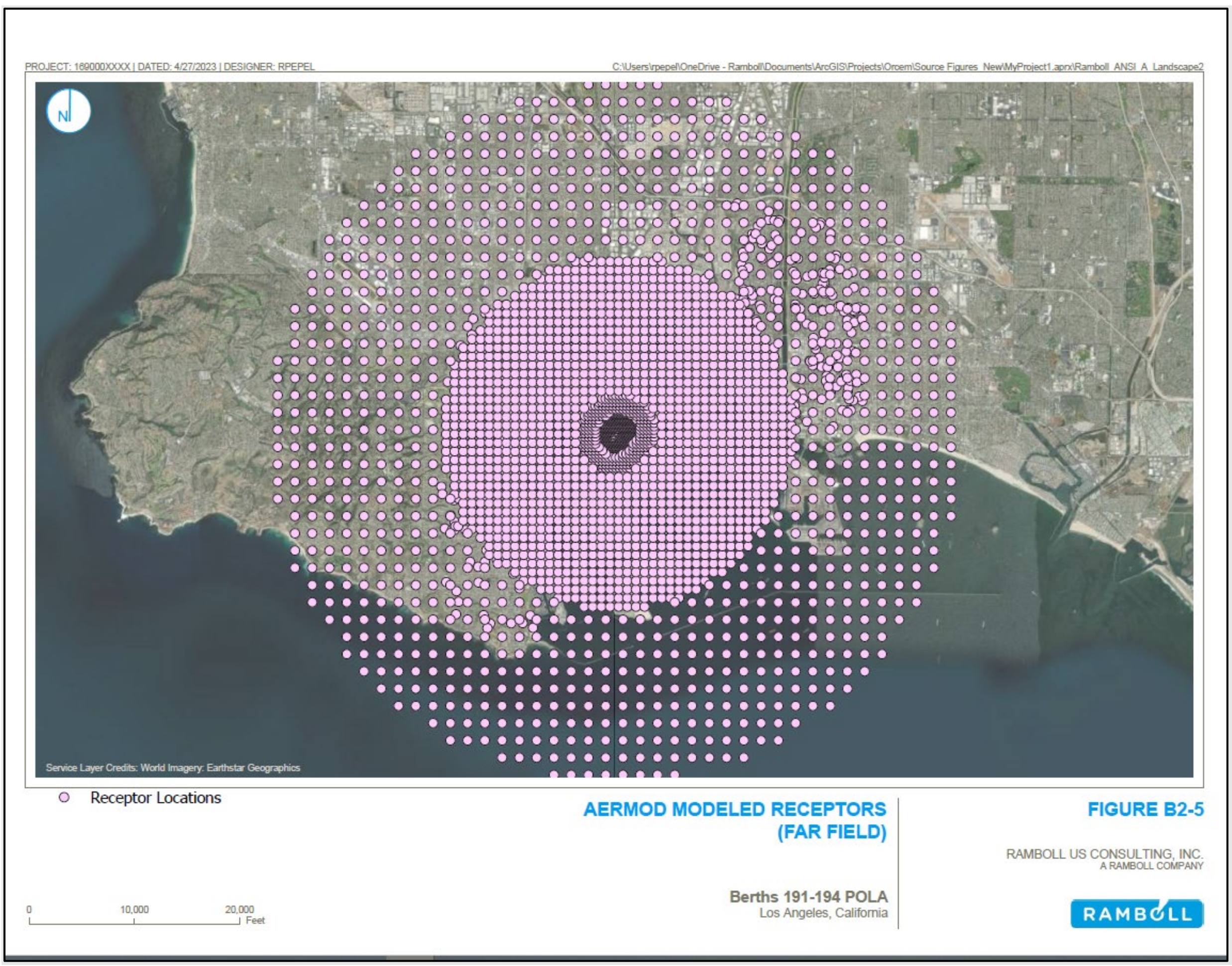


Figure B2-6. AERMOD Modeled Receptors (Near Field)

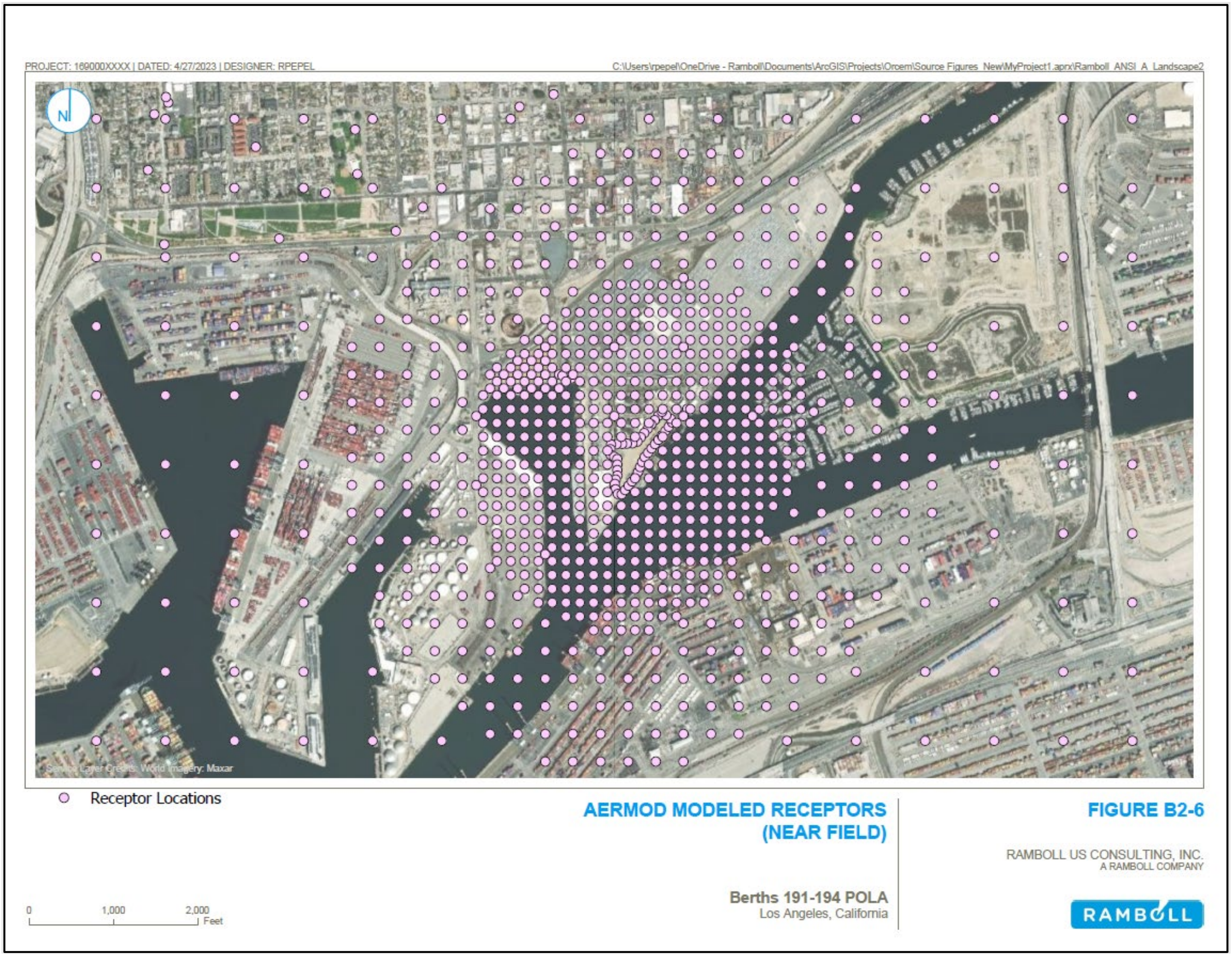
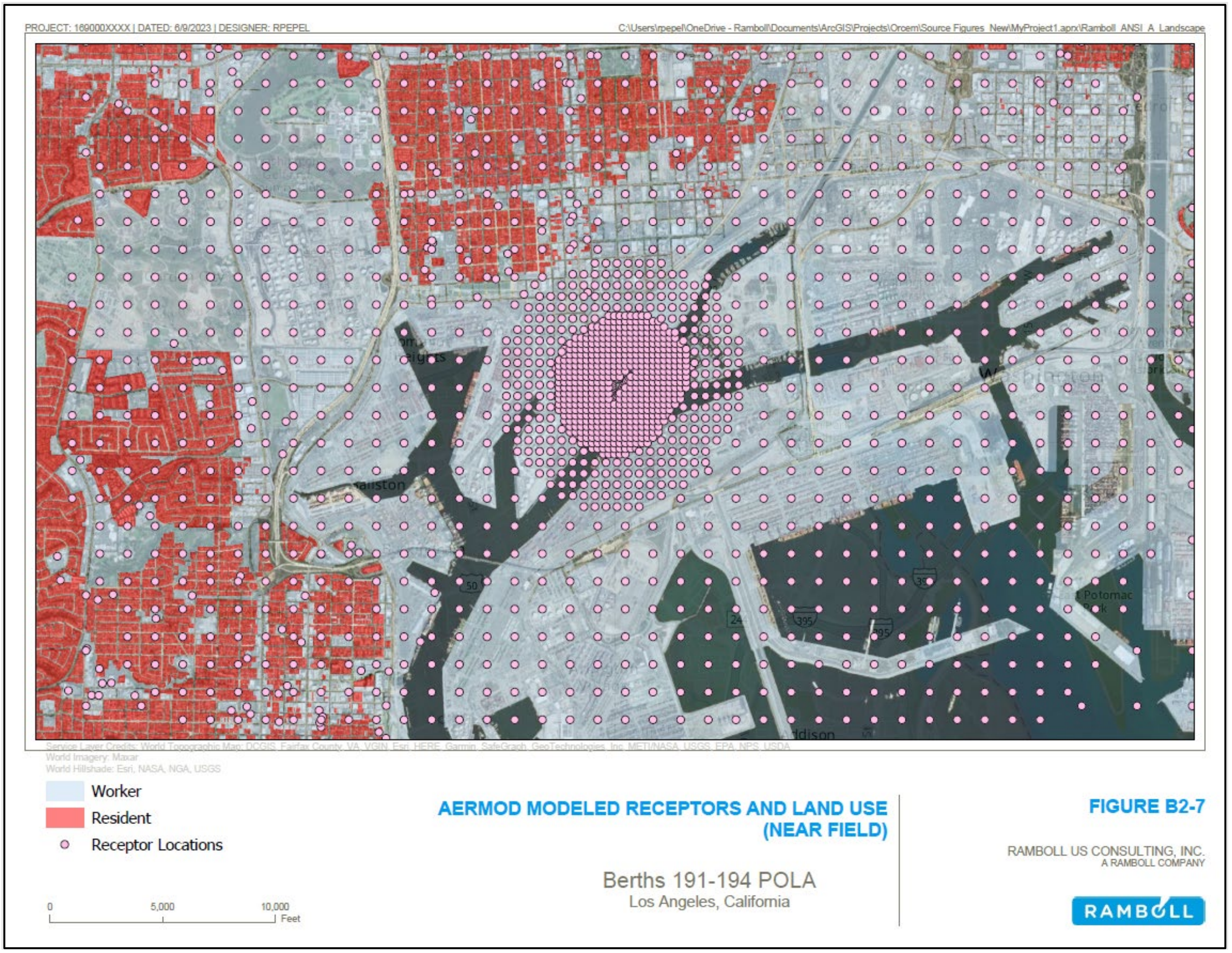


Figure B2-7. AERMOD Modeled Receptors and Land Use (Near Field)



3.2 Methodology for Determination of Impacts

NO_2, PM_{10} and $PM_{2.5}$ concentrations associated with the Proposed Project, Reduced Project Alternative (Alternative 2), and Product Import Terminal Project Alternative (Alternative 3), were modeled for each operational analysis year (2025, 2027, and 2049). The pollutant concentrations modeled by AERMOD were compared to the significance thresholds in Table B2-5 to assess impacts.

Table B2-5: SCAQMD Significance Thresholds for Operations

Air Pollutant	Operation Ambient Concentration Threshold
Nitrogen Dioxide (NO_2)[a]	
1-hour average (federal)[b]	0.100 ppm (188 μg/m^3)
1-hour average (state)	0.18 ppm (338 μg/m^3)
Annual average (federal)[c]	0.0534 ppm (100 μg/m^3)
Annual average (state)	0.030 ppm (57 μg/m^3)
Particulates (PM_{10} or $PM_{2.5}$)	
24-hour average (PM_{10} and $PM_{2.5}$)	2.5 μg/m^3
Annual average (PM_{10} only)	1.0 μg/m^3

Sources: SCAQMD 2019; USEPA 2022.

Notes:

[a] The NO_2 thresholds are absolute thresholds; the maximum predicted Project impact is added to the background concentration and compared to the threshold.

[b] This analysis included the use of both the current SCAQMD NO_2 threshold (0.18 ppm), which is the state standard, and the newer 1-hour federal ambient air quality standard (0.100 ppm). To attain the federal standard, the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour averages at a receptor must not exceed 0.100 ppm.

[c] For the purpose of determining significance, the more stringent annual state NO_2 standard of 57 μg/m^3 is used instead of the higher annual federal standard.

3.2.1 Methodology for NO_2

The SCAQMD significance concentration thresholds for NO_2 are absolute thresholds based on the ambient air quality standards. The CEQA baseline emissions are expected to be negligible as there was negligible activity at the Project site during the CEQA baseline year 2021. Therefore, the modeled Project concentrations is determined at each receptor, and the value at the receptor with the highest modeled concentration is added to the ambient background concentration to yield a total concentration. The background concentration represents the maximum ambient concentration in the vicinity of the Project site excluding the incremental contribution from the Proposed Project, Reduced Project Alternative (Alternative 2), and Product Import Terminal Alternative (Alternative 3). Ambient background concentrations were obtained from the Wilmington Community Station using the most recent 3-year period of recorded data publicly available (2020 through 2022). Table B2-6 shows the derivation of the background concentrations. Significance is determined by comparing the total concentrations (i.e., Product or Alternative modeled concentrations plus background) to the thresholds.

To be consistent with the federal 1-hour NO_2 standard, the modeled federal 1-hour NO_2 concentrations represent the 98th percentile (8th highest) of the annual distribution of daily maximum 1-hour concentrations. All other modeled pollutant concentrations, including the state 1-hour NO_2 concentration, represent the highest concentrations over the entire 5 years of meteorological data.

Table B2-6. Background NO_2 Concentrations Measured at the Wilmington Community Station

Pollutant	Averaging Period	Monitored Concentration (ppm) [a]			Background Concentration[c]	
		2020	2021	2022	(ppm)	(μg/m³)
NO_2	1-Hour State	0.068	0.071	0.060	0.071	136
	1-Hour Federal [b]	0.059	0.054	0.055	0.059	113
	Annual	0.008	0.013	0.014	0.014	27

Source: POLA 2020; 2021; 2022.

Notes:

[a] All reported values represent the highest recorded concentration during the year unless otherwise noted.
[b] The background concentration reported for the federal 1-hour NO_2 standard represents the three-year average (2020-2022) of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations.
[c] The concentration in micrograms per cubic meter (μg/m³) is calculated as follows: μg/m³ = ppm x MW / 0.02404. The molecular weight for NO_2 (MW) is 46.0055.

3.2.2 Methodology for PM_{10} and $PM_{2.5}$

The SCAQMD significance concentration thresholds for PM10 and PM2.5 are incremental thresholds. Concentration increments relative to baseline are compared directly to the thresholds without adding background concentrations. Based on the SCAQMD Final Localized Significance Threshold Methodology, 24-hr averaging times were only considered for off-site receptor locations where persons may be exposed to the emissions from project activities (SCAQMD 2008). Off-site commercial and industrial locations were conservatively included in the maximum 24-hr concentration determination. The CEQA baseline emissions are expected to be negligible as there was negligible activity at the project site during the CEQA baseline year 2021. Therefore, the Proposed Project, Reduced Project Alternative (Alternative 2), and Product Import Terminal Project Alternative (Alternative 3) impacts were determined by the modeled concentrations at each receptor with no further adjustment. Significance is determined by comparing the modeled receptor with the greatest concentration to the thresholds. The Proposed Project, Reduced Project Alternative (Alternative 2), and Product Import Terminal Project Alternative (Alternative 3) concentration were determined and compared to the significance thresholds separately.

3.3 Predicted Air Quality Impacts

3.3.1 Proposed Project

3.3.1.1 Construction Impacts

SCAQMD's LSTs are evaluated as a screening of whether construction emissions may generate significant localized air quality impacts. Table B2-1 presents a comparison of Proposed Project construction emissions to SCAQMD LSTs. As shown in Table B2-1, estimated maximum onsite daily emissions from construction of the Proposed Project are below the applicable SCAQMD mass-rate LSTs for NOx, CO, PM_{10}, and $PM_{2.5}$, suggesting construction of the Proposed Project will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. For this reason, further air dispersion modeling for construction was only conducted for 2025 annual averages presented in the operational dispersion modeling results to complete a full year of emissions. Modeling of construction sources was also conducted for purposes of the health risk assessment (See Appendix B3).

3.3.1.2 Operational Impacts

Table B2-1 summarizes the comparison of Project emissions to the SCAQMD localized significance thresholds. Estimated maximum onsite daily emissions are above the applicable SCAQMD mass-rate LSTs for NOx, PM_{10}, and $PM_{2.5}$, and site-specific modeling is required to determine the potential impact on localized ambient air quality. Operational impacts were evaluated for the Proposed Project, Reduced Project Alternative (Alternative 2), and Product Import Terminal Project Alternative (Alternative 3) scenarios under CEQA.

Table B2-7 and B2-8 summarize the AERMOD dispersion modeling results of Proposed Project operational emissions under CEQA for NO_2 and PM. 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025. Exceedances of an SCAQMD threshold are indicated in bold.

Table B2-7. Maximum Off-Site Ambient NO_2 Concentrations - Proposed Project Operations

Pollutant	Averaging Period	Analysis Year	Background Concentration [b] ($\mu g/m^3$)	Maximum Modeled Project Concentration ($\mu g/m^3$)	Total Concentration [c] ($\mu g/m^3$)	Significance Threshold ($\mu g/m^3$)	Threshold Exceeded?
NO_2	Federal 1-hour[a]	2025	113	24	137	188	No
		2027	113	43	156	188	No
		2049	113	39	152	188	No
	State 1-hour[a]	2025	136	38	174	338	No
		2027	136	54	190	338	No
		2049	136	49	185	338	No
	Federal annual	2025	27	2	29	100	No
		2027	27	1	28	100	No
		2049	27	1	28	100	No
	State Annual	2025[d]	27	2	29	57	No
		2027	27	1	28	57	No
		2049	27	1	28	57	No

Notes:

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

[b] The background concentrations were obtained from the Wilmington Community Monitoring Station (Saints Peter and Paul School).

[c] The Total Concentration equals the Background Concentration plus the Maximum Modeled Project Concentration.

[d] 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025.

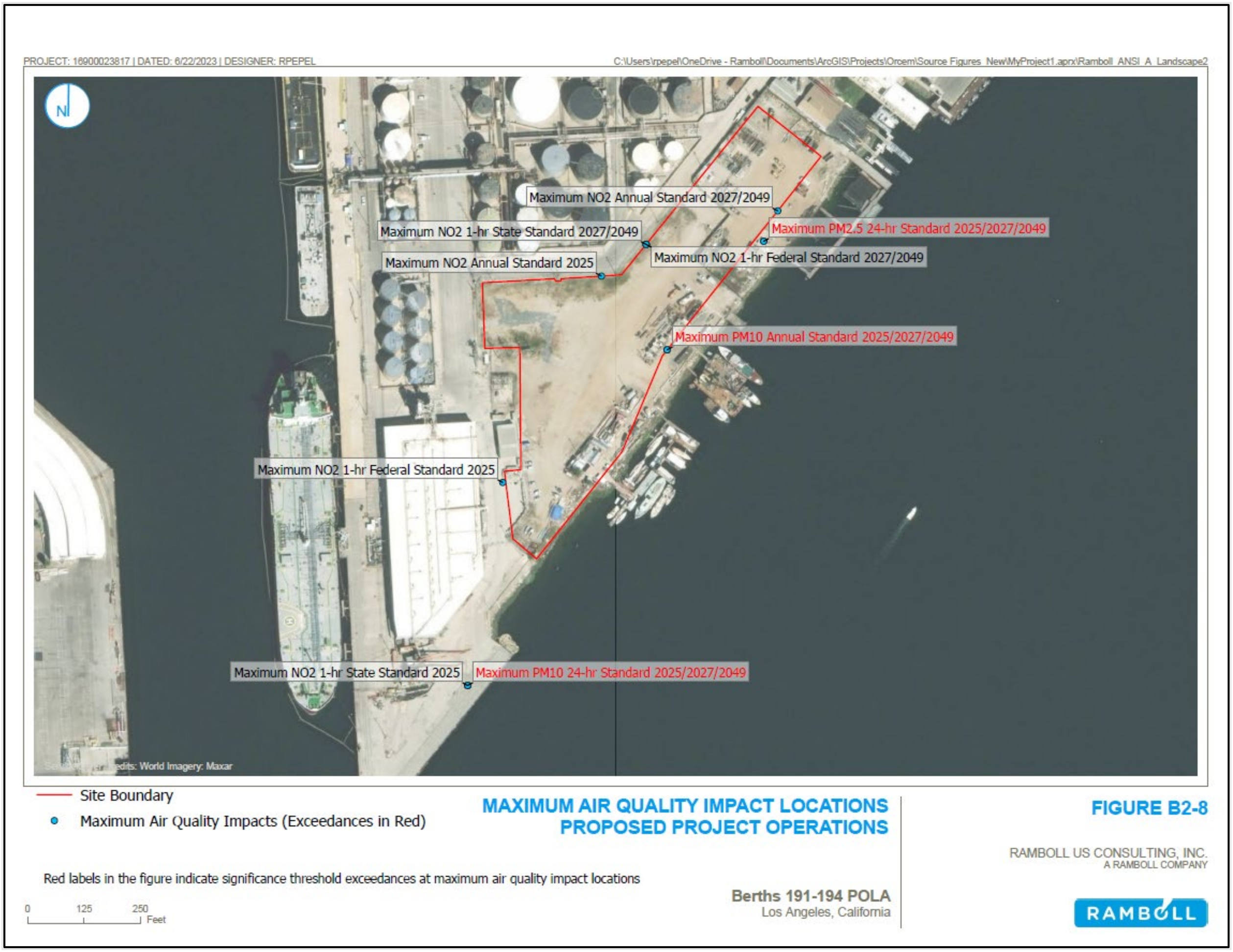
Table B2-8. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentration Increments - Proposed Project Operations

Pollutant	Averaging Period	Analysis Year	Maximum Modeled Project Concentration (µg/m³)[a,d]	Significance Threshold (µg/m³)[b]	Threshold Exceeded?
PM_{10}	24-hour	2025	**10.9**	**2.5**	**Yes**
		2027	**21.6**	**2.5**	**Yes**
		2049	**21.5**	**2.5**	**Yes**
	Annual	2025[c]	**1.6**	**1**	**Yes**
		2027	**7.0**	**1**	**Yes**
		2049	**7.0**	**1**	**Yes**
$PM_{2.5}$	24-hour	2025	**3.3**	**2.5**	**Yes**
		2027	**6.6**	**2.5**	**Yes**
		2049	**6.6**	**2.5**	**Yes**

Notes:
[a] Exceedances of the thresholds are indicated in **bold**.
[b] Because the thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds, background concentrations are not added to the Maximum Modeled Project Concentration.
[c] 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025.
[d] 24-hr concentrations were evaluated for off-site locations where persons may be exposed to the emissions from project activities, based on SCAQMD's Final Localized Significance Threshold Methodology. Commercial and industrial land uses were conservatively included for all averaging times.

The following figure displays the locations of the peak AERMOD dispersion modeling results of the Proposed Project scenario operational pollutant concentrations. The receptor locations correspond to the results in the tables presented in this section above.

Figure B2-8. Maximum Air Quality Impact – Proposed Project Operations



Red labels in Figure B2-8 indicate significance threshold exceedances at maximum air quality impact locations. 2025 annual average concentrations include construction impacts from January 2025 through July 2025.

3.3.2 Alternative 2 – Reduced Project Alternative Scenario

3.3.2.1 Construction Impacts

SCAQMD's LSTs are evaluated as a screening of whether construction emissions may generate significant localized air quality impacts. Table B2-1 presents a comparison of Proposed Project construction emissions to SCAQMD LSTs. As shown in Table B2-1, estimated maximum onsite daily emissions from construction of the Proposed Project are below the applicable SCAQMD mass-rate LSTs for NOx, CO, PM10, and PM2.5. The Reduced Project Alternative (Alternative 2) construction emissions are lower than the Proposed Project construction emissions, suggesting construction of the Reduced Project Alternative (Alternative 2) will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. For this reason, further air dispersion modeling and calculation of ambient pollutant concentrations for construction was only conducted as necessary for 2025 annual averages presented in the operational dispersion modeling results As noted before dispersion factors related to construction sources were modeled for purposes of the health risk analysis.

3.3.2.2 Operational Impacts

Table B2-9 and B2-10 summarize the AERMOD dispersion modeling results of the Reduced Project Alternative (Alternative 2) operational emissions under CEQA for NO_2 and PM_{10} and $PM_{2.5}$ respectively. Exceedances of an SCAQMD threshold are indicated in bold.

Table B2-9. Maximum Off-Site Ambient NO_2 Concentrations - Reduced Project Alternative Operations

Pollutant	Averaging Period	Analysis Year	Background Concentration [b] (µg/m³)	Maximum Modeled Project Concentration (µg/m³)	Total Concentration [c] (µg/m³)	Significance Threshold (µg/m³)	Threshold Exceeded ?
NO_2	Federal 1-hour	2025	113	22	135	188	No
		2027	113	31	144	188	No
		2049	113	29	142	188	No
	State 1-hour	2025	136	37	173	338	No
		2027	136	40	176	338	No
		2049	136	39	175	338	No
	Federal Annual	2025[d]	27	2	29	100	No
		2027	27	1	28	100	No
		2049	27	1	28	100	No
	State Annual	2025[d]	27	2	29	57	No
		2027	27	1	28	57	No
		2049	27	1	28	57	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour average concentrations. The state 1-hour NO_2 modeled concentration represents the maximum concentration.
[b] The background concentrations were obtained from the Wilmington Community Monitoring Station (Saints Peter and Paul School).
[c] The Total Concentration equals the Background Concentration plus the Maximum Modeled Project Concentration Increment.
[d] 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025.

Table B2-10. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentration Increments - Reduced Project Alternative Operations

Pollutant	Averaging Period	Analysis Year	Maximum Modeled Project Concentration (µg/m³)[a,d]	Significance Threshold (µg/m³)[b]	Threshold Exceeded?
PM_{10}	24-hour	2025	**7.4**	**2.5**	**Yes**
		2027	**14.6**	**2.5**	**Yes**
		2049	**14.6**	**2.5**	**Yes**
	Annual	2025[c]	**1.2**	**1**	**Yes**
		2027	**4.7**	**1**	**Yes**
		2049	**4.7**	**1**	**Yes**
$PM_{2.5}$	24-hour	2025	2.3	2.5	No
		2027	**4.5**	**2.5**	**Yes**
		2049	**4.5**	**2.5**	**Yes**

Notes:
[a] Exceedances of the thresholds are indicated in **bold**.
[b] Because the thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds, background concentrations are not added to the Maximum Modeled Project Concentration.
[c] 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025.
[d] 24-hr concentrations were evaluated for off-site locations where persons may be exposed to the emissions from project activities, based on SCAQMD's Final Localized Significance Threshold Methodology. Commercial and industrial land uses were conservatively included for all averaging times.

The following figure displays the locations of the peak AERMOD dispersion modeling results of the Reduced Project Alternative (Alternative 2) scenario operational incremental pollutant concentrations. The receptor locations correspond to the results in the tables presented in this section above.

Figure B2-9. Maximum Air Quality Impact – Reduced Project Alternative Operations

Red labels in Figure B2-9 indicate significance threshold exceedances at maximum air quality impact locations. 2025 annual average concentrations include construction impacts from January 2025 through July 2025.

3.3.3 Alternative 3 – Product Import Terminal Project Alternative

3.3.3.1 Construction Impacts

SCAQMD's LSTs are evaluated as a screening of whether the operational emissions may generate significant localized air quality impacts. Table B2-1 presents a comparison of Proposed Project construction emissions to SCAQMD LSTs. As shown in Table B2-1, estimated maximum onsite daily emissions from construction of the Proposed Project are below the applicable SCAQMD mass-rate LSTs for NOx, CO, PM_{10}, and $PM_{2.5}$. The Product Import Terminal Alternative (Alternative 3) construction emissions are lower than the Proposed Project construction emissions, suggesting construction of the Product Import Terminal Alternative (Alternative 3) will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. For this reason, further air dispersion modeling and calculation of ambient pollutant concentrations for construction was only conducted as necessary for 2025 annual averages presented in the operational dispersion modeling results. As noted before dispersion factors related to construction sources were modeled for purposes of the health risk analysis.

3.3.3.2 Operational Impacts

Table B2-11 and B2-12 summarize the AERMOD dispersion modeling results of the Product Import Terminal Alternative (Alternative 3) operational emissions under CEQA for NO_2 and PM 10 and 2.5 respectively. Exceedances of an SCAQMD threshold are indicated in bold.

Table B2-11. Maximum Off-Site Ambient NO_2 Concentrations - Product Import Terminal Alternative Operations

Pollutant	Averaging Period	Analysis Year	Background Concentration [b] (µg/m³)	Maximum Modeled Project Concentration (µg/m³)	Total Concentration [c] (µg/m³)	Significance Threshold (µg/m³)	Threshold Exceeded?
NO_2	Federal 1-hour	2025	113	22	135	188	No
		2027	113	40	153	188	No
		2049	113	36	149	188	No
	State 1-hour	2025	136	37	173	338	No
		2027	136	50	186	338	No
		2049	136	45	181	338	No
	Federal Annual	2025[d]	27	1	28	100	No
		2027	27	1	28	100	No
		2049	27	1	28	100	No
	State Annual	2025[d]	27	1	28	57	No
		2027	27	1	28	57	No
		2049	27	1	28	57	No

Notes:
[a] The federal 1-hour NO_2 modeled concentration represents the 98th percentile of the daily maximum 1-hour average concentrations. The state 1-hour NO_2 modeled concentration represents the maximum concentration.
[b] The background concentrations were obtained from the Wilmington Community Monitoring Station (Saints Peter and Paul School).
[c] The Total Concentration equals the Background Concentration plus the Maximum Modeled Project Concentration Increment.
[d] 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025.

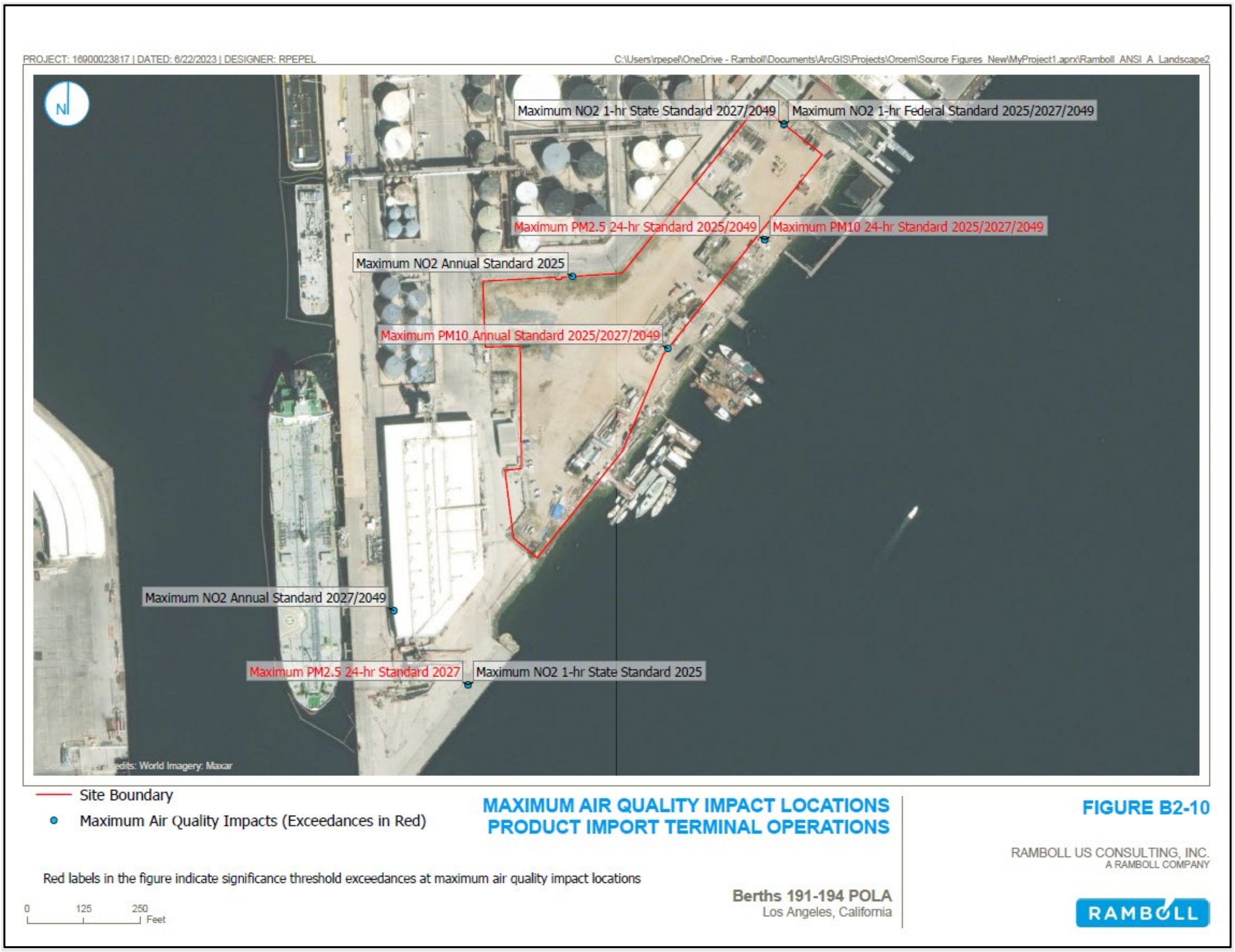
Table B2-12. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentration Increments - Product Import Terminal Alternative Operations

Pollutant	Averaging Period	Analysis Year	Maximum Modeled Project Concentration (μg/m^3)[a,d]	Significance Threshold (μg/m^3)[b]	Threshold Exceeded?
PM_{10}	24-hour	2025	**4.8**	2.5	**Yes**
		2027	**9.4**	2.5	**Yes**
		2049	**9.4**	2.5	**Yes**
	Annual	2025[c]	**1.5**	1	**Yes**
		2027	**6.7**	1	**Yes**
		2049	**6.7**	1	**Yes**
$PM_{2.5}$	24-hour	2025	**2.9**	2.5	**Yes**
		2027	**5.6**	2.5	**Yes**
		2049	**5.6**	2.5	**Yes**

Notes:
[a] Exceedances of the thresholds are indicated in **bold**.
[b] Because the thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds, background concentrations are not added to the Maximum Modeled Project Concentration.
[c] 2025 annual average concentrations include construction impacts from January 2025 through July 2025 and operational impacts from August 2025 through December 2025.
[d] 24-hr concentrations were evaluated for off-site locations where persons may be exposed to the emissions from project activities, based on SCAQMD's Final Localized Significance Threshold Methodology. Commercial and industrial land uses were conservatively included for all averaging times.

The following figure displays the locations of the peak AERMOD dispersion modeling results of the Product Import Terminal Alternative (Alternative 3) scenario operational incremental pollutant concentrations. The receptor locations correspond to the results in the tables presented in this section above.

Figure B2-10. Maximum Air Quality Impact – Product Import Terminal Alternative Operations



Red labels in Figure B2-10 indicate significance threshold exceedances at maximum air quality impact locations. 2025 annual average concentrations include construction impacts from January 2025 through July 2025.

4.0 CO Hot Spots Analysis

The level of detail for dispersion modeling was based on traffic demand modeling and adequately analyzes CO impacts. Given that for the Project and Alternatives, the modeled CO concentrations would be much less than CAAQS and NAAQS thresholds, CO Hot Spots were determined less than significant without additional modeling. It is anticipated that intersection concentrations would not exceed any CO thresholds and therefore, CO Hot Spots were not analyzed.

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