Appendix B2
Dispersion Modeling

Contents

List of Tables

List of Figures

Attachments

1.0 Introduction

This appendix describes the methods and results of air dispersion modeling that predict the ground-level concentrations of criteria pollutants from construction and operation of the Berths 212-224 (YTI) Container Terminal.

The air dispersion modeling methodology was based on Los Angeles Harbor District's (LAHD) Draft Criteria Pollutant Dispersion Modeling Protocol (LAHD 2012) and performed using the U.S. Environmental Protection Agency's (USEPA) AERMOD Modeling system, version 12345, based on the Guideline on Air Quality Models (40 Code of Federal Regulation [CFR], Part 51, Appendix W, November 2005). Nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter equal or less than 10 microns in diameter (PM_{10}), and particulate matter equal or less than 2.5microns in diameter ($PM_{2.5}$), were modeled for the proposed Project, CEQA baseline, NEPA baseline, and project alternatives. The predicted ground-level concentrations were compared to the relevant South Coast Air Quality Management District (SCAQMD) air quality significance thresholds to determine ambient air quality impacts.

2.0 Development of Emission Scenarios Used in the Air Dispersion Modeling

2.1 Construction Emission Sources

Construction activities would use the following equipment:

- Offroad construction equipment: land-based equipment and marine-based equipment (dredging and pile driving equipment);
- On-road construction vehicles (haul trucks, delivery trucks);
- Crane delivery ship; and
- Harbor craft: tugboats (used to position dredging barges and scows) and dive boats.

In accordance with SCAQMD guidance, only onsite construction emission sources were modeled for criteria pollutant impacts (SCAQMD 2005). Onsite emission sources included diesel engine exhaust from construction equipment, haul trucks while onsite, crane delivery ship auxiliary engines and boilers while hoteling at berth, and harbor craft used in dredging and pile driving; and fugitive dust. Both unmitigated and mitigated construction emissions were modeled.

2.2 Construction Emissions

To ensure the capture of maximum ambient pollutant concentrations in AERMOD, peak emissions during the 2015-2016 construction period were conservatively modeled for each emission source category, even if the peak emissions would occur during different combinations of overlapping construction phases. The emission source categories were diesel engine exhaust and fugitive dust. Table 2-1 through Table 2-7 present a summary of construction emissions used in the air dispersion modeling for the NEPA baseline, proposed Project without and with

mitigation, Alternative 2 (No Federal Action) without and with mitigation, and Alternative 3 (Reduced Project) without and with mitigation. The CEQA baseline and Alternative 1 (No Project) have no construction emissions and therefore are not presented. The modeled construction emissions differ from the construction emissions summarized in Section 3.2 of the EIS/EIR because (1) the dispersion modeling domain is smaller than the South Coast Air Basin (SCAB), and (2) as described above, the modeled emissions are a combination of peak emissions over multiple analysis years.

Table 2-1. Emissions Modeled During Construction – NEPA Baseline

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	2.9E+01	1.6E+03	2.1E-02	1.6E-01	1.1E+01	8.6E+01	5.1E+00	6.0E+01	4.7E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E+01	1.7E+02	1.7E+01
Total	2.9E+01	1.6E+03	2.1E-02	1.6E-01	1.1E+01	8.6E+01	7.4E+01	2.3E+02	2.2E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

Table 2-2. Emissions Modeled During Construction - Proposed Project without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	8.5E+01	5.2E+04	2.1E-01	3.5E+00	4.9E+01	3.3E+02	2.3E+01	2.0E+03	4.1E+01
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	2.8E+00
Total	8.5E+01	5.2E+04	2.1E-01	3.5E+00	4.9E+01	3.3E+02	9.7E+01	2.2E+03	4.4E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

Table 2-3. Emissions Modeled During Construction - Proposed Project with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	3.6E+01	2.3E+04	1.8E-01	2.6E+00	3.3E+01	6.4E+01	5.4E+00	5.3E+02	5.1E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	1.8E+01
Total	3.6E+01	2.3E+04	1.8E-01	2.6E+00	3.3E+01	6.4E+01	7.9E+01	7.7E+02	2.4E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

Table 2-4. Emissions Modeled During Construction - No Federal Action Alternative without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	2.9E+01	1.6E+03	2.1E-02	1.6E-01	1.1E+01	8.6E+01	5.1E+00	6.0E+01	4.7E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E+01	1.7E+02	1.7E+01
Total	2.9E+01	1.6E+03	2.1E-02	1.6E-01	1.1E+01	8.6E+01	7.4E+01	2.3E+02	2.2E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

Table 2-5. Emissions Modeled During Construction - No Federal Action Alternative with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	1.1E+01	7.6E+02	2.1E-02	1.7E-01	8.2E+00	5.3E+01	7.2E-01	1.1E+01	7.0E-01
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E+01	1.7E+02	1.7E+01
Total	1.1E+01	7.6E+02	2.1E-02	1.7E-01	8.2E+00	5.3E+01	6.9E+01	1.8E+02	1.8E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

Table 2-6. Emissions Modeled During Construction - Reduced Project Alternative without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	7.8E+01	3.9E+04	2.1E-01	3.5E+00	4.1E+01	3.0E+02	1.6E+01	1.4E+03	4.1E+01
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	4.1E+00
Total	7.8E+01	3.9E+04	2.1E-01	3.5E+00	4.1E+01	3.0E+02	9.0E+01	1.7E+03	4.6E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

Table 2-7. Emissions Modeled During Construction - Reduced Project Alternative with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Exhaust	3.2E+01	1.8E+04	1.8E-01	2.6E+00	2.3E+01	6.4E+01	3.7E+00	4.0E+02	3.5E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	1.8E+01
Total	3.2E+01	1.8E+04	1.8E-01	2.6E+00	2.3E+01	6.4E+01	7.8E+01	6.4E+02	2.2E+01

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.

The YTI terminal would continue to operate during construction; construction and operational activities would overlap during this time. SCAQMD has requested that total impacts be estimated during the period when construction and operational activities substantially overlap. Table 2-8 through Table 2-14 present a summary of overlapping construction and operational emissions used in the air dispersion modeling for the NEPA baseline, proposed Project without and with mitigation, Alternative 2 without and with mitigation, and Alternative 3 without and with mitigation. The CEQA baseline and Alternative 1 have no construction emissions and therefore are not presented. The modeled construction and operational emissions differ from the overlapping construction and operational emissions summarized in Section 3.2 of the EIS/EIR because (1) the dispersion modeling domain is smaller than the SCAB, and (2) as described above, the modeled emissions are a combination of peak emissions over multiple analysis years.

Table 2-8. Emissions Modeled During Overlapping Construction and Operation – NEPA Baseline

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	2.9E+01	1.6E+03	2.1E-02	1.6E-01	1.1E+01	8.6E+01	5.1E+00	6.0E+01	4.7E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E+01	1.7E+02	1.7E+01
Operational Sources									
Ships – Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships – Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul Locomotives	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	**6.6E+03**	**1.1E+06**	**1.6E+02**	**2.7E+02**	**7.8E+02**	**1.5E+03**	**3.5E+02**	**4.3E+04**	**2.1E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.
4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-9. Emissions Modeled During Overlapping Construction and Operation - Proposed Project without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	8.5E+01	5.2E+04	2.1E-01	3.5E+00	4.9E+01	3.3E+02	2.3E+01	2.0E+03	4.1E+01
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	2.8E+00
Operational Sources									
Ships - Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships - Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul Locomotives	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	**6.7E+03**	**1.1E+06**	**1.6E+02**	**2.8E+02**	**8.2E+02**	**1.8E+03**	**3.8E+02**	**4.5E+04**	**2.3E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.
4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-10. Emissions Modeled During Overlapping Construction and Operation - Proposed Project with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	3.6E+01	2.3E+04	1.8E-01	2.6E+00	3.3E+01	6.4E+01	5.4E+00	5.3E+02	5.1E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	1.8E+01
Operational Sources									
Ships - Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships - Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul Locomotives	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	**6.6E+03**	**1.1E+06**	**1.6E+02**	**2.8E+02**	**8.0E+02**	**1.5E+03**	**3.6E+02**	**4.3E+04**	**2.1E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.
4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-11. Emissions Modeled During Overlapping Construction and Operation - No Federal Action Alternative without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	2.9E+01	1.6E+03	2.1E-02	1.6E-01	1.1E+01	8.6E+01	5.1E+00	6.0E+01	4.7E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E+01	1.7E+02	1.7E+01
Operational Sources									
Ships - Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships - Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Locomotives									
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	6.6E+03	1.1E+06	1.6E+02	2.7E+02	7.8E+02	1.5E+03	3.5E+02	4.3E+04	2.1E+02

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.
4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-12. Emissions Modeled During Overlapping Construction and Operation - No Federal Action Alternative with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	1.1E+01	7.6E+02	2.1E-02	1.7E-01	8.2E+00	5.3E+01	7.2E-01	1.1E+01	7.0E-01
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E+01	1.7E+02	1.7E+01
Operational Sources									
Ships – Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships - Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul Locomotives	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	**6.6E+03**	**1.1E+06**	**1.6E+02**	**2.7E+02**	**7.8E+02**	**1.5E+03**	**3.5E+02**	**4.3E+04**	**2.0E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously. 3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain. 4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.									

Table 2-13. Emissions Modeled During Overlapping Construction and Operation - Reduced Project Alternative without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	7.8E+01	3.9E+04	2.1E-01	3.5E+00	4.1E+01	3.0E+02	1.6E+01	1.4E+03	4.1E+01
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	4.1E+00
Operational Sources									
Ships - Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships - Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul Locomotives	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	**6.7E+03**	**1.1E+06**	**1.6E+02**	**2.8E+02**	**8.1E+02**	**1.7E+03**	**3.7E+02**	**4.4E+04**	**2.3E+02**
Notes: 1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016. 2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously. 3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain. 4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.									

Table 2-14. Emissions Modeled During Overlapping Construction and Operation - Reduced Project Alternative with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Construction Sources									
Construction Exhaust	3.2E+01	1.8E+04	1.8E-01	2.6E+00	2.3E+01	6.4E+01	3.7E+00	4.0E+02	3.5E+00
Construction Fugitive Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.4E+02	1.8E+01
Operational Sources									
Ships - Transit	6.2E+03	6.7E+05	1.5E+02	2.1E+02	6.7E+02	9.1E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.6E+01	0.0E+00
Ships - Hoteling	1.1E+02	1.5E+05	6.2E+00	6.5E+01	9.6E+00	7.7E+01	2.7E+01	4.2E+03	2.2E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.2E+00	3.7E+04	1.1E-02	1.5E-01	4.1E+00	3.1E+01	1.2E+00	3.3E+02	7.8E-01
Line Haul Locomotives	2.3E+02	9.3E+04	1.8E-01	2.6E-01	5.0E+01	5.0E+01	9.3E+00	2.5E+03	8.6E+00
Switch Locomotives	2.2E+00	5.9E+03	3.3E-03	2.6E-02	9.2E-01	7.2E+00	1.7E-01	5.6E+01	1.5E-01
Cargo Handling Equipment	2.0E+01	5.6E+04	1.1E-01	1.7E+00	1.7E+01	1.3E+02	4.1E+00	7.1E+02	3.6E+00
Transport Refrigeration Units	5.6E-01	2.5E+03	1.0E-03	1.6E-02	6.3E-01	5.0E+00	4.5E-01	1.3E+02	4.4E-01
Worker Vehicles	4.9E-02	1.5E+02	8.5E-04	9.0E-03	5.3E-01	3.2E+00	1.0E-01	2.9E+01	4.9E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E+01	2.1E+04	1.8E+01
Total	**6.6E+03**	**1.1E+06**	**1.6E+02**	**2.8E+02**	**7.9E+02**	**1.5E+03**	**3.6E+02**	**4.3E+04**	**2.1E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from construction analysis years 2015 and 2016.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Construction exhaust includes emissions from off-road construction equipment, marine construction equipment, and on-road vehicles within the modeling domain.
4. Emissions from ships while anchoring were zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

2.3 Operational Emission Sources

Both on-site and off-site emission sources were included in the modeling of operational emissions. The following operational emission sources were included in the air dispersion modeling for NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$:

- Container ships transiting to and from berth. Ship transit emission sources are comprised of propulsion and auxiliary engines and boiler exhaust. Ship transit in SCAQMD waters consists of transit in the fairway, precautionary zone, and the harbor. Ships transiting were modeled as far as the SCAB overwater boundary, approximately 40 nautical miles.

- Container ships hoteling while at berth and at anchorage in the harbor. Ship hoteling emission sources are comprised of ship auxiliary engines (except when using AMP) and boiler exhaust; propulsion engines would be turned off.
- Tugboats used to assist container ships between the Port breakwater and the berth. Two tugboats were assumed to assist each ship. Tugboat emission sources are comprised of propulsion and auxiliary engines.
- On-road trucks driving on near-Port roads, at the YTI terminal, and idling on-terminal and at the YTI terminal gate. Truck transit emission sources are comprised of exhaust, brake wear, tire wear and entrained road dust. Trucks were modeled as far as approximately 3 miles north of the terminal, a distance established in prior LAHD NEPA/CEQA documents as sufficient to capture maximum concentrations for container terminal projects (LAHD 2011).
- Locomotives switching and idling at the TICTF on-dock rail yard, and line haul locomotives pulling trains between the TICTF on-dock rail yard and the Alameda Corridor. Locomotives traveling were modeled as far as approximately 3 miles north of the terminal.
- Cargo handling equipment (CHE) operating at the YTI terminal and TICTF, including forklifts, rubber-tired gantry cranes, top handlers, and yard tractors.
- Transport refrigeration units (TRUs) operating at the TICTF.
- Worker vehicles driving to and from the YTI terminal. Worker vehicle emission sources are comprised of exhaust, brake wear, tire wear and entrained road dust. Worker vehicles were modeled as far as approximately 3 miles north of the terminal.

2.4 Operational Emissions

To evaluate the air quality impacts of project operations, peak operational emissions were calculated for the project analysis years 2017, 2020, and 2026. To ensure the capture of maximum ambient pollutant concentrations in AERMOD, peak emissions were modeled for each emission source category, even if the peak emissions would occur in different analysis years. For example, peak operational emissions were determined separately for automobile exhaust, automobile tire and brake wear, automobile road dust, cargo handling equipment, harborcraft, line haul locomotives, ships during hoteling and anchorage, ships during transit, truck exhaust, truck tire and brake wear, truck road dust, transport refrigeration units, and switch locomotives. These peak emissions were conservatively modeled together in AERMOD even if they would occur during different analysis years. Table 2-15 through Table 2-23 present operational emissions used in dispersion modeling for the CEQA baseline, NEPA baseline, proposed Project without and with mitigation, Alternative 1, Alternative 2 without and with mitigation, and Alternative 3 without and with mitigation. The modeled operational emissions differ from the operational emissions summarized in Section 3.2 of the EIS/EIR because (1) the dispersion modeling domain is smaller than the SCAB, and (2) as described above, the modeled emissions are a combination of peak emissions over multiple analysis years.

Table 2-15. Emissions Modeled During Operation - CEQA Baseline

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships – Transit	5.1E+03	6.0E+05	6.0E+02	7.6E+02	5.7E+02	7.2E+02	1.7E+02	1.6E+04	1.4E+02
Ships – Anchoring	0.0E+00	1.1E+04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.9E+02	0.0E+00
Ships – Hoteling	9.0E+01	2.5E+05	2.5E+01	3.8E+02	8.2E+00	6.0E+01	4.7E+01	9.4E+03	3.8E+01
Tugboats	2.0E+01	3.5E+04	6.9E-03	1.1E-01	1.0E+01	1.6E+02	7.6E+00	8.2E+02	6.8E+00
Trucks	7.8E+00	3.2E+04	1.0E-02	1.4E-01	3.3E+00	2.4E+01	1.0E+00	3.0E+02	6.7E-01
Line Haul Locomotives	2.3E+02	7.6E+04	9.0E-01	1.2E+00	5.0E+01	5.0E+01	1.0E+01	2.5E+03	9.5E+00
Switch Locomotives	2.2E+00	4.6E+03	3.3E-03	2.1E-02	9.2E-01	5.7E+00	1.3E-01	4.4E+01	1.2E-01
Cargo Handling Equipment	3.1E+01	8.3E+04	8.5E-02	1.4E+00	1.3E+01	1.1E+02	9.6E+00	1.6E+03	8.5E+00
Transport Refrigeration Units	5.5E-01	2.6E+03	7.1E-04	1.1E-02	5.1E-01	4.1E+00	7.3E-01	2.2E+02	7.2E-01
Worker Vehicles	5.2E-02	1.6E+02	6.6E-04	7.1E-03	5.8E-01	3.5E+00	8.6E-02	2.5E+01	4.3E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E+01	2.0E+04	1.7E+01
Total	**5.5E+03**	**1.1E+06**	**6.3E+02**	**1.1E+03**	**6.6E+02**	**1.1E+03**	**3.1E+02**	**5.1E+04**	**2.2E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-16. Emissions Modeled During Operation – NEPA Baseline

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships - Transit	6.8E+03	7.2E+05	1.6E+02	2.2E+02	7.3E+02	9.9E+02	1.7E+02	1.4E+04	1.3E+02
Ships - Anchoring	0.0E+00	4.8E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E+02	0.0E+00
Ships - Hoteling	7.6E+01	1.0E+05	5.1E+00	5.3E+01	7.0E+00	5.6E+01	2.1E+01	3.2E+03	1.7E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.5E+00	3.8E+04	1.4E-02	2.0E-01	4.6E+00	3.4E+01	1.5E+00	4.2E+02	1.0E+00
Line Haul Locomotives	2.2E+02	9.0E+04	2.0E-01	3.6E-01	5.6E+01	5.6E+01	7.9E+00	2.3E+03	7.3E+00
Switch Locomotives	2.2E+00	6.6E+03	3.3E-03	3.3E-02	9.7E-01	7.7E+00	1.9E-01	6.3E+01	1.7E-01
Cargo Handling Equipment	1.6E+01	4.4E+04	1.4E-01	2.3E+00	2.2E+01	1.7E+02	3.4E+00	6.1E+02	3.0E+00
Transport Refrigeration Units	6.4E-01	2.8E+03	1.4E-03	2.2E-02	7.3E-01	5.8E+00	3.1E-01	8.4E+01	3.0E-01
Worker Vehicles	4.3E-02	1.3E+02	1.1E-03	1.1E-02	4.6E-01	2.8E+00	1.3E-01	3.6E+01	6.3E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E+01	2.7E+04	2.4E+01
Total	**7.1E+03**	**1.1E+06**	**1.7E+02**	**2.8E+02**	**8.4E+02**	**1.5E+03**	**3.1E+02**	**4.8E+04**	**1.9E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-17. Emissions Modeled During Operation - Proposed Project without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships - Transit	7.0E+03	7.5E+05	1.7E+02	2.4E+02	7.5E+02	1.0E+03	1.7E+02	1.4E+04	1.4E+02
Ships - Anchoring	0.0E+00	6.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E+02	0.0E+00
Ships - Hoteling	1.0E+02	1.2E+05	6.2E+00	1.0E+02	9.5E+00	7.6E+01	4.5E+01	3.5E+03	3.6E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	1.1E+01	4.2E+04	1.5E-02	2.2E-01	5.2E+00	3.8E+01	1.7E+00	4.7E+02	1.1E+00
Line Haul Locomotives	2.2E+02	9.6E+04	2.0E-01	4.4E-01	5.6E+01	7.8E+01	8.7E+00	2.4E+03	8.0E+00
Switch Locomotives	2.2E+00	7.5E+03	3.3E-03	3.9E-02	9.7E-01	7.7E+00	2.1E-01	7.0E+01	1.9E-01
Cargo Handling Equipment	1.6E+01	4.7E+04	1.6E-01	2.6E+00	2.5E+01	2.0E+02	3.8E+00	6.7E+02	3.4E+00
Transport Refrigeration Units	7.3E-01	3.2E+03	1.5E-03	2.4E-02	8.2E-01	6.6E+00	3.2E-01	8.8E+01	3.2E-01
Worker Vehicles	4.6E-02	1.3E+02	1.2E-03	1.3E-02	4.9E-01	3.0E+00	1.5E-01	4.1E+01	7.1E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E+02	2.9E+04	2.7E+01
Total	**7.4E+03**	**1.1E+06**	**1.8E+02**	**3.4E+02**	**8.6E+02**	**1.6E+03**	**3.5E+02**	**5.2E+04**	**2.2E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-18. Emissions Modeled During Operation - Proposed Project with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships - Transit	6.6E+03	7.1E+05	1.6E+02	2.1E+02	7.3E+02	9.9E+02	1.6E+02	1.4E+04	1.3E+02
Ships - Anchoring	0.0E+00	6.0E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E+02	0.0E+00
Ships - Hoteling	1.0E+02	1.2E+05	6.2E+00	1.0E+02	9.5E+00	7.6E+01	4.4E+01	3.5E+03	3.6E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	1.1E+01	4.2E+04	1.5E-02	2.2E-01	5.2E+00	3.8E+01	1.7E+00	4.7E+02	1.1E+00
Line Haul Locomotives	2.2E+02	9.6E+04	2.0E-01	4.4E-01	5.6E+01	7.8E+01	8.7E+00	2.4E+03	8.0E+00
Switch Locomotives	2.2E+00	7.5E+03	3.3E-03	3.9E-02	9.7E-01	7.7E+00	2.1E-01	7.0E+01	1.9E-01
Cargo Handling Equipment	1.6E+01	4.7E+04	1.6E-01	2.6E+00	2.5E+01	2.0E+02	3.8E+00	6.7E+02	3.4E+00
Transport Refrigeration Units	7.3E-01	3.2E+03	1.5E-03	2.4E-02	8.2E-01	6.6E+00	3.2E-01	8.8E+01	3.2E-01
Worker Vehicles	4.6E-02	1.3E+02	1.2E-03	1.3E-02	4.9E-01	3.0E+00	1.5E-01	4.1E+01	7.1E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E+02	2.9E+04	2.7E+01
Total	**6.9E+03**	**1.1E+06**	**1.7E+02**	**3.2E+02**	**8.5E+02**	**1.6E+03**	**3.4E+02**	**5.2E+04**	**2.1E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-19. Emissions Modeled During Operation - No Project Alternative

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships - Transit	6.8E+03	7.2E+05	1.6E+02	2.2E+02	7.3E+02	9.9E+02	1.7E+02	1.4E+04	1.3E+02
Ships - Anchoring	0.0E+00	4.8E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E+02	0.0E+00
Ships - Hoteling	7.6E+01	1.0E+05	5.1E+00	5.3E+01	7.0E+00	5.6E+01	2.1E+01	3.2E+03	1.7E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.5E+00	3.8E+04	1.4E-02	2.0E-01	4.6E+00	3.4E+01	1.5E+00	4.2E+02	1.0E+00
Line Haul Locomotives	2.2E+02	9.0E+04	2.0E-01	3.6E-01	5.6E+01	5.6E+01	7.9E+00	2.3E+03	7.3E+00
Switch Locomotives	2.2E+00	6.6E+03	3.3E-03	3.3E-02	9.7E-01	7.7E+00	1.9E-01	6.3E+01	1.7E-01
Cargo Handling Equipment	1.6E+01	4.4E+04	1.4E-01	2.3E+00	2.2E+01	1.7E+02	3.4E+00	6.1E+02	3.0E+00
Transport Refrigeration Units	6.4E-01	2.8E+03	1.4E-03	2.2E-02	7.3E-01	5.8E+00	3.1E-01	8.4E+01	3.0E-01
Worker Vehicles	4.3E-02	1.3E+02	1.1E-03	1.1E-02	4.6E-01	2.8E+00	1.3E-01	3.6E+01	6.3E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E+01	2.7E+04	2.4E+01
Total	**7.1E+03**	**1.1E+06**	**1.7E+02**	**2.8E+02**	**8.4E+02**	**1.5E+03**	**3.1E+02**	**4.8E+04**	**1.9E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-20. Emissions Modeled During Operation - No Federal Action Alternative without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships - Transit	6.8E+03	7.2E+05	1.6E+02	2.2E+02	7.3E+02	9.9E+02	1.7E+02	1.4E+04	1.3E+02
Ships - Anchoring	0.0E+00	4.8E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E+02	0.0E+00
Ships - Hoteling	7.6E+01	1.0E+05	5.1E+00	5.3E+01	7.0E+00	5.6E+01	2.1E+01	3.2E+03	1.7E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.5E+00	3.8E+04	1.4E-02	2.0E-01	4.6E+00	3.4E+01	1.5E+00	4.2E+02	1.0E+00
Line Haul Locomotives	2.2E+02	9.0E+04	2.0E-01	3.6E-01	5.6E+01	5.6E+01	7.9E+00	2.3E+03	7.3E+00
Switch Locomotives	2.2E+00	6.6E+03	3.3E-03	3.3E-02	9.7E-01	7.7E+00	1.9E-01	6.3E+01	1.7E-01
Cargo Handling Equipment	1.6E+01	4.4E+04	1.4E-01	2.3E+00	2.2E+01	1.7E+02	3.4E+00	6.1E+02	3.0E+00
Transport Refrigeration Units	6.4E-01	2.8E+03	1.4E-03	2.2E-02	7.3E-01	5.8E+00	3.1E-01	8.4E+01	3.0E-01
Worker Vehicles	4.3E-02	1.3E+02	1.1E-03	1.1E-02	4.6E-01	2.8E+00	1.3E-01	3.6E+01	6.3E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E+01	2.7E+04	2.4E+01
Total	**7.1E+03**	**1.1E+06**	**1.7E+02**	**2.8E+02**	**8.4E+02**	**1.5E+03**	**3.1E+02**	**4.8E+04**	**1.9E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-21. Emissions Modeled During Operation - No Federal Action Alternative with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships - Transit	6.4E+03	6.8E+05	1.5E+02	2.0E+02	7.1E+02	9.6E+02	1.5E+02	1.3E+04	1.2E+02
Ships - Anchoring	0.0E+00	4.8E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E+02	0.0E+00
Ships - Hoteling	7.6E+01	1.0E+05	5.1E+00	5.3E+01	7.0E+00	5.6E+01	2.1E+01	3.2E+03	1.7E+01
Tugboats	2.7E+01	4.4E+04	9.3E-03	1.5E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	9.5E+00	3.8E+04	1.4E-02	2.0E-01	4.6E+00	3.4E+01	1.5E+00	4.2E+02	1.0E+00
Line Haul Locomotives	2.2E+02	9.0E+04	2.0E-01	3.6E-01	5.6E+01	5.6E+01	7.9E+00	2.3E+03	7.3E+00
Switch Locomotives	2.2E+00	6.6E+03	3.3E-03	3.3E-02	9.7E-01	7.7E+00	1.9E-01	6.3E+01	1.7E-01
Cargo Handling Equipment	1.6E+01	4.4E+04	1.4E-01	2.3E+00	2.2E+01	1.7E+02	3.4E+00	6.1E+02	3.0E+00
Transport Refrigeration Units	6.4E-01	2.8E+03	1.4E-03	2.2E-02	7.3E-01	5.8E+00	3.1E-01	8.4E+01	3.0E-01
Worker Vehicles	4.3E-02	1.3E+02	1.1E-03	1.1E-02	4.6E-01	2.8E+00	1.3E-01	3.6E+01	6.3E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E+01	2.7E+04	2.4E+01
Total	**6.7E+03**	**1.0E+06**	**1.6E+02**	**2.6E+02**	**8.2E+02**	**1.5E+03**	**3.0E+02**	**4.8E+04**	**1.9E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-22. Emissions Modeled During Operation - Reduced Project Alternative without Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships – Transit	9.0E+03	8.5E+05	2.2E+02	3.0E+02	9.8E+02	1.3E+03	2.2E+02	1.6E+04	1.8E+02
Ships – Anchoring	0.0E+00	5.6E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E+02	0.0E+00
Ships – Hoteling	8.3E+01	1.1E+05	6.1E+00	8.6E+01	7.6E+00	6.1E+01	3.4E+01	3.6E+03	2.7E+01
Tugboats	2.7E+01	4.4E+04	1.2E-02	1.9E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	1.1E+01	4.2E+04	1.5E-02	2.2E-01	5.2E+00	3.8E+01	1.7E+00	4.7E+02	1.1E+00
Line Haul Locomotives	2.2E+02	9.6E+04	2.0E-01	4.4E-01	5.6E+01	7.8E+01	8.7E+00	2.4E+03	8.0E+00
Switch Locomotives	2.2E+00	7.5E+03	3.3E-03	3.9E-02	9.7E-01	7.7E+00	2.1E-01	7.0E+01	1.9E-01
Cargo Handling Equipment	1.6E+01	4.7E+04	1.6E-01	2.6E+00	2.5E+01	2.0E+02	3.8E+00	6.7E+02	3.4E+00
Transport Refrigeration Units	7.3E-01	3.2E+03	1.5E-03	2.4E-02	8.2E-01	6.6E+00	3.2E-01	8.8E+01	3.2E-01
Worker Vehicles	4.6E-02	1.3E+02	1.2E-03	1.3E-02	4.9E-01	3.0E+00	1.5E-01	4.1E+01	7.1E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E+02	2.9E+04	2.7E+01

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Total	**9.4E+03**	**1.2E+06**	**2.2E+02**	**3.9E+02**	**1.1E+03**	**1.9E+03**	**3.9E+02**	**5.4E+04**	**2.5E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

Table 2-23. Emissions Modeled During Operation - Reduced Project Alternative with Mitigation

Source Category	NOx		SOx		CO		PM10		PM2.5
	1-Hr (lb/hr)	Annual (lb/yr)	1-Hr (lb/hr)	24-Hr (lb/day)	1-Hr (lb/hr)	8-Hr (lb/8hr)	24-Hr (lb/day)	Annual (lb/yr)	24-Hr (lb/day)
Ships – Transit	8.2E+03	8.1E+05	2.0E+02	2.6E+02	9.5E+02	1.3E+03	2.0E+02	1.6E+04	1.6E+02
Ships – Anchoring	0.0E+00	5.6E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E+02	0.0E+00
Ships – Hoteling	7.5E+01	1.1E+05	5.8E+00	8.6E+01	6.9E+00	5.5E+01	3.4E+01	3.6E+03	2.7E+01
Tugboats	2.7E+01	4.4E+04	1.2E-02	1.9E-01	1.3E+01	2.2E+02	1.0E+01	1.0E+03	9.0E+00
Trucks	1.1E+01	4.2E+04	1.5E-02	2.2E-01	5.2E+00	3.8E+01	1.7E+00	4.7E+02	1.1E+00
Line Haul Locomotives	2.2E+02	9.6E+04	2.0E-01	4.4E-01	5.6E+01	7.8E+01	8.7E+00	2.4E+03	8.0E+00
Switch Locomotives	2.2E+00	7.5E+03	3.3E-03	3.9E-02	9.7E-01	7.7E+00	2.1E-01	7.0E+01	1.9E-01
Cargo Handling Equipment	1.6E+01	4.7E+04	1.6E-01	2.6E+00	2.5E+01	2.0E+02	3.8E+00	6.7E+02	3.4E+00
Transport Refrigeration Units	7.3E-01	3.2E+03	1.5E-03	2.4E-02	8.2E-01	6.6E+00	3.2E-01	8.8E+01	3.2E-01
Worker Vehicles	4.6E-02	1.3E+02	1.2E-03	1.3E-02	4.9E-01	3.0E+00	1.5E-01	4.1E+01	7.1E-02
Reentrained Road Dust	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E+02	2.9E+04	2.7E+01
Total	**8.6E+03**	**1.2E+06**	**2.0E+02**	**3.5E+02**	**1.1E+03**	**1.9E+03**	**3.7E+02**	**5.3E+04**	**2.4E+02**

Notes:
1. Maximum emissions within the modeling domain were selected from operational analysis years 2017, 2020, and 2026.
2. Maximum emissions from each source category were modeled together even if they would not occur simultaneously.
3. Emissions from ships while anchoring are zero for peak 1-hour, 8-hour, and 24-hour scenarios because peak short term emissions would occur when ships are transiting directly to or from berth and hoteling at berth.

3.0 Dispersion Modeling

3.1 Dispersion Model Selection and Inputs

The air dispersion modeling was performed using the USEPA AERMOD dispersion model, version 12345, based on the Guideline on Air Quality Models (40 CFR, Part 51, Appendix W; November 9, 2005). The AERMOD model is a steady-state, multiple source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the emission source stack heights. The AERMOD model requires hourly meteorological data consisting of wind direction, wind speed, temperature, stability class, and mixing height.

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 of its ability to provide reasonable results for large industrial projects with multiple emission sources, (2) annual sets of hourly meteorological data is available in AERMOD format, and (3) the model can handle various sources types, including point, area, line, and volume source types. Finally, AERMOD is approved by the USEPA and SCAQMD for analysis of mobile sources.

In addition to air dispersion modeling using AERMOD for all project sources, modeling of traffic-related CO impacts was also conducted for the maximally impacted intersection of Henry Ford Avenue and Anaheim Street. This CO "hot spots" analysis was performed using CAL3QHC, as described in Impact AQ-5 of Section 3.2. The CAL3QHC model output files are included in Attachment B2.1.

3.1.1 Construction Emission Sources

During project construction, the hoteling crane delivery ship was modeled as a point source positioned in the expected docking locations. All other construction sources, including harborcraft, 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 3-1 presents source parameters used in the dispersion modeling for project construction. The source parameters are consistent with those developed and used in prior LAHD NEPA/CEQA documents (LAHD 2008; LAHD 2011).

Table 3-1. 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)
Crane delivery ship hotelling – auxiliary engines and boilers	point	37.19	--	9.14	572	0.39
Harbor craft [c]	poly-area	15.24	3.54	--	--	--
Offroad construction equipment [c]	poly-area	4.57	1.06	--	--	--
Haul/delivery trucks idling and transiting onsite [b]	poly-area	4.57	1.06	--	--	--
Construction fugitive dust [c]	poly-area	1.0	0.23	--	--	--

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.
b. Release height and initial vertical dimension are consistent with prior LAHD documents (LAHD 2008; LAHD 2011).

3.1.2 Operational Emission Sources

Operational characteristics of each source type determined the release parameters of each volume, line, area, or point source. The following identifies how source release parameters were determined:

- Ship Transiting (harbor, precautionary zone, and fairway transit segments): Emissions from ships in transit were simulated as a series of separated volume sources extending from the YTI terminal berths to the SCAB overwater boundary. Emissions associated with each transit segment were apportioned equally among the volume sources representing that segment.
- Ship Hoteling: Hoteling ships were modeled as stack point sources, located adjacent to each YTI berth.
- Ships at Anchorage: Occasionally, arriving ships are required to anchor temporarily inside the harbor for inspection or to await an open berth. Ships at anchorage were modeled as polygon area sources within the harbor.
- Tugboats: Emissions from tugboats assisting container ships were modeled as a series of separated volume sources extending from the YTI terminal berths to the Port breakwater.
- Locomotives: Emissions from locomotives were modeled as a series of separated volume sources positioned along rail lines used by switch and line haul locomotives. Based on the methodology in the Roseville Rail Yard Study, the volume source heights for locomotives in transit were set to different heights for daytime conditions compared to nighttime conditions (CARB, 2004).
- Container Trucks: Trucks driving and idling on the terminal were modeled as polygon area sources covering the areas of the terminal where truck activity would occur. Trucks driving off-site were modeled as line sources positioned along the major truck routes to and from the terminal.
- Cargo handling equipment: Cargo handling equipment was modeled as polygon area sources within the YTI terminal and TICTF. Emissions were spread uniformly over the polygons.
- TRUs: TRUs were modeled as polygon area sources within the TICTF. Emissions were spread uniformly over the polygons.
- Worker Vehicles: Worker vehicles driving on the terminal were modeled as polygon area sources covering the areas of the terminal where worker vehicles would drive and park. Worker vehicles driving off-site were modeled as line sources positioned along the major travel routes to and from the terminal.

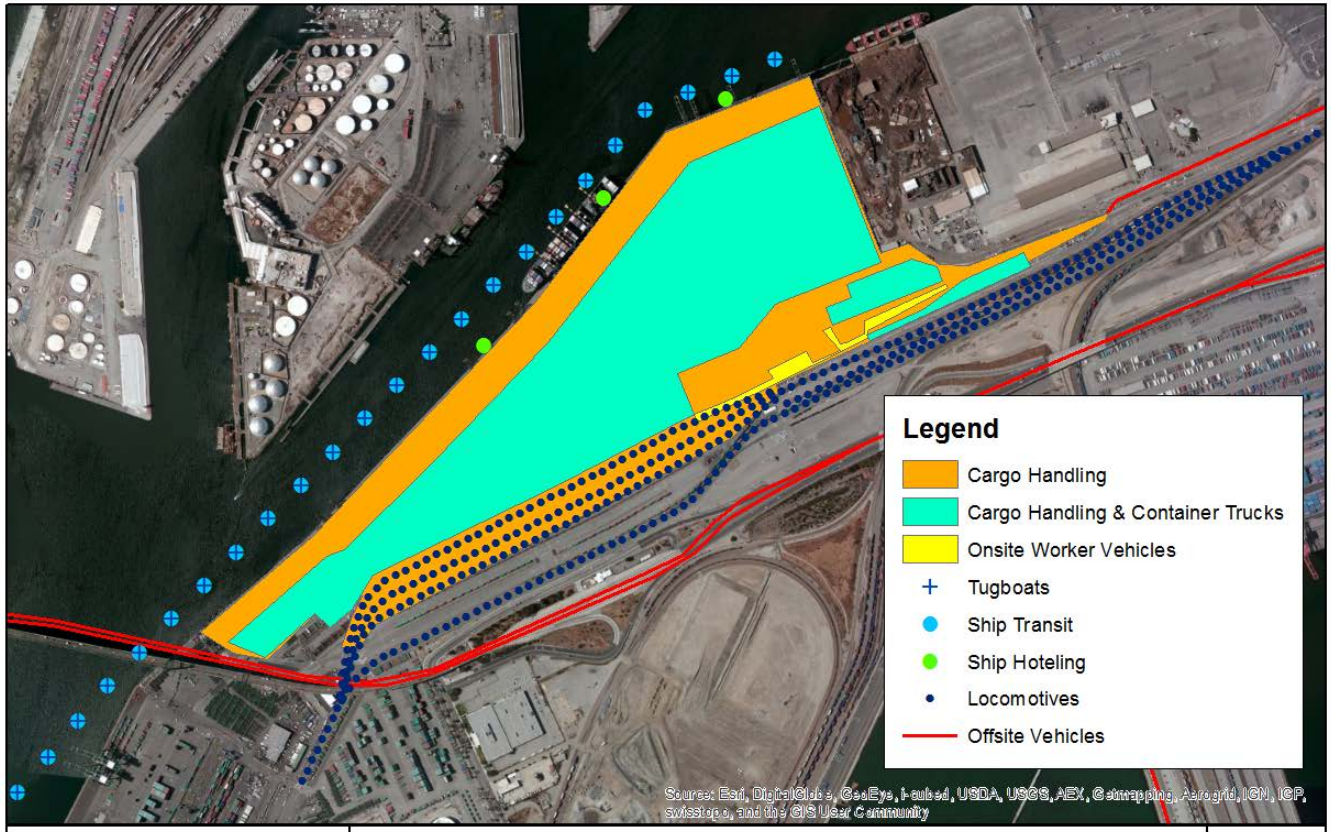
Emission sources were positioned using the Universal Transverse Mercator (UTM) coordinate system (NAD83) referenced to topographic data obtained from the US Geologic Survey (USGS). Table 3-2 presents the operational source parameters used in this analysis. Source locations are shown onFigure 3-1A/B.

Table 3-2. AERMOD Source Release Parameters – Operational Sources

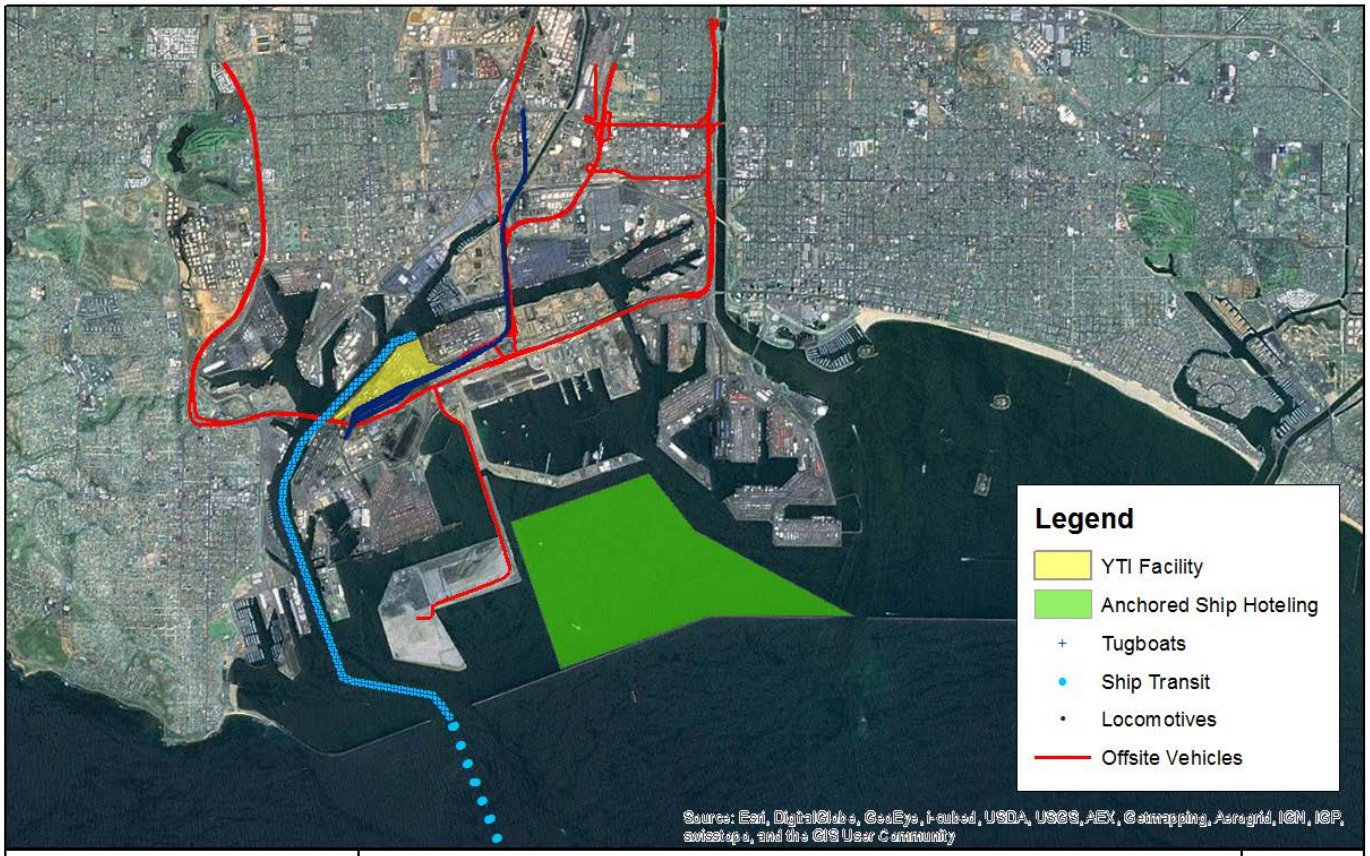
Source Description	AERMOD Source Type	Release Height (m)	Source Spacing (m)	Initial Vertical Dimension (m) [a]	Initial Horizontal Dimension (m) [h]	Exit Velocity (m/s)	Exit Temperature (K)	Stack Diameter (m)
Ship transit: propulsion engines, auxiliary engines, auxiliary boilers [b]	volume	59.13	100 in harbor	13.75	46.5			
		49.07	300 in precautionary zone	11.41	139.5	--	--	--
		49.07	1,000 in fairway	11.41	465.1	--	--	--
Ship hoteling: auxiliary engines [b]	point	44.01	--	--	--	7.7	578	0.47
Ship hoteling: boilers [b]	point	44.01	--	--	--	18.2	559	0.49
Ship hoteling at anchorage: auxiliary engines and boilers [b]	poly-area	44.01	--	10.23	--	--	--	--
Tugboats: propulsion and auxiliary engines [c]	volume	15.24	100	3.54	46.5	--	--	--
Locomotives transit: day (6am-6pm)	volume	5.6 d	50	2.60 [e]	23.3	--	--	--
Locomotives transit: night (6pm-6am)	volume	14.6 d	50	6.79 [e]	23.3	--	--	--
Container trucks: idling at in/out gate, driving on terminal [f]	poly-area	4.57	--	1.06	--	--	--	--
Container trucks transit offsite	line	4.57	--	1.06	--	--	--	--
Cargo handling equipment, TRUs [f]	poly-area	4.57	--	1.06	--	--	--	--
Worker vehicles onsite [g]	poly-area	0.61	--	1.06	--	--	--	--
Worker vehicles offsite	line	0.61	--	1.06	--	--	--	--

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.
b. Source of ship parameters: LAHD APL EIR/EIS for release height and China Shipping EIR/EIS for other parameters.
c. Source of tugboat parameters: LAHD APL EIR/EIS for release height.
d. Source of locomotive release height: Roseville Railyard Study, page G-3.
e. Source: Roseville Railyard Study divided source height by 2.15 (page 40).
f. Consistent with prior LAHD documents.
g. Source of worker vehicle parameters: Consistent with LAHD recommendations (LAHD 2012).
h. The initial horizontal dimension (σy) is the source spacing divided by a standard deviation of 2.15.

Figure 3-1A/B. YTI Container Terminal Source Locations



ENVIRON	Port of Los Angeles YTI Container Terminal Source Locations	Figure 3-1A



ENVIRON	Port of Los Angeles YTI Container Terminal Source Locations	Figure 3-1B

3.1.3 Meteorological Data

The dominant terrain features/water bodies that may influence wind patterns in this part of the Los Angeles Basin include the Pacific Ocean to the west, the hills of the Palos Verdes Peninsula to the west/southwest and the San Pedro Bay and shipping channels to the south of the study area. Although the area in the immediate vicinity of the Ports of Los Angeles (POLA or the Port) and Long Beach (POLB) is generally flat, these terrain features/water bodies may result in significant variations in wind patterns over relatively short distances (LAHD 2010). Attachment B2.2 presents a wind rose diagram showing how wind speed and direction are typically distributed in the vicinity of the proposed Project.

POLA and POLB currently operate monitoring stations that collect meteorological data from several locations within port boundaries. The data sets contain hourly observations of wind speed, wind direction, temperature, atmospheric stability, and mixing height recorded at each of the monitoring stations in the network. The meteorological data stations to the west of the Palos Verdes Hills and within approximately 5 kilometers of the San Pedro Bay generally exhibit predominant winds from the northwest and from the south or southeast. The consistency of the predominant winds among these stations indicates that the Palo Verdes Hills are channeling the winds from the northwest and that the San Pedro Bay and shipping channels influence the winds from the south and southeast (LAHD 2010).

For this dispersion analysis, the meteorological data collected at the Terminal Island Treatment Plant (TITP) was used for dispersion modeling. TITP is located just south of the YTI terminal on Pier 300, less than 0.5 miles from the center of the YTI terminal. The data used was collected between September 2006 and August 2007, and was processed and provided by ENVIRON (ENVIRON 2013).

The meteorological data were processed using the USEPA's approved AERMET (version 12345) meteorological data preprocessor for the AERMOD dispersion model. AERMET uses three steps to preprocess and combine the surface and upper-air soundings to output the data in a format which is compatible with the AERMOD model. The first step extracts the data and performs a brief quality assurance check of the data. The second step merges the meteorological data sets. The third step outputs the data in AERMOD-compatible format while also incorporating surface characteristics surrounding the collection or application site.

The output from the AERMET model consists of two separate files: the surface conditions file and a vertical profile dataset. AERMOD utilizes these two files in the dispersion modeling algorithm to predict pollutant concentrations resulting from a source's emissions.

As part of the effort to process the 2006-2007 meteorological data for the latest version of AERMOD (version 12345), the data were compared to the more recent meteorological data collected during years 2009 to 2012. It was determined that the 2006-2007 data period is representative in comparison to the 2009 to 2012 data period. To reach this conclusion, ENVIRON evaluated the completeness of the data by quarter, the average wind speed, and visually examined the wind pattern based on wind roses. The evaluation showed that the average wind speed and wind pattern of the original data period is very similar to that of the 2009 to 2012

data period across the stations at both POLA and POLB. Therefore it was concluded that the original data period is representative (ENVIRON 2013).

3.1.4 Model Options

Regulatory default technical options were selected for the AERMOD model. Use of these options follows the USEPA modeling guidance (USEPA, 2009; and 40 CFR, Appendix W; November 2005).

For NO_2 modeling, the non-default AERMOD Ozone Limiting Method (OLM) was used, consistent with the method used in a prior LAHD NEPA/CEQA document (LAHD 2011). With OLM, the nitrous oxide to nitrogen dioxide ($NO \rightarrow NO_2$) conversion rate is controlled by ambient ozone concentration. Hourly ozone measurements from the North Long Beach monitoring station were used as model input.

Receptor and source base elevations were determined from USGS National Elevation Dataset (NED) files using AERMAP, version 11103 (USEPA 2011). All coordinates were referenced to UTM NAD83, Zone 11.

3.1.5 Temporal Distribution Assumptions

For dispersion modeling purposes, construction and operational emissions were assumed to occur during the times specified in Table 3-3. Emissions were assumed to be uniformly distributed during the specific time periods described in the table. The temporal distribution assumptions are identical for the CEQA baseline, NEPA baseline, proposed Project, and project alternatives.

Table 3-3. Temporal Distribution of Emissions for CEQA Baseline, NEPA Baseline, Proposed Project and Alternatives

Source Description	Temporal Distribution
Construction-related sources on land [a]	7:00 am – 6:00 pm
Construction-related sources over water [a]	24 hours per day
Ships Hoteling	24 hours per day
Ships Transiting	24 hours per day
Tugboats assisting ships	24 hours per day
Container Trucks [b]	10 percent 6:00 am – 9:00 am 42 percent 9:00 am – 3:00 pm 18 percent 3:00 pm – 7:00 pm 30 percent 7:00 pm – 6:00 am
Locomotives	24 hours per day
Cargo Handling Equipment	7:00 am – 3:00 am
Transport Refrigeration Units	24 hours per day
Worker Trips [b]	23 percent 6:00 am – 9:00 am 29 percent 9:00 am – 3:00 pm 34 percent 3:00 pm – 7:00 pm 14 percent 7:00 pm – 6:00 am
Notes: a. There is no construction for the CEQA baseline and Alternative 1. b. The temporal distributions for container trucks and worker trips were derived from the traffic study.	

3.1.6 Receptor Locations

To identify the extent and location of maximum impacts, two coarse Cartesian receptor grids were placed surrounding the project area, with receptors spaced 500 meters apart in each grid out to a distance of 5 km. The two grids were offset from one another by 250 meters in the north and east directions, creating a "honeycomb" grid pattern. Receptors were also placed around the property line at 100 meter intervals. On-site receptors were excluded from the analysis.

Figure 3-2 presents the coarse grid and fenceline receptors. To refine the locations of maximum impacts, fine receptor grids were placed around the property line and roadways. Receptors around the property were spaced 50 meters apart extending out to 250 meters. The fine grid receptors around the roadways were also spaced 50 meters apart, and extend out 100 meters along roadways and 250 meters at intersections.

Figure 3-2. YTI Container Terminal Coarse Grid and Fenceline Receptor Locations

ENVIRON	Port of Los Angeles YTI Container Terminal Receptor Locations	Figure 3-2

3.2 Concentration Significance Thresholds

Table 3-4 presents the SCAQMD significance thresholds used in the dispersion modeling analysis of criteria pollutant concentrations.

The significance thresholds for NO_2, SO_2, and CO are absolute thresholds based on the ambient air quality standards. This means that the highest modeled project concentrations must be added to the monitored ambient background concentrations to yield total concentrations for comparison to the thresholds. Ambient background concentrations were obtained from the Source-Dominated monitoring station, located at the TITP. Because this station is located very close to the project site, the background concentrations are presumed to include the impacts from existing YTI terminal operation. Therefore, to avoid double-counting the background concentration, the modeled project concentrations represent the change relative to existing YTI terminal operation (i.e., modeled project minus modeled 2012 YTI terminal operation). This approach, which was used in the determination of operational and combined construction and operational impacts, was endorsed by the SCAQMD (SCAQMD 2012a and SCAMQD 2012b). When construction-only impacts were modeled, the modeled project concentrations were directly added to the ambient background concentrations without subtracting 2012 YTI terminal operations, because the construction impacts were evaluated independently from YTI terminal operations.

The significance thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds. Therefore, the CEQA and NEPA impacts were determined by subtracting the modeled CEQA and NEPA baseline concentrations from the modeled project concentrations (i.e., project minus baseline) at each receptor. Because the thresholds are incremental, the background concentrations are not added to the incremental concentrations. Significance is determined by comparing the modeled receptor with the greatest increment to the thresholds. In the case of the CEQA increment for construction-only concentrations, the CEQA baseline is zero and therefore the CEQA increment is equivalent to the modeled project construction concentrations.

Table 3-4. SCAQMD Significance Thresholds for Ambient Air Quality Concentrations

Air Pollutant[a]	Ambient Concentration Threshold
Nitrogen Dioxide (NO_2)[b,c]	
1-hour average (federal)[d]	0.100 ppm (188 µg/m^3) (98th percentile)
1-hour average (state)	0.18 ppm (338 µg/m^3)
Annual average (federal)	0.0534 ppm (100 µg/m^3)
Annual average (state)	0.030 ppm (57 µg/m^3)
Sulfur Dioxide (SO_2)[b]	
1-hour average (federal)[e]	0.075 ppm (197 µg/m^3) (99th percentile)
1-hour average (state)	0.250 ppm (655 µg/m^3)
24-hour average	0.040 ppm (105 µg/m^3)
Carbon Monoxide (CO)[b]	
1-hour average	20 ppm (23,000 µg/m^3)
8-hour average	9.0 ppm (10,000 µg/m^3)
Inhalable Particulates (PM_{10})[f]	
24-hour average	10.4 µg/m^3 (construction)
24-hour average	2.5 µg/m^3 (operation)
Annual Average	1.0 µg/m^3

Air Pollutant[a]	Ambient Concentration Threshold
Fine Particulates ($PM_{2.5}$) [f] 24-hour average 24-hour average	 10.4 µg/m^3 (construction) 2.5 µg/m^3 (operation)

Notes:

The SCAQMD has also established concentration thresholds for sulfates and lead. However, SCAQMD staff does not consider sulfates a pollutant of concern for port projects that do not involve sulfur piles, and therefore does not request dispersion modeling of sulfate emissions in NEPA/CEQA documents (SCAQMD 2011). Lead emissions would be negligible; thus concentration standards would not be exceeded.

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

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

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

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

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

Sources: SCAQMD 2011, USEPA 2013.

3.3 Predicted Air Quality Impacts

3.3.1 Construction Impacts

Construction impacts were evaluated for the unmitigated and mitigated proposed Project, Alternative 2, and Alternative 3. Construction would not occur for Alternative 1.

3.3.1.1 Proposed Project

Table 3-5 and Table 3-6 summarize the AERMOD modeling results of unmitigated proposed Project construction emissions. The YTI terminal would continue to operate during construction of the proposed Project; construction and operational activities would overlap during this time. SCAQMD has requested that total proposed Project impacts be estimated during the period when construction and operational activities substantially overlap. Table 3-7 and Table 3-8 summarize the AERMOD modeling results of unmitigated proposed Project overlapping construction and operational emissions. NO_2, SO_2, and CO concentrations due to construction were added to background concentrations and compared to the SCAQMD thresholds. The AERMOD modeling results for PM_{10} and $PM_{2.5}$ represent the incremental increases due to the project and were compared directly to the SCAQMD thresholds without adding a background concentration.

Table 3-5 shows that the maximum off-site NO_2 (federal 1-hour, state 1-hour and state annual average) concentrations from construction activities would exceed SCAQMD thresholds. Table 3-6 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from construction activities would exceed SCAQMD thresholds.

Table 3-7 shows that the maximum off-site NO_2 (federal 1-hour, state 1-hour and state annual average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds. Table 3-8 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from overlapping construction and operational activities would exceed SCAQMD thresholds.

Figure 3-3 shows the maximum air quality impact locations for the proposed Project construction. All of the maximum air quality impact locations are north of the project.

Figure 3-4 shows the maximum air quality impact locations for the proposed Project overlapping construction and operations. Most of the maximum air quality impact locations are also north of the project. Impacts less than zero (e.g. all the SO_2 maxima, as seen in Table 3-7) are an artifact of taking the maxima of proposed Project impacts, which are all less than zero at all receptors, and are not represented in the figures.

Table 3-5. Maximum Off-Site Ambient NO_2, SO_2, and CO Concentrations - Proposed Project Construction without Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) Exceedances of the thresholds are indicated in bold.

Table 3-6. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentrations - Proposed Project Construction without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	32.9	0	12.4	32.9	26.3	10.4	Yes	Yes
	Annual	1.4	0	0.3	1.4	1.4	1.0	Yes	Yes
$PM_{2.5}$	24-hour	29.4	0	3.5	29.4	26.7	10.4	Yes	Yes

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3-7. Maximum Off-Site Ambient NO_2, SO_2, and CO Concentrations - Proposed Project Combined Construction and Operation without Mitigation

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

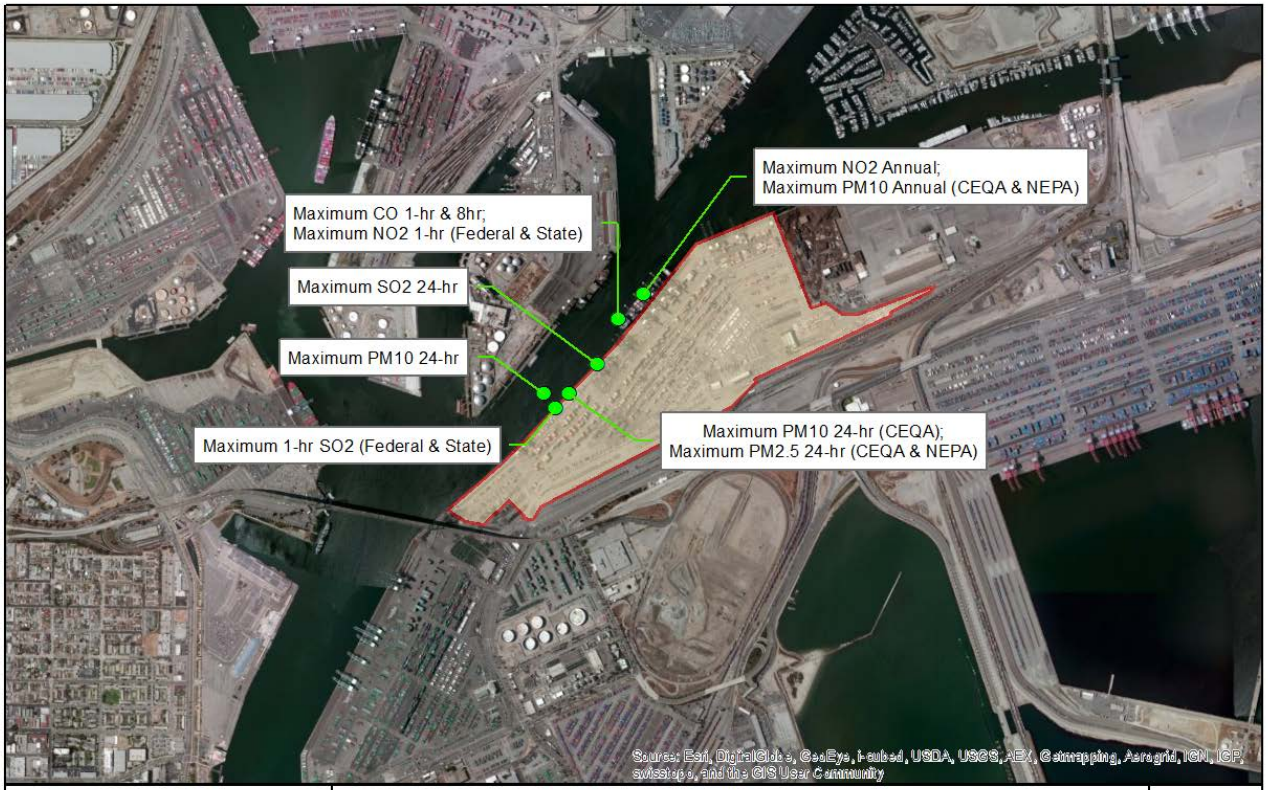
Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Project construction plus operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-8. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentrations - Proposed Project Combined Construction and Operation without Mitigation

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

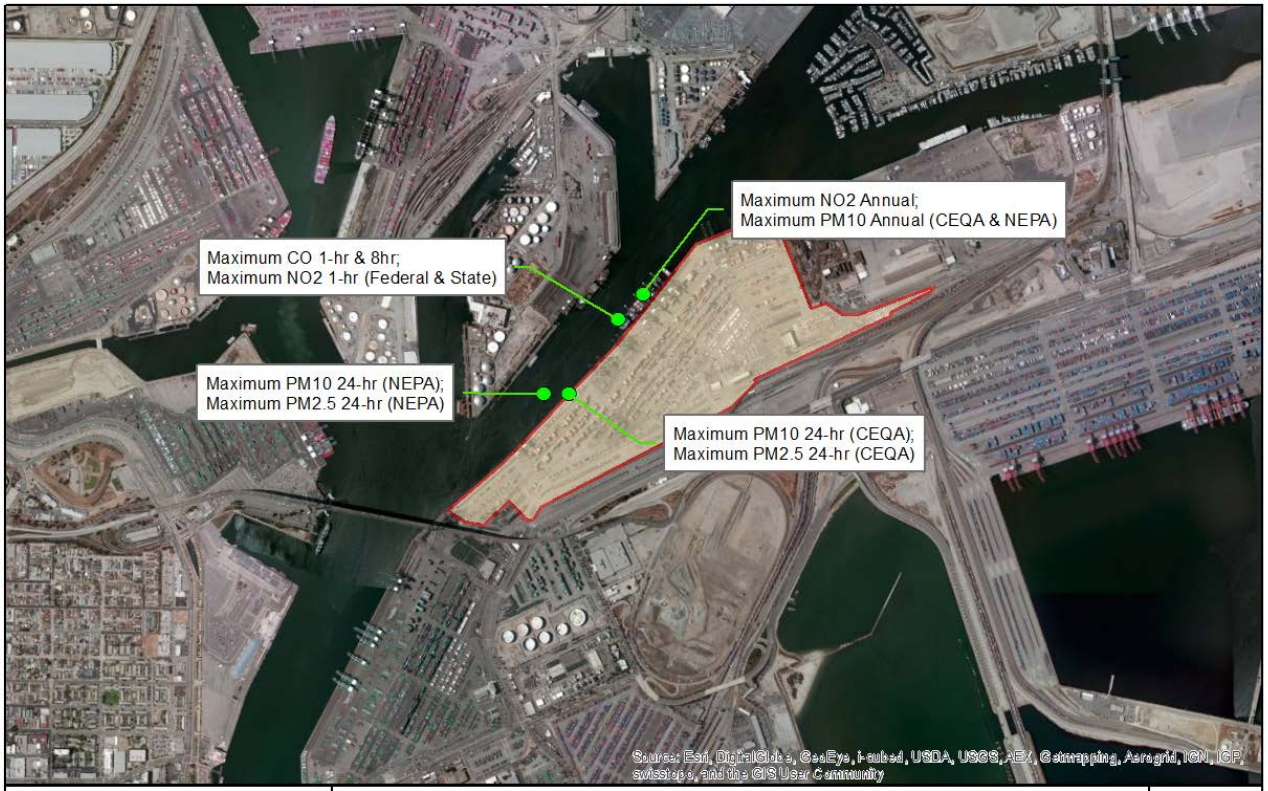
Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment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

Figure 3-3. Maximum Air Quality Impact Locations – Proposed Project Construction without Mitigation



ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Proposed Project Construction without Mitigation	Figure 3-3

Figure 3-4. Maximum Air Quality Impact Locations – Proposed Project Combined Construction and Operation without Mitigation



ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Proposed Project Combined Construction and Operation without Mitigation	Figure 3-4

Table 3-9 and Table 3-10 summarize the AERMOD modeling results of mitigated proposed Project construction emissions. Table 3-11 and Table 3-12 summarize the AERMOD modeling results of mitigated proposed Project overlapping construction and operational emissions.

Table 3-9 shows that the maximum off-site state annual NO_2 concentration from construction activities would be reduced below the threshold with mitigation. The federal and state 1-hour NO_2 concentrations would be reduced with mitigation but would remain above the thresholds. Table 3-10 shows that the maximum off-site incremental annual PM_{10} and 24-hour $PM_{2.5}$ concentrations from construction activities would be reduced below the thresholds with mitigation. The 24-hour PM_{10} concentration would be reduced with mitigation but would remain above the threshold.

Table 3-11 shows that the maximum off-site state annual NO_2 concentration from overlapping construction and operational activities would be reduced below the threshold with mitigation. The federal and state 1-hour NO_2 concentrations would be reduced with mitigation but would remain above the thresholds. Table 3-12 shows that the maximum off-site incremental annual PM_{10} and 24-hour $PM_{2.5}$ concentrations from overlapping construction and operational activities would be reduced below the thresholds with mitigation. The 24-hour PM_{10} concentration would be reduced with mitigation but would remain above the threshold.

Figure 3-5 shows the maximum air quality impact locations for the proposed Project construction with mitigation. The maximum air quality impact locations are directly north of the Project site.

Figure 3-6 shows the maximum air quality impact locations for the proposed Project overlapping construction and operations with mitigation. The maximum air quality impact locations are both north of the project, and in the south east corner of the project. Both maximum air quality impacts in the south east were located at fenceline receptors. Impacts less than zero (e.g. all the SO_2 maxima, as seen in Table 3-11) are an artifact of taking the maxima of proposed Project impacts, which are all less than zero at all receptors, and are not represented in the figures.

Table 3-9. Maximum Off-Site Ambient NO_2, SO_2, and CO Concentrations - Proposed Project Construction with Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) Exceedances of the thresholds are indicated in bold.

Table 3-10. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentrations - Proposed Project Construction with Mitigation

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

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled project concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled project and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3-11. Maximum Off-Site Ambient NO_2, SO_2, and CO Concentrations - Proposed Project Combined Construction and Operation with Mitigation

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

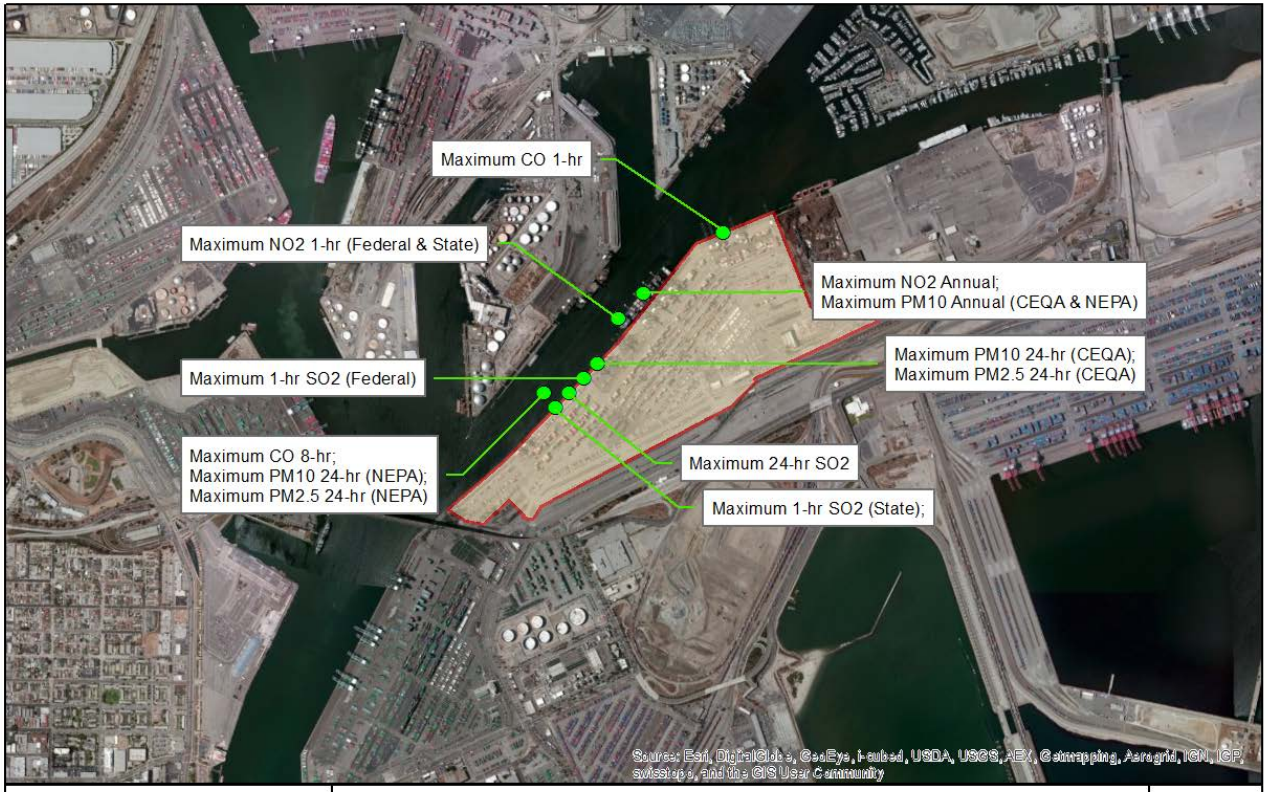
Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Project construction plus operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-12. Maximum Off-Site Ambient PM_{10} and $PM_{2.5}$ Concentrations - Proposed Project Combined Construction and Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Proposed Project (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	36.1	22.7	35.5	13.7	2.7	10.4	Yes	No
	Annual	10.4	10.0	10.4	0.5	0.4	1.0	No	No
$PM_{2.5}$	24-hour	10.5	7.8	10.4	6.2	5.3	10.4	No	No

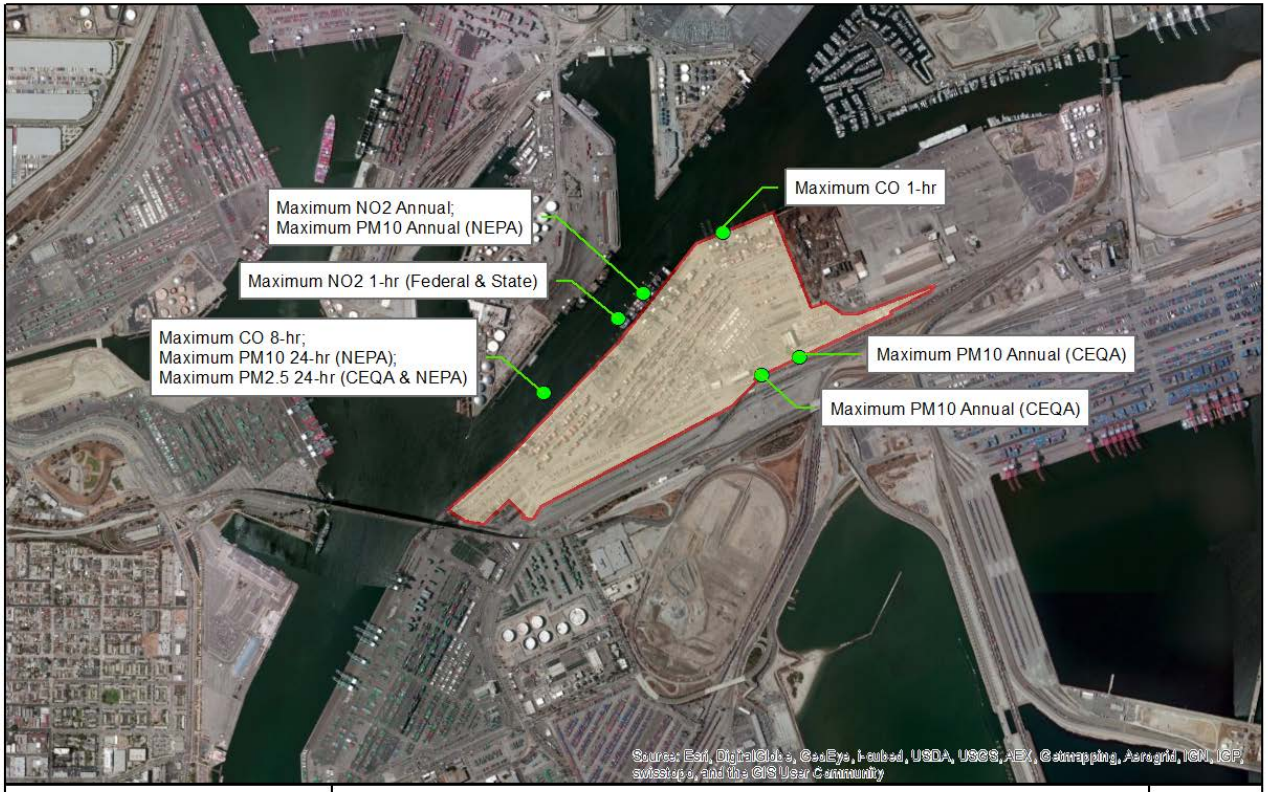
Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment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

Figure 3-5. Maximum Air Quality Impact Locations – Proposed Project Construction with Mitigation



ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Proposed Project Construction with Mitigation	Figure 3-5

Figure 3-6. Maximum Air Quality Impact Locations – Proposed Project Combined Construction and Operation with Mitigation



ENVIRON

Port of Los Angeles
YTI Container Terminal
Maximum Air Quality Impact Locations
Proposed Project Combined Construction and Operation with Mitigation

Figure 3-6

3.3.1.2 Alternative 1

Alternative 1 is the No Project Alternative. There would be no construction under Alternative 1.

3.3.1.3 Alternative 2

Alternative 2 is the No Federal Action Alternative and as such there would be no incremental difference between unmitigated Alternative 2 and the NEPA baseline. Table 3-13 and Table 3-14 summarize the AERMOD modeling results of unmitigated Alternative 2 construction emissions. The YTI terminal would continue to operate during construction of Alternative 2; construction and operational activities would overlap during this time. Table 3-15 and Table 3-16 summarize the AERMOD modeling results of Alternative 2 overlapping construction and operational emissions. NO_2, SO_2, and CO concentrations due to construction were added to background concentrations and compared to the SCAQMD thresholds. The AERMOD modeling result for PM_{10} and $PM_{2.5}$ represent the incremental increase due to the alternative and was compared directly to the SCAQMD thresholds without adding a background concentration.

Table 3-13 shows that the maximum off-site NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would exceed the thresholds. Table 3-14 shows that the maximum off-site incremental PM_{10} (24-hour average) concentration would exceed the threshold.

Table 3-15 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from overlapping construction and operational activities would exceed the threshold. Table 3-16 shows that the maximum off-site incremental PM_{10} (24-hour average) concentration from overlapping construction and operational activities would exceed the threshold. Figure 3-7 shows the maximum air quality impact locations for Alternative 2 construction without mitigation. For Alternative 2, all modeled maximum air quality impacts are located at fenceline receptors. Figure 3-8 shows the maximum air quality impact locations for Alternative 2 overlapping unmitigated construction and operations. The maximum air quality impacts are also located at fenceline receptors. Impacts less than zero (e.g. all the SO_2 maxima, as seen in Table 3-15) are an artifact of taking the maxima of Alternative 2 impacts, which are all less than zero at all receptors, and are not represented in the figures.

Table 3-13. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 2 Construction without Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) Exceedances of the thresholds are indicated in bold.

Table 3-14. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations – Alternative 2 Construction without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 (µg/m3)	Ground-Level Concentration CEQA Increment (µg/m3)a,b	SCAQMD Threshold (µg/m3)	CEQA Concentration above threshold?
PM10	24-hour	12.4	12.4	10.4	Yes
	Annual	0.3	0.3	1.0	No
PM2.5	24-hour	3.5	3.5	10.4	No

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

Table 3-15. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 2 Construction and Operation without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m3)c	Maximum Modeled Alternative 2 Concentration Increment (µg/m3)d	Total Ground-Level Concentration (µg/m3)e	SCAQMD Threshold (µg/m3)	Concentration above threshold?
NO2	Federal 1-houra	164	31	195	188	Yes
	State 1-hour	190	46	236	338	No
	Federal annual	33	3	36	100	No
	State annual	33	3	36	57	No
SO2	Federal 1-hourb	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	227	3,282	23,000	No
	8-hour	1,757	63	1,820	10,000	No

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO2, SO2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 2 construction plus operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-16. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations – Alternative 2 Construction and Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 2 (µg/m3)	Maximum Modeled Concentration of CEQA Baseline (µg/m3)	Maximum Modeled Concentration of NEPA Baseline (µg/m3)	Ground-Level Concentration CEQA Increment (µg/m3)a,b	Ground-Level Concentration NEPA Increment (µg/m3)a,c	SCAQMD Threshold (µg/m3)	CEQA Concentration above threshold?
PM10	24-hour	35.5	22.7	35.5	13.0	0	10.4	Yes
	Annual	10.4	10.0	10.4	0.5	0	1.0	No
PM2.5	24-hour	10.4	7.8	10.4	2.7	0	10.4	No

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM10 and PM2.5 are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 2 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 2 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Figure 3-7. Maximum Air Quality Impact Locations – Alternative 2 Construction without Mitigation

ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Alternative 2: Construction without Mitigation	Figure 3-7

Figure 3-8. Maximum Air Quality Impact Locations – Alternative 2 Combined Construction and Operation without Mitigation

ENVIRON

Port of Los Angeles
YTI Container Terminal
Maximum Air Quality Impact Locations
Alternative 2: Combined Construction and Operation without Mitigation

Figure 3-8

Table 3-17 and Table 3-18 summarize the AERMOD modeling results of mitigated Alternative 2 construction emissions.

Table 3-19 and Table 3-20 summarize the AERMOD modeling results of mitigated Alternative 2 overlapping construction and operational emissions.

Table 3-17 shows that the maximum off-site NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would be reduced with mitigation but would remain above the thresholds. Table 3-18 shows that the maximum off-site incremental PM_{10} (24-hour average) concentration from construction activities would be reduced with mitigation but would remain above the threshold.

Table 3-19 shows that the maximum off-site NO_2 concentrations from overlapping construction and operational activities would be reduced below the thresholds with mitigation. Table 3-20 shows that the maximum off-site incremental PM_{10} (24-hour average) concentration from overlapping construction and operational activities would be reduced with mitigation but would remain above the threshold.

Figure 3-9 shows the maximum air quality impact locations for Alternative 2 construction with mitigation. For Alternative 2 with mitigation, the maximum air quality impact locations are all at fenceline receptors. Figure 3-10 shows the maximum air quality impact locations for Alternative 2 overlapping construction and operations with mitigation. Impacts less than zero (e.g. all the SO2 maxima, as seen in Table 3-19) are an artifact of taking the maxima of Alternative 2 impacts, which are all less than zero at all receptors, and are not represented in the figures.

Table 3-17. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 2 Construction with Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) Exceedances of the thresholds are indicated in bold.

Table 3-18. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations – Alternative 2 Construction with Mitigation

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

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.

Table 3-19. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 2 Construction and Operation with Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 2 construction plus operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-20. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations – Alternative 2 Construction and Operation with Mitigation

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

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 2 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 2 and baseline concentrations in the table may not necessarily subtract to equal the increment.

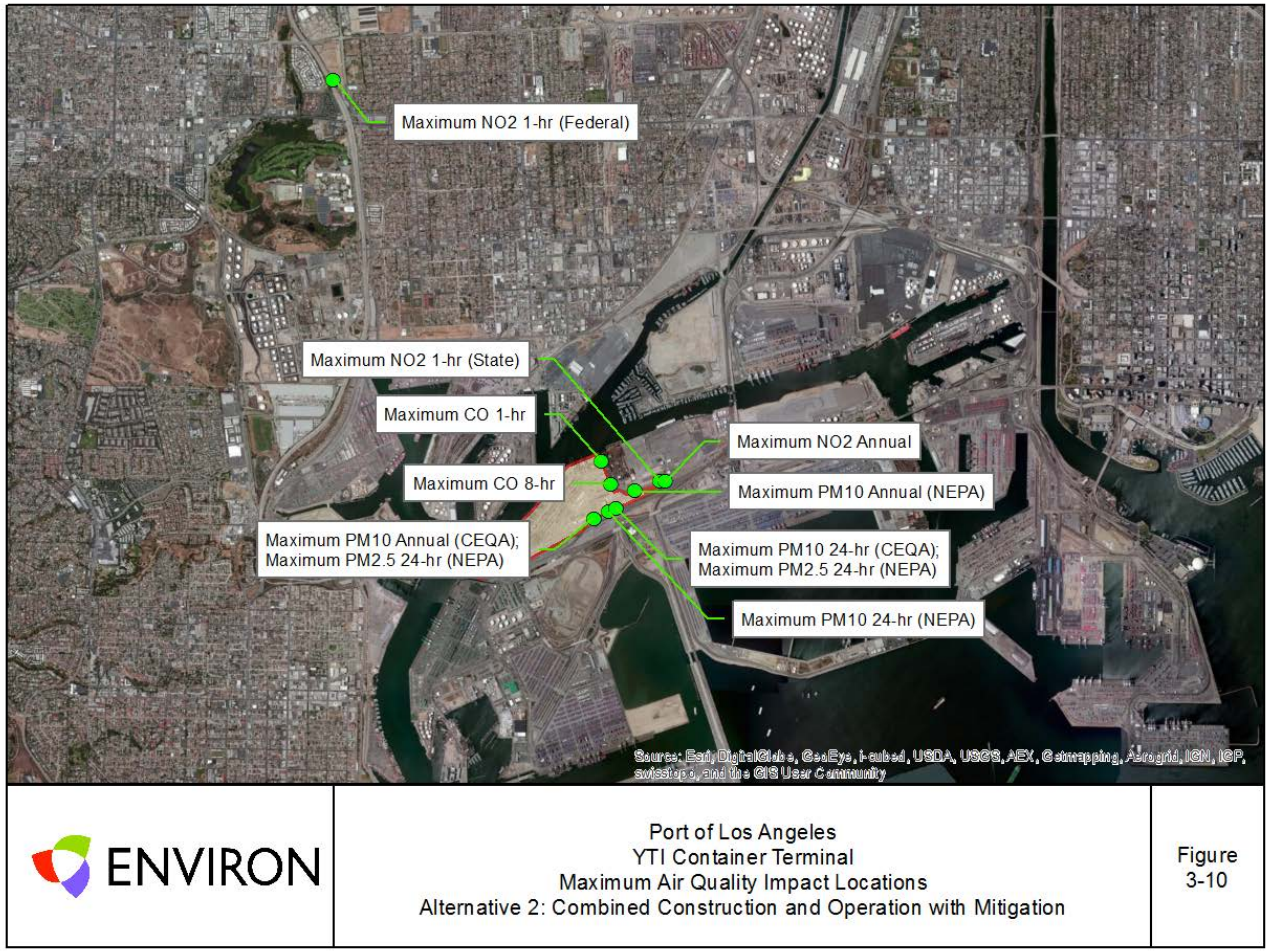
Figure 3-9. Maximum Air Quality Impact Locations – Alternative 2 Construction with Mitigation

ENVIRON

Port of Los Angeles
YTI Container Terminal
Maximum Air Quality Impact Locations
Alternative 2: Construction with Mitigation

Figure 3-9

Figure 3-10. Maximum Air Quality Impact Locations – Alternative 2 Combined Construction and Operation with Mitigation



3.3.1.4 Alternative 3

Table 3-21 and Table 3-22 summarize the AERMOD modeling results of unmitigated Alternative 3 construction emissions. The YTI terminal would continue to operate during construction of Alternative 3; construction and operational activities would overlap during this time.

Table 3-23 and Table 3-24 summarize the AERMOD modeling results of unmitigated Alternative 3 overlapping construction and operational emissions.

Table 3-21 shows that the maximum off-site NO_2 (federal 1-hour, state 1-hour and state annual average) concentrations from construction activities would exceed the thresholds. Table 3-22 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour) concentrations from construction activities would exceed the thresholds.

Table 3-23 shows that the maximum off-site NO_2 (federal 1-hour and state 1-hour average) concentrations from overlapping construction and operational activities would exceed the thresholds. Table 3-24 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) and $PM_{2.5}$ (24-hour average) concentrations from overlapping construction and operational activities would exceed the thresholds.

Figure 3-11 shows the maximum air quality impact locations for Alternative 3 construction. The locations of maximum air quality impact shown in this figure are north of the Project.

Figure 3-12 shows the maximum air quality impact locations for Alternative 3 overlapping construction and operations. Impacts less than zero (e.g. all the SO2 maxima, as seen in Table 3-23) are an artifact of taking the maxima of Alternative 3 impacts, which are all less than zero at all receptors, and are not represented in the figures.

Table 3-21. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 3 Construction without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration (µg/m^3)	Total Ground-Level Concentration (µg/m^3)[d]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	659	823	188	Yes
	State 1-hour	190	727	917	338	Yes
	Federal annual	33	28	61	100	No
	State annual	33	28	61	57	Yes
SO_2	Federal 1-hour[b]	92	7	99	197	No
	State 1-hour	139	10	149	655	No
	24-hour	42	2	44	105	No
CO	1-hour	3,055	1,760	4,815	23,000	No
	8-hour	1,757	1,016	2,773	10,000	No

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) Exceedances of the thresholds are indicated in bold.

Table 3-22. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations –Alternative 3 Construction without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	33.2	0	12.4	33.2	26.4	10.4	Yes	Yes
	Annual	1.2	0	0.3	1.2	1.2	1.0	Yes	Yes
$PM_{2.5}$	24-hour	29.4	0	3.5	29.4	26.7	10.4	Yes	Yes

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3-23. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 3 Construction and Operation without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	581	745	188	Yes
	State 1-hour	190	632	822	338	Yes
	Federal annual	33	23	56	100	No
	State annual	33	23	56	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	1,748	4,803	23,000	No
	8-hour	1,757	1,028	2,784	10,000	No

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 3 construction plus operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-24. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations –Alternative 3 Construction and Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	36.6	22.7	35.5	30.1	25.8	10.4	Yes	Yes
	Annual	10.4	10.0	10.4	1.1	1.2	1.0	Yes	Yes
$PM_{2.5}$	24-hour	30.1	7.8	10.4	27.7	26.2	10.4	Yes	Yes

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Figure 3-11. Maximum Air Quality Impact Locations – Alternative 3 Construction without Mitigation

ENVIRON

Port of Los Angeles
YTI Container Terminal
Maximum Air Quality Impact Locations
Alternative 3: Construction without Mitigation

Figure 3-11

Figure 3-12. Maximum Air Quality Impact Locations – Alternative 3 Combined Construction and Operation without Mitigation

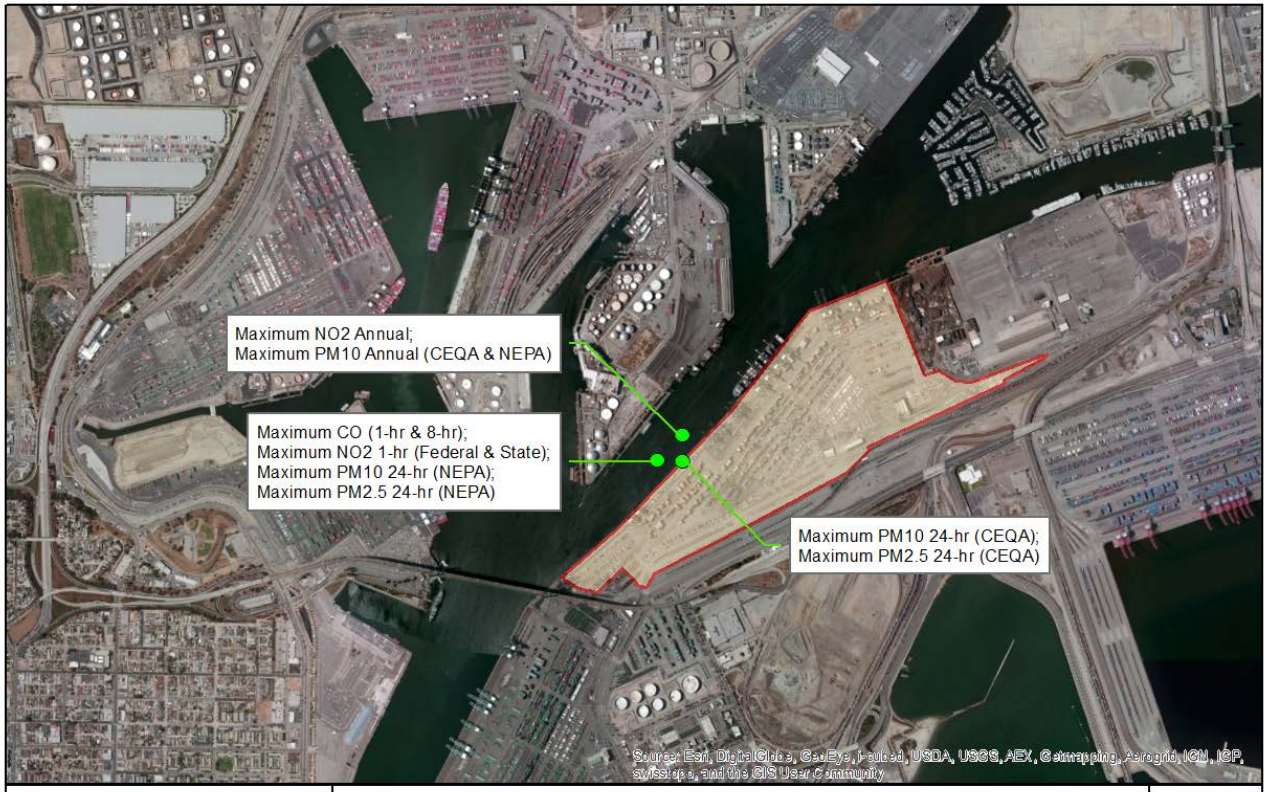


Table 3-25 and Table 3-26 summarize the AERMOD modeling results of mitigated Alternative 3 construction emissions. Table 3-27 and Table 3-28 summarize the AERMOD modeling results of mitigated Alternative 3 overlapping construction and operational emissions.

Table 3-25 shows that the maximum off-site NO_2 (federal 1-hour and state 1-hour average) concentrations from construction activities would be reduced with mitigation but would remain above the thresholds. The maximum state annual NO_2 concentration would be reduced below the threshold with mitigation. Table 3-26 shows that the maximum off-site incremental PM_{10} (24-hour average) concentration from construction activities would be reduced with mitigation but would remain above the threshold. The maximum annual PM_{10} and 24-hour $PM_{2.5}$ concentrations would be reduced below the thresholds with mitigation.

Table 3-27 shows that the maximum off-site NO_2 (federal 1-hour and state 1-hour average) concentrations from overlapping construction and operational activities would be reduced with mitigation but would remain above the thresholds. Table 3-28 shows that the maximum off-site incremental PM_{10} (24-hour average) concentration from overlapping construction and operational activities would be reduced with mitigation but would remain above the threshold. The maximum annual PM_{10} and 24-hour $PM_{2.5}$ concentrations would be reduced below the thresholds.

Figure 3-13 shows the maximum air quality impact locations for Alternative 3 construction with mitigation. Similar to the results obtained for the construction without mitigation AERMOD model maximum air quality impacts are located directly north of the Project site.

Figure 3-14 shows the maximum air quality impact locations for Alternative 3 overlapping construction and operations with mitigation. Impacts less than zero (e.g. all the SO_2 maxima, as seen in Table 3-27) are an artifact of taking the maxima of Alternative 3 impacts, which are all less than zero at all receptors, and are not represented in the figures.

Table 3-25. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 3 Construction with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration (µg/m^3)	Total Ground-Level Concentration (µg/m^3)[d]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	264	428	188	Yes
	State 1-hour	190	344	534	338	Yes
	Federal annual	33	12	45	100	No
	State annual	33	12	45	57	No
SO_2	Federal 1-hour[b]	92	6	98	197	No
	State 1-hour	139	9	148	655	No
	24-hour	42	1	43	105	No
CO	1-hour	3,055	904	3,959	23,000	No
	8-hour	1,757	159	1,915	10,000	No

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) Exceedances of the thresholds are indicated in bold.

Table 3-26. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations –Alternative 3 Construction with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	13.0	0	12.4	13.0	3.4	10.4	Yes	No
	Annual	0.4	0	0.3	0.4	0.4	1.0	No	No
$PM_{2.5}$	24-hour	7.5	0	3.5	7.5	5.5	10.4	No	No

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline. Because the CEQA baseline for construction is zero, the CEQA increment equals the maximum modeled concentration.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Table 3-27. Maximum Off-site Ambient NO_2, SO_2, and CO Concentrations – Alternative 3 Construction and Operation with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	190	354	188	Yes
	State 1-hour	190	241	431	338	Yes
	Federal annual	33	9	43	100	No
	State annual	33	9	43	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	920	3,975	23,000	No
	8-hour	1,757	170	1,927	10,000	No

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 3 construction plus operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-28. Maximum Off-site Ambient PM_{10} and $PM_{2.5}$ Concentrations –Alternative 3 Construction and Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	36.0	22.7	35.5	13.5	2.8	10.4	Yes	No
	Annual	10.4	10.0	10.4	0.5	0.4	1.0	No	No
$PM_{2.5}$	24-hour	10.3	7.8	10.4	6.2	5.4	10.4	No	No

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Figure 3-13. Maximum Air Quality Impact Locations – Alternative 3 Construction with Mitigation

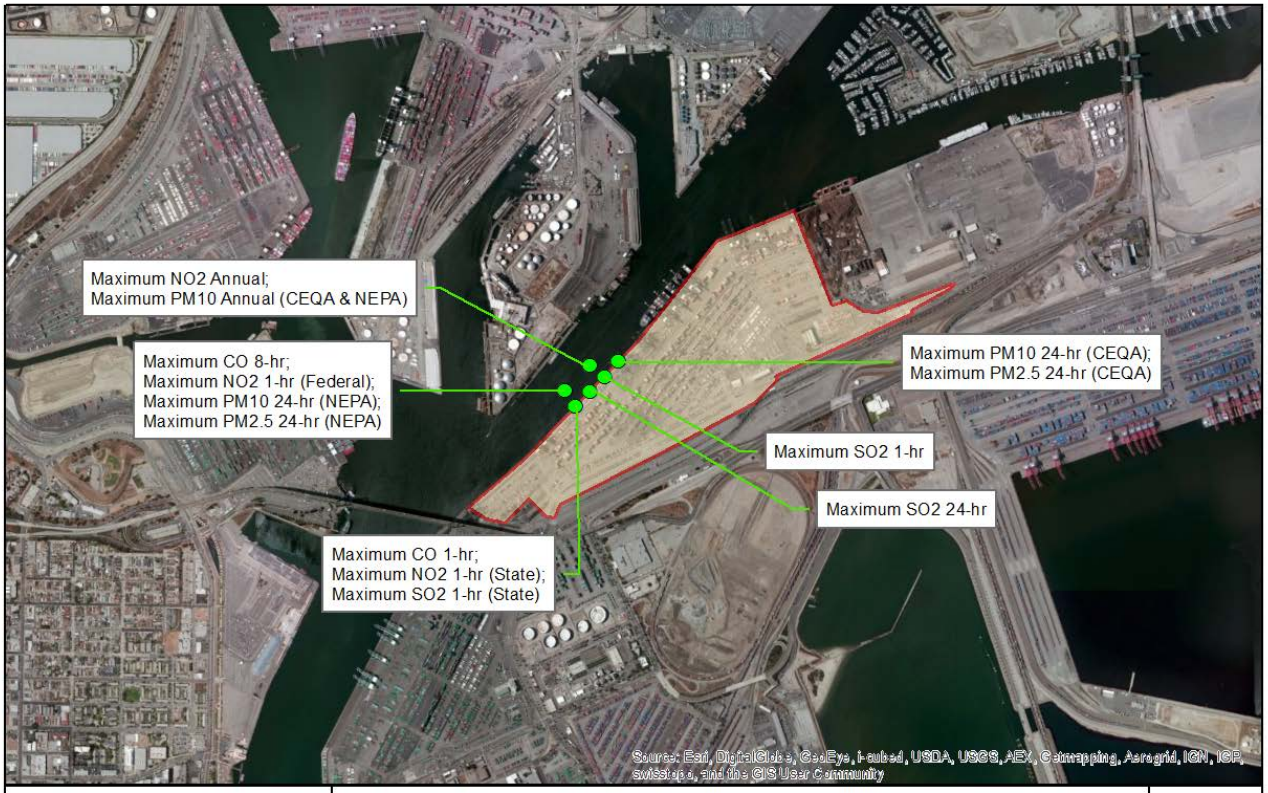


Figure 3-14. Maximum Air Quality Impact Locations – Alternative 3 Combined Construction and Operation with Mitigation

3.3.2 Operational Impacts

Operational impacts were evaluated for the CEQA baseline; the NEPA baseline; the unmitigated Alternative 1; and the unmitigated and mitigated proposed Project, Alternative 2, and Alternative 3. Mitigation is not required under Alternative 1.

3.3.2.1 Proposed Project

Table 3-29 and Table 3-30 summarize the AERMOD modeling results of unmitigated proposed Project operational emissions. NO_2, SO_2, and CO concentrations due to operation were added to background concentrations and compared to the SCAQMD thresholds. The AERMOD modeling results for PM_{10} and $PM_{2.5}$ represent the incremental increases due to the project relative to the CEQA and NEPA baselines and were compared directly to the SCAQMD thresholds without adding a background concentration.

Table 3-29 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would exceed the threshold. Table 3-30 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed the threshold.

Table 3-31 shows the source contributions at the location of the maximum modeled concentration of the unmitigated proposed Project for the pollutants and averaging periods that were determined to exceed thresholds. Emissions from locomotives, vehicles (worker vehicles and trucks) within the Project boundary, cargo handling equipment, and ocean-going vessels (OGV) contribute significantly to the maximum modeled concentrations of the criteria pollutants that exceed thresholds.

Figure 3-15 shows the maximum air quality impact locations for the proposed Project operation without mitigation. The maximum air quality impacts are located on the Project fenceline receptors or in close proximity to the Project. Impacts less than zero (e.g. all the SO_2 maxima, as seen in Table 3-29) are an artifact of taking the maxima of proposed Project impacts, which are all less than zero at all receptors, and are not represented in the figure.

Table 3-29. Maximum Off-site NO_2, SO_2, and CO Concentrations - Proposed Project Operation without Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Project operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-30. Maximum Off-site PM_{10} and $PM_{2.5}$ Concentrations - Proposed Project Operation without Mitigation

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

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

Table 3-31. Source Contributions at the Maximum Modeled Concentration – Proposed Project Operation without Mitigation

Emission Source Group	NO_2 (1-hour federal)[a]	NO_2 (1-hour state)	NO_2 (annual)	PM_{10} (24-hour)	PM_{10} (annual)	$PM_{2.5}$ (24-hour)
Locomotives	60.65%	49.19%	26.34%	1.37%	1.93%	4.37%
Trucks Out Gate	12.65%	15.86%	16.10%	< 1.0%	< 1.0%	< 1.0%
OGV Transit Zone 1	10.51%	13.27%	< 1.0%	< 1.0%	< 1.0%	< 1.0%
Trucks Onsite	6.27%	4.46%	25.63%	75.53%	84.23%	67.11%
Cargo Handling Equipment	5.04%	10.30%	17.63%	1.93%	< 1.0%	5.99%
OGV Hotelling Auxiliary Engine	2.77%	2.05%	1.50%	< 1.0%	< 1.0%	2.64%
Onsite Worker Vehicle Exhaust	< 1.0%	< 1.0%	< 1.0%	19.35%	12.32%	17.29%
Trucks In Gate	< 1.0%	1.95%	9.19%	< 1.0%	< 1.0%	< 1.0%
Tugboats Assist During Operation	< 1.0%	< 1.0%	1.12%	< 1.0%	< 1.0%	< 1.0%
Other Source Categories[b]	< 3.0%	< 3.0%	< 3.0%	< 3.0%	< 3.0%	< 3.0%

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) These source categories include Offsite Autos, Offsite Trucks, OGV Anchorage, OGV Hotelling Boiler, OGV Transit Zones 2 through 5, and TRUs. Each of these contribute less than 1% individually.

Figure 3-15. Maximum Air Quality Impact Locations – Proposed Project Operation without Mitigation

ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Proposed Project Operation without Mitigation	Figure 3-15

Table 3-32 and Table 3-33 summarize the AERMOD modeling results of mitigated proposed Project operational emissions. Table 3-32 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would not be substantially reduced with mitigation and would remain above the threshold. Table 3-33 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would also not be substantially reduced with mitigation and would remain above the thresholds. Table 3-34 shows the source contributions at the location of the maximum modeled concentration of the mitigated proposed Project for the pollutants and averaging periods that were determined to exceed thresholds. The source contributions results are very similar to the results for the proposed Project operation without mitigation shown in Table 3-31.

Figure 3-16 shows the maximum air quality impact locations for the proposed Project operation with mitigation. The maximum impact locations are the same as the proposed Project operation without mitigation.

Table 3-32. Maximum Off-site NO_2, SO_2 and CO Concentrations - Proposed Project Operation with Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Project operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-33. Maximum Off-site PM_{10} and $PM_{2.5}$ Concentrations - Proposed Project Operation with Mitigation

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

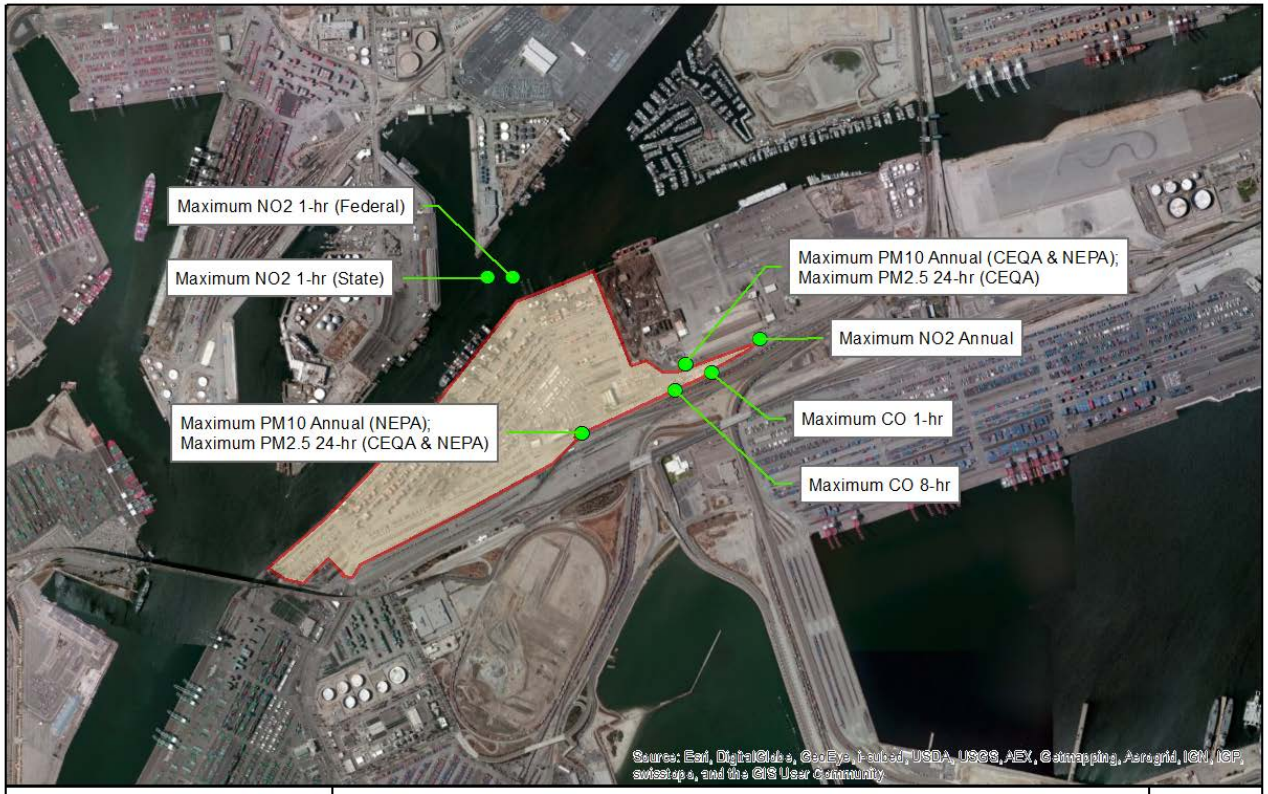
Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment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

Table 3-34. Source Contributions at the Maximum Modeled Concentration – Proposed Project Operation with Mitigation

Emission Source	NO_2 (1-hour federal)[a]	NO_2 (1-hour state)	NO_2 (annual)	PM_{10} (24-hour)	PM_{10} (annual)	$PM_{2.5}$ (24-hour)
Locomotives	60.69%	49.23%	26.34%	1.37%	1.93%	4.37%
Trucks Out Gate	12.66%	15.88%	16.10%	< 1.0%	< 1.0%	< 1.0%
OGV Transit Zone 1	10.52%	13.28%	< 1.0%	< 1.0%	< 1.0%	< 1.0%
Trucks Onsite	6.28%	4.47%	25.63%	75.53%	84.23%	67.12%
Cargo Handling Equipment	5.05%	10.31%	17.63%	1.93%	< 1.0%	5.99%
OGV Hotelling Auxiliary Engine	2.77%	2.05%	1.50%	< 1.0%	< 1.0%	2.63%
Onsite Worker Vehicle Exhaust	< 1.0%	< 1.0%	< 1.0%	19.35%	12.32%	17.29%
Trucks In Gate	< 1.0%	1.95%	9.19%	< 1.0%	< 1.0%	< 1.0%
Tugboats Assist During Operation	< 1.0%	< 1.0%	1.12%	< 1.0%	< 1.0%	< 1.0%
Other Source Categories[b]	< 3.0%	< 3.0%	< 3.0%	< 3.0%	< 3.0%	< 3.0%

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) These source categories include Offsite Autos, Offsite Trucks, OGV Anchorage, OGV Hotelling Boiler, OGV Transit Zones 2 through 5, and TRUs. Each of these contribute less than 1% individually.

Figure 3-16. Maximum Air Quality Impact Locations – Proposed Project Operation with Mitigation



3.3.2.2 Alternative 1

Table 3-35 and Table 3-36 summarize the AERMOD modeling results of unmitigated Alternative 1 operational emissions. NO_2, SO_2, and CO concentrations due to operation were added to background concentrations and compared to the SCAQMD thresholds. The AERMOD modeling results for PM_{10} and $PM_{2.5}$ represent the incremental increases due to the alternative and were compared directly to the SCAQMD thresholds without adding a background concentration.

Table 3-35 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would exceed the threshold. Table 3-36 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed the thresholds. Mitigation is not required for Alternative 1 because Alternative 1 is the No Project Alternative.

There are no major differences in relative emission source group contributions between the proposed Project and all project Alternatives. Therefore, the source contributions at the locations of the maximum modeled concentration for Alternative 1 are expected to be similar to those shown for the proposed Project operation in Table 3-31. Figure 3-17 shows the maximum air quality impact locations for Alternative 1 operation. Impacts less than zero (e.g. all the SO_2 maxima, as seen in Table 3-35) are an artifact of taking the maxima of Alternative 1 impacts, which are all less than zero at all receptors, and are not represented in the figure.

Table 3-35. Maximum Off-site NO_2, SO_2, and CO Concentrations – Alternative 1 Operation without Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 1 operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-36. Maximum Off-site PM_{10} and $PM_{2.5}$ Concentrations - Alternative 1 Operation without Mitigation

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

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

Figure 3-17. Maximum Air Quality Impact Locations – Alternative 1 Operation without Mitigation

3.3.2.3 Alternative 2

Alternative 2 would have the same operational activities as Alternative 1. Therefore, Table 3-35 and Table 3-36, presented under Alternative 1 also represent the maximum off-site ground level concentrations of NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ from operation of Alternative 2 without mitigation.

Table 3-35 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would exceed the threshold. Table 3-36 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed the thresholds.

Alternative 2 would have the same operational activities as Alternative 1. Therefore, Figure 3-17, presented under Alternative 1 also represents the maximum air quality impact locations for Alternative 2 operation without mitigation.

Table 3-37 and Table 3-38 summarize the AERMOD modeling results of mitigated Alternative 2 operational emissions. Table 3-37 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would be reduced with mitigation but would remain above the threshold. Table 3-38 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would be reduced with mitigation but would also remain above the thresholds.

There are no major differences in relative emission source group contributions between the proposed Project and any of the project Alternatives. Therefore, the source contributions at the locations of the maximum modeled concentration for Alternative 2 are expected to be similar to those shown for the proposed Project operation in Table 3-31.Figure 3-18 shows the maximum air quality impact locations for Alternative 2 operation. These are the same results as Alternative 1 operation.

Table 3-37. Maximum Off-site NO_2, SO_2 and CO Concentrations Associated with Operation of Alternative 2 without Mitigation

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

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 2 operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-38. Maximum Off-site PM_{10} and $PM_{2.5}$ Concentrations Associated with Operation of Alternative 2 without Mitigation

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

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 2 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 2 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Figure 3-18. Maximum Air Quality Impact Locations – Alternative 2 Operation without Mitigation

ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Alternative 2: Operation without Mitigation	Figure 3-18

3.3.2.4 Alternative 3

Table 3-39 and Table 3-40 summarize the AERMOD modeling results of unmitigated Alternative 3 operational emissions. NO_2, SO_2, and CO concentrations due to operation were added to background concentrations and compared to the SCAQMD thresholds. The AERMOD modeling results for PM_{10} and $PM_{2.5}$ represent the incremental increases due to the alternative and were compared directly to the SCAQMD thresholds without adding a background concentration.

Table 3-39 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would exceed the threshold. Table 3-40 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would exceed the thresholds.

There are no major differences in relative emission source group contributions between the proposed Project and all project Alternatives. Therefore, source contributions at the locations of the maximum modeled concentration for Alternative 3 are expected to be similar to those shown for the proposed Project operation in Table 3-31.Figure 3-19 shows the maximum air quality impact locations for Alternative 3 operation. Maximum air quality impact locations are similar to those for Alternative 1, which are discussed above.

Table 3-39. Maximum Off-site NO_2, SO_2, and CO Concentrations – Alternative 3 Operation without Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	65	229	188	Yes
	State 1-hour	190	72	262	338	No
	Federal annual	33	5	38	100	No
	State annual	33	5	38	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	215	3,269	23,000	No
	8-hour	1,757	141	1,897	10,000	No

Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 3 operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-40. Maximum Off-site PM_{10} and $PM_{2.5}$ Concentrations – Alternative 3 Operation without Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	33.9	22.7	30.6	11.5	3.5	2.5	Yes	Yes
	Annual	14.6	10.0	13.2	4.5	1.3	1.0	Yes	Yes
$PM_{2.5}$	24-hour	9.7	7.8	8.8	2.1	1.0	2.5	No	No

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Figure 3-19. Maximum Air Quality Impact Locations – Alternative 3 Operation without Mitigation

ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Alternative 3: Operation without Mitigation	Figure 3-19

Table 3-41 and Table 3-42 summarize the AERMOD modeling results of mitigated Alternative 3 operational emissions.

Table 3-41 shows that the maximum off-site NO_2 (federal 1-hour average) concentration from operational activities would not be substantially reduced with mitigation, and would remain above the threshold. Table 3-42 shows that the maximum off-site incremental PM_{10} (24-hour and annual average) concentrations from operational activities would not be substantially reduced with mitigation, and would remain above the thresholds.

There are no major differences in relative emission source group contributions between the proposed Project and any of the project Alternatives, Therefore, the source contributions at the locations of the maximum modeled concentration for Alternative 3 are expected to be similar to those shown for the proposed Project operation in Table 3-31.

Figure 3-20 shows the maximum air quality impact locations for Alternative 3 operation with mitigation. Maximum air quality impact locations are similar to those for Alternative 1, which have previously been discussed.

Table 3-41. Maximum Off-site NO_2, SO_2 and CO Concentrations – Alternative 3 Operation with Mitigation

Pollutant	Averaging Time	Background Concentration (µg/m^3)[c]	Maximum Modeled Alternative 3 Concentration Increment (µg/m^3)[d]	Total Ground-Level Concentration (µg/m^3)[e]	SCAQMD Threshold (µg/m^3)	Concentration above threshold?
NO_2	Federal 1-hour[a]	164	65	229	188	Yes
	State 1-hour	190	72	262	338	No
	Federal annual	33	5	38	100	No
	State annual	33	5	38	57	No
SO_2	Federal 1-hour[b]	92	< 0	92	197	No
	State 1-hour	139	< 0	139	655	No
	24-hour	42	< 0	42	105	No
CO	1-hour	3,055	215	3,269	23,000	No
	8-hour	1,757	141	1,897	10,000	No

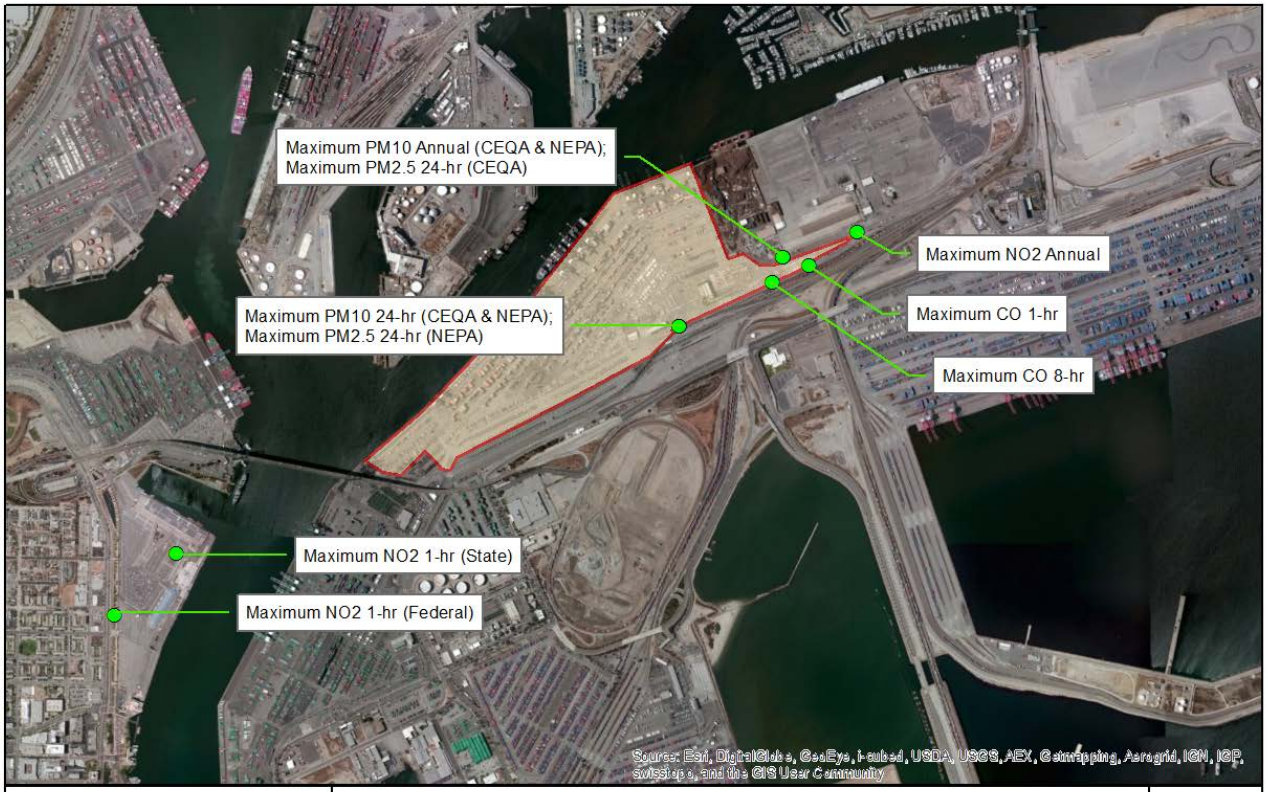
Notes:
a) The federal 1-hour NO2 modeled concentration represents the 98th percentile of the daily maximum 1-hour averages.
b) The federal 1-hour SO2 modeled concentration represents the 99th percentile of the daily maximum 1-hour averages.
c) The background concentrations for NO_2, SO_2 and CO were obtained from the TITP station.
d) The maximum modeled concentration increment represents Alternative 3 operation minus 2012 terminal operations.
e) Exceedances of the thresholds are indicated in bold.

Table 3-42. Maximum Off-site PM_{10} and $PM_{2.5}$ Concentrations – Alternative 3 Operation with Mitigation

Pollutant	Averaging Time	Maximum Modeled Concentration of Alternative 3 (µg/m^3)	Maximum Modeled Concentration of CEQA Baseline (µg/m^3)	Maximum Modeled Concentration of NEPA Baseline (µg/m^3)	Ground-Level Concentration CEQA Increment (µg/m^3)[a,b]	Ground-Level Concentration NEPA Increment (µg/m^3)[a,c]	SCAQMD Threshold (µg/m^3)	CEQA Concentration above threshold?	NEPA Concentration above threshold?
PM_{10}	24-hour	33.9	22.7	30.6	11.5	3.5	2.5	Yes	Yes
	Annual	14.6	10.0	13.2	4.5	1.3	1.0	Yes	Yes
$PM_{2.5}$	24-hour	9.7	7.8	8.8	2.1	1.0	2.5	No	No

Notes:
a) Exceedances of the threshold are indicated in bold. The thresholds for PM_{10} and $PM_{2.5}$ are incremental thresholds; therefore, the incremental concentration without background is compared to the threshold.
b) The CEQA increment represents project minus CEQA baseline.
c) The NEPA increment represents project minus NEPA Baseline.
d) The maximum modeled Alternative 3 concentration, maximum modeled baseline concentrations, and maximum concentration increments may occur at different receptors. Therefore, the modeled Alternative 3 and baseline concentrations in the table may not necessarily subtract to equal the increment.

Figure 3-20. Maximum Air Quality Impact Locations – Alternative 3 Operation with Mitigation



ENVIRON	Port of Los Angeles YTI Container Terminal Maximum Air Quality Impact Locations Alternative 3: Operation with Mitigation	Figure 3-20

4.0 References

ENVIRON 2013. Personal communication from Min Hou. May 28.

LAHD 2008. Los Angeles Harbor District. Berths 97-109 [China Shipping] Container Terminal Project EIS/EIR. April.

LAHD 2010. Los Angeles Harbor District. 2010 CAAP Update. Attachment I to Appendix B, Sphere of Influence Bay-Wide Sphere of Influence Analysis for Surface Meteorological Stations Near the Ports. November 2010. Available online at: http://www.portoflosangeles.org/environment/caap.asp. Last accessed October 2013.

LAHD 2011. Los Angeles Harbor District. Berths 302-306 [APL] Container Terminal Project EIS/EIR. December.

LAHD 2012. Los Angeles Harbor District. Draft Criteria Pollutant Dispersion Modeling Protocol. 2012.

SCAQMD 2005. South Coast Air Quality Management District. Personal communication with J. Koizumi. September 21.

SCAQMD 2011. South Coast Air Quality Management District. SCAQMD Air Quality Significance Thresholds. March. Available online at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Last accessed October 2013.

SCAQMD 2012a. South Coast Air Quality Management District. Personal communication with Tom Chico. May 10.

SCAQMD 2012b. South Coast Air Quality Management District. Personal communication with Ian MacMillan. April 18.

USEPA 2011. United States Environmental Protection Agency. *Addendum – User's Guide for the AERMOD Terrain Preprocessor (AERMAP)*. EPA-454/B-03-003. Office of Air Quality Planning and Standards. Air Quality Assessment Division. Research Triangle Park, North Carolina. March.

USEPA 2013. United States Environmental Protection agency. Pollutant Designations. Available online at: http://epa.gov/airquality/urbanair/designations.html. Last accessed October 2013.

Attachment B2.1

CO Hot Spots CAL3QHC Model Output

CAL3QHC Model Output

Henry Ford Ave. and Anaheim St.
Baseline 2012

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: YTI BL 2012 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2012

DATE : 2/14/14

TIME : 16:38: 3

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 100. CM

U = 1.0 M/S CLAS = 6 (F) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT)				*	LENGTH (FT)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)	V/C QUEUE (VEH)
	*	X1	Y1	X2	Y2	*								
1. NBTR	*	33.0	-500.0	25.0	0.0	*	500.	359.	AG	277.	5.4	0.0	56.0	
2. NBL	*	20.0	-500.0	4.0	0.0	*	500.	358.	AG	240.	5.4	0.0	44.0	

3. SBL	*	-6.0	500.0	7.0	-12.0	*	512.	179.	AG	149.	5.4	0.0 32.0
4. SBTR	*	-15.0	-12.0	-17.0	500.0	*	512.	360.	AG	242.	5.4	0.0 56.0
5. WBL	*	0.0	-7.0	500.0	6.0	*	500.	89.	AG	47.	5.4	0.0 32.0
6. WBTR	*	0.0	12.0	500.0	12.0	*	500.	90.	AG	988.	3.6	0.0 56.0
7. EBT	*	-500.0	-31.0	12.0	-26.0	*	512.	89.	AG	1100.	4.0	0.0 44.0
8. EBL	*	-500.0	-24.0	12.0	-5.0	*	512.	88.	AG	102.	5.4	0.0 32.0
9. NBD	*	25.0	0.0	25.0	500.0	*	500.	360.	AG	427.	2.9	0.0 44.0
10. SBD	*	-12.0	-500.0	-15.0	-12.0	*	488.	360.	AG	263.	5.4	0.0 56.0
11. WBD	*	-500.0	12.0	0.0	12.0	*	500.	90.	AG	1109.	2.5	0.0 44.0
12. EBD	*	12.0	-26.0	500.0	-22.0	*	488.	90.	AG	1346.	2.5	0.0 44.0
13. NBAX	*	33.0	-2000.0	33.0	-500.0	*	1500.	360.	AG	517.	2.2	0.0 56.0
14. NBDX	*	25.0	500.0	25.0	2000.0	*	1500.	360.	AG	427.	2.2	0.0 44.0
15. SBAX	*	-17.0	500.0	-17.0	2000.0	*	1500.	360.	AG	391.	2.2	0.0 56.0
16. SBDX	*	-20.0	-2000.0	-18.0	-500.0	*	1500.	0.	AG	466.	2.2	0.0 56.0
17. WBDX	*	-2000.0	12.0	-500.0	12.0	*	1500.	90.	AG	1109.	2.2	0.0 44.0
18. EBAX	*	-2000.0	-31.0	-500.0	-31.0	*	1500.	90.	AG	1405.	2.2	0.0 44.0
19. EBDX	*	500.0	-22.0	2000.0	-22.0	*	1500.	90.	AG	1346.	2.2	0.0 44.0
20. EBRX1	*	-500.0	-38.0	-132.0	-42.0	*	368.	91.	AG	203.	2.4	0.0 32.0
21. EBRX2	*	-132.0	-42.0	-55.0	-64.0	*	80.	106.	AG	203.	2.4	0.0 32.0
22. EBRX3	*	-55.0	-64.0	-39.0	-137.0	*	75.	168.	AG	203.	2.4	0.0 32.0
23. EBRX4	*	-39.0	-137.0	-32.0	-500.0	*	363.	179.	AG	203.	2.4	0.0 32.0
24. WBAX	*	500.0	12.0	2000.0	12.0	*	1500.	90.	AG	1035.	2.2	0.0 44.0

JOB: YTI BL 2012 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2012

DATE : 2/14/14

TIME : 16:38: 3

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. R01	-197.0	-58.0	5.9
2. R02	-146.0	-58.0	5.9
3. R03	-101.0	-67.0	5.9
4. R04	-64.0	-106.0	5.9
5. R05	-56.0	-142.0	5.9

```
 6. R06                 *       -55.0     -191.0       5.9   *
 7. R07                 *        62.0     -216.0       5.9   *
 8. R08                 *        60.0     -134.0       5.9   *
 9. R09                 *        60.0      -62.0       5.9   *
10. R10                 *       132.0      -62.0       5.9   *
11. R11                 *       214.0      -62.0       5.9   *
12. R12                 *        58.0      200.0       5.9   *
13. R13                 *        58.0      118.0       5.9   *
14. R14                 *        58.0       46.0       5.9   *
15. R15                 *       130.0       46.0       5.9   *
16. R16                 *       212.0       46.0       5.9   *
17. R17                 *      -199.0       44.0       5.9   *
18. R18                 *      -117.0       44.0       5.9   *
19. R19                 *       -45.0       44.0       5.9   *
20. R20                 *       -45.0      116.0       5.9   *
21. R21                 *       -45.0      198.0       5.9   *
```

JOB: YTI BL 2012 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2012

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM)																			
	* REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	* 0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
10.	* 0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
20.	* 0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1

```
  30.  *   0.2   0.2   0.2   0.1   0.2   0.2   0.2   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1
0.1

  40.  *   0.3   0.3   0.2   0.2   0.3   0.3   0.1   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1
0.1

  50.  *   0.3   0.3   0.2   0.2   0.2   0.2   0.2   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

  60.  *   0.3   0.3   0.3   0.2   0.2   0.2   0.1   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

  70.  *   0.5   0.3   0.3   0.2   0.2   0.1   0.1   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

  80.  *   0.4   0.4   0.3   0.4   0.2   0.2   0.1   0.2   0.4   0.5   0.4   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

  90.  *   0.3   0.3   0.2   0.1   0.0   0.0   0.0   0.0   0.3   0.3   0.2   0.0   0.0   0.3   0.3   0.3   0.3   0.3   0.4
0.0

 100.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.5   0.5   0.4   0.3   0.4   0.4
0.3

 110.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.3   0.3   0.3   0.3   0.3   0.3
0.2

 120.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.3   0.3   0.3   0.2   0.2   0.3
0.2

 130.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2   0.2   0.2   0.2   0.2   0.3
0.2

 140.  *   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.2   0.2   0.2
0.3

 150.  *   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.2   0.2   0.2
0.2

 160.  *   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2   0.2   0.2   0.2   0.5
0.2

 170.  *   0.0   0.0   0.0   0.1   0.2   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.2   0.2   0.5
0.5
```

```
 180.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.1   0.3   0.3   0.2   0.2   0.2   0.2   0.3
0.2

 190.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.0   0.0   0.1   0.4   0.4   0.2   0.2   0.2   0.2   0.2
0.1

 200.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.3   0.3   0.0   0.0   0.2   0.2   0.5   0.2   0.2   0.2   0.2   0.2
0.2

 210.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.2   0.2   0.2   0.2   0.2   0.2   0.2   0.2
0.1

 220.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.2   0.2   0.2
0.2

 230.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.2   0.2   0.2
0.2

 240.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3   0.4   0.3   0.2   0.2   0.2
0.2

 250.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.4   0.4   0.4   0.3   0.4   0.4
0.2

 260.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.5   0.4   0.5   0.5   0.4   0.4
0.2

 270.  *   0.3   0.3   0.3   0.1   0.0   0.0   0.0   0.1   0.4   0.3   0.3   0.0   0.0   0.3   0.3   0.4   0.3   0.3   0.3
0.0

 280.  *   0.5   0.7   0.5   0.3   0.2   0.2   0.2   0.3   0.4   0.4   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

 290.  *   0.4   0.4   0.3   0.2   0.1   0.1   0.1   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

 300.  *   0.3   0.3   0.3   0.2   0.2   0.1   0.1   0.2   0.3   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

 310.  *   0.3   0.3   0.3   0.2   0.2   0.1   0.2   0.3   0.3   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

 320.  *   0.3   0.3   0.2   0.2   0.1   0.1   0.2   0.2   0.1   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
```

```
 330.  *   0.2   0.2   0.2   0.1   0.1   0.1   0.2   0.2   0.2   0.2   0.2   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0
0.0

 340.  *   0.2   0.2   0.2   0.1   0.1   0.1   0.1   0.1   0.3   0.2   0.2   0.1   0.1   0.2   0.0   0.0   0.0   0.0   0.0
0.0

 350.  *   0.2   0.2   0.2   0.1   0.1   0.1   0.1   0.4   0.3   0.2   0.2   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0
0.0

 360.  *   0.2   0.2   0.2   0.1   0.1   0.1   0.0   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1
0.1

 ------*-------------------------------------------------------------------------------------------------------------------
-

 MAX   *   0.5   0.7   0.5   0.4   0.3   0.3   0.2   0.4   0.4   0.5   0.4   0.2   0.4   0.5   0.5   0.5   0.5   0.4   0.5
0.5

 DEGR. *   70   280   280    80    40    40    30   350    80    80    80   100   190   100   100   260   260   100   160   170
```

JOB: YTI BL 2012 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2012

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC21
0.	0.1
10.	0.1
20.	0.1
30.	0.1
40.	0.1
50.	0.0

```
 60.  *   0.0
 70.  *   0.0
 80.  *   0.0
 90.  *   0.0
100.  *   0.2
110.  *   0.1
120.  *   0.2
130.  *   0.2
140.  *   0.2
150.  *   0.2
160.  *   0.1
170.  *   0.3
180.  *   0.1
190.  *   0.1
200.  *   0.1
210.  *   0.1
220.  *   0.1
230.  *   0.1
240.  *   0.1
250.  *   0.1
260.  *   0.2
270.  *   0.0
280.  *   0.0
```

```
290.  *   0.0

300.  *   0.0

310.  *   0.0

320.  *   0.0

330.  *   0.0

340.  *   0.0

350.  *   0.0

360.  *   0.1

------*------

MAX   *   0.3

DEGR. *  170


THE HIGHEST CONCENTRATION OF    0.70 PPM OCCURRED AT RECEPTOR REC2 .
```

JOB: YTI BL 2012 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2012

DATE : 2/14/14

TIME : 16:38: 3

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING

THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

* CO/LINK (PPM)

* ANGLE (DEGREES)

	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK #	*	70	280	280	80	40	40	30	350	80	80	80	100	190	100	100	260	260	100	160	170
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

```
      5  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
      6  *   0.1   0.0   0.0   0.1   0.1   0.1   0.1   0.1   0.1   0.1   0.0   0.0   0.1   0.3   0.3   0.2   0.0   0.2   0.0
0.0
      7  *   0.3   0.3   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.1   0.0   0.1
0.1
      8  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
      9  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     10  *   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.1
0.1
     11  *   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.1   0.1
0.0
     12  *   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.1   0.2   0.2   0.2   0.0   0.0   0.1   0.1   0.0   0.0   0.1   0.0
0.0
     13  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     14  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     15  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     16  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     17  *   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0
0.0
     18  *   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0
0.0
     19  *   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.1   0.1   0.0   0.0   0.0   0.0
0.0
```

```
      20  *   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      21  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      22  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      23  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      24  *   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
```

JOB: YTI BL 2012 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2012

DATE : 2/14/14

TIME : 16:38: 3

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	* CO/LINK (PPM)
	* ANGLE (DEGREES)
	* REC21
LINK #	* 170
1	* 0.1
2	* 0.1
3	* 0.0
4	* 0.1
5	* 0.0
6	* 0.0
7	* 0.0
8	* 0.0

```
 9  *   0.0
10  *   0.0
11  *   0.0
12  *   0.0
13  *   0.0
14  *   0.0
15  *   0.0
16  *   0.0
17  *   0.0
18  *   0.0
19  *   0.0
20  *   0.0
21  *   0.0
22  *   0.0
23  *   0.0
24  *   0.0
```

CAL3QHC Model Output

Henry Ford Ave. and Anaheim St.
Proposed Project without Mitigation - 2017

JOB: YTI PP 2017 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2017

DATE : 2/14/14

TIME : 16:38: 3

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 100. CM

U = 1.0 M/S CLAS = 6 (F) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT)				*	LENGTH (FT)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)	V/C	QUEUE (VEH)
	*	X1	Y1	X2	Y2	*									
1. NBTR	*	33.0	-500.0	25.0	0.0	*	500.	359.	AG	1402.	4.7	0.0	56.0		
2. NBL	*	20.0	-500.0	4.0	0.0	*	500.	358.	AG	195.	4.2	0.0	44.0		

3. SBL	*	-6.0	500.0	7.0	-12.0	*	512.	179.	AG	152.	4.2	0.0 32.0
4. SBTR	*	-15.0	-12.0	-17.0	500.0	*	512.	360.	AG	1129.	4.7	0.0 56.0
5. WBL	*	0.0	-7.0	500.0	6.0	*	500.	89.	AG	237.	4.7	0.0 32.0
6. WBTR	*	0.0	12.0	500.0	12.0	*	500.	90.	AG	1225.	4.7	0.0 56.0
7. EBT	*	-500.0	-31.0	12.0	-26.0	*	512.	89.	AG	883.	4.7	0.0 44.0
8. EBL	*	-500.0	-24.0	12.0	-5.0	*	512.	88.	AG	75.	4.7	0.0 32.0
9. NBD	*	25.0	0.0	25.0	500.0	*	500.	360.	AG	1340.	4.7	0.0 44.0
10. SBD	*	-12.0	-500.0	-15.0	-12.0	*	488.	360.	AG	1346.	2.3	0.0 56.0
11. WBD	*	-500.0	12.0	0.0	12.0	*	500.	90.	AG	1311.	4.7	0.0 44.0
12. EBD	*	12.0	-26.0	500.0	-22.0	*	488.	90.	AG	1301.	4.7	0.0 44.0
13. NBAX	*	33.0	-2000.0	33.0	-500.0	*	1500.	360.	AG	1597.	1.6	0.0 56.0
14. NBDX	*	25.0	500.0	25.0	2000.0	*	1500.	360.	AG	1340.	1.6	0.0 44.0
15. SBAX	*	-17.0	500.0	-17.0	2000.0	*	1500.	360.	AG	1281.	1.6	0.0 56.0
16. SBDX	*	-20.0	-2000.0	-18.0	-500.0	*	1500.	0.	AG	2235.	1.6	0.0 56.0
17. WBDX	*	-2000.0	12.0	-500.0	12.0	*	1500.	90.	AG	1311.	1.6	0.0 44.0
18. EBAX	*	-2000.0	-31.0	-500.0	-31.0	*	1500.	90.	AG	1847.	1.6	0.0 44.0
19. EBDX	*	500.0	-22.0	2000.0	-22.0	*	1500.	90.	AG	1301.	1.6	0.0 44.0
20. EBRX1	*	-500.0	-38.0	-132.0	-42.0	*	368.	91.	AG	889.	1.8	0.0 32.0
21. EBRX2	*	-132.0	-42.0	-55.0	-64.0	*	80.	106.	AG	889.	1.8	0.0 32.0
22. EBRX3	*	-55.0	-64.0	-39.0	-137.0	*	75.	168.	AG	889.	1.8	0.0 32.0
23. EBRX4	*	-39.0	-137.0	-32.0	-500.0	*	363.	179.	AG	889.	1.8	0.0 32.0
24. WBAX	*	500.0	12.0	2000.0	12.0	*	1500.	90.	AG	1462.	1.6	0.0 44.0

JOB: YTI PP 2017 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2017

DATE : 2/14/14

TIME : 16:38: 3

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. R01	-197.0	-58.0	5.9
2. R02	-146.0	-58.0	5.9
3. R03	-101.0	-67.0	5.9
4. R04	-64.0	-106.0	5.9
5. R05	-56.0	-142.0	5.9

```
 6. R06                 *       -55.0     -191.0        5.9   *
 7. R07                 *        62.0     -216.0        5.9   *
 8. R08                 *        60.0     -134.0        5.9   *
 9. R09                 *        60.0      -62.0        5.9   *
10. R10                 *       132.0      -62.0        5.9   *
11. R11                 *       214.0      -62.0        5.9   *
12. R12                 *        58.0      200.0        5.9   *
13. R13                 *        58.0      118.0        5.9   *
14. R14                 *        58.0       46.0        5.9   *
15. R15                 *       130.0       46.0        5.9   *
16. R16                 *       212.0       46.0        5.9   *
17. R17                 *      -199.0       44.0        5.9   *
18. R18                 *      -117.0       44.0        5.9   *
19. R19                 *       -45.0       44.0        5.9   *
20. R20                 *       -45.0      116.0        5.9   *
21. R21                 *       -45.0      198.0        5.9   *
```

JOB: YTI PP 2017 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2017

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM)																			
	* REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	* 0.3	0.3	0.3	0.4	0.6	0.5	0.6	0.6	0.6	0.3	0.3	0.3	0.4	0.4	0.0	0.0	0.0	0.0	0.5	0.5
10.	* 0.4	0.6	0.6	0.8	0.9	0.8	0.2	0.2	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	0.6
20.	* 0.5	0.5	0.7	0.7	0.6	0.6	0.2	0.2	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.5

```
  30.  *   0.5   0.4   0.6   0.7   0.6   0.6   0.2   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.5
0.5

  40.  *   0.5   0.4   0.5   0.7   0.6   0.6   0.2   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.4
0.4

  50.  *   0.7   0.6   0.6   0.5   0.4   0.5   0.2   0.2   0.4   0.4   0.4   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3
0.3

  60.  *   0.7   0.7   0.5   0.6   0.6   0.6   0.2   0.3   0.5   0.5   0.5   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3
0.3

  70.  *   0.7   0.7   0.8   0.7   0.5   0.5   0.0   0.3   0.5   0.5   0.5   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3
0.3

  80.  *   0.8   1.0   0.8   0.7   0.5   0.5   0.2   0.3   0.7   0.5   0.6   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3
0.3

  90.  *   0.7   0.8   0.7   0.3   0.3   0.3   0.0   0.0   0.3   0.3   0.3   0.0   0.0   0.4   0.4   0.3   0.7   0.7   0.8
0.3

 100.  *   0.1   0.3   0.3   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.1   0.3   0.7   0.6   0.7   0.8   1.0   1.0
0.6

 110.  *   0.1   0.2   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.5   0.5   0.5   0.6   0.8   0.9
0.6

 120.  *   0.1   0.2   0.2   0.3   0.4   0.4   0.0   0.0   0.0   0.0   0.0   0.2   0.3   0.5   0.5   0.5   0.5   0.7   0.8
0.6

 130.  *   0.1   0.2   0.2   0.3   0.4   0.4   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.4   0.4   0.4   0.4   0.5   0.7
0.5

 140.  *   0.2   0.2   0.2   0.4   0.4   0.4   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3   0.3   0.3   0.5   0.5   0.8
0.5

 150.  *   0.2   0.2   0.3   0.4   0.4   0.4   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3   0.3   0.3   0.5   0.6   0.8
0.6

 160.  *   0.2   0.2   0.3   0.4   0.5   0.5   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3   0.3   0.3   0.3   0.5   0.8
0.6

 170.  *   0.2   0.2   0.3   0.5   0.7   0.6   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3   0.3   0.3   0.5   0.6   0.9
0.8
```

```
 180.  *   0.0   0.0   0.1   0.2   0.4   0.4   0.4   0.5   0.5   0.0   0.0   0.7   0.7   0.8   0.3   0.3   0.3   0.4   0.8
0.7

 190.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.6   0.7   0.7   0.3   0.2   0.7   0.8   0.9   0.6   0.5   0.3   0.3   0.3
0.2

 200.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.5   0.5   0.5   0.3   0.2   0.6   0.6   0.8   0.6   0.5   0.3   0.3   0.3
0.2

 210.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.4   0.4   0.4   0.3   0.1   0.7   0.7   0.7   0.6   0.5   0.3   0.3   0.3
0.2

 220.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.4   0.4   0.4   0.3   0.1   0.5   0.5   0.7   0.6   0.4   0.3   0.3   0.3
0.2

 230.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.3   0.2   0.1   0.5   0.5   0.6   0.5   0.5   0.3   0.3   0.3
0.2

 240.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.3   0.1   0.1   0.5   0.6   0.6   0.6   0.6   0.4   0.4   0.4
0.3

 250.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.3   0.1   0.1   0.4   0.6   0.9   0.7   0.6   0.5   0.5   0.6
0.3

 260.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.3   0.1   0.1   0.5   0.6   1.0   0.9   0.9   0.7   0.6   0.6
0.3

 270.  *   0.4   0.4   0.4   0.1   0.0   0.0   0.3   0.4   0.5   0.3   0.5   0.3   0.3   0.7   0.7   0.7   0.3   0.4   0.4
0.0

 280.  *   0.8   0.8   0.6   0.3   0.2   0.2   0.4   0.6   0.8   0.6   0.6   0.3   0.3   0.3   0.2   0.2   0.0   0.0   0.0
0.0

 290.  *   0.5   0.5   0.5   0.3   0.2   0.1   0.4   0.5   0.8   0.6   0.6   0.3   0.3   0.3   0.2   0.2   0.0   0.0   0.0
0.0

 300.  *   0.5   0.5   0.6   0.2   0.2   0.2   0.5   0.5   0.7   0.7   0.7   0.3   0.3   0.3   0.2   0.2   0.0   0.0   0.0
0.0

 310.  *   0.5   0.5   0.4   0.2   0.2   0.2   0.5   0.5   0.7   0.5   0.6   0.3   0.3   0.3   0.2   0.2   0.0   0.0   0.0
0.0

 320.  *   0.3   0.3   0.3   0.2   0.2   0.2   0.6   0.6   0.7   0.5   0.5   0.3   0.3   0.3   0.2   0.2   0.0   0.0   0.0
0.0
```

```
 330.  *   0.3   0.3   0.3   0.2   0.2   0.2   0.6   0.6   0.8   0.6   0.5   0.5   0.5   0.5   0.3   0.2   0.0   0.0   0.0
0.0

 340.  *   0.3   0.3   0.3   0.2   0.2   0.2   0.7   0.8   1.0   0.6   0.4   0.6   0.6   0.6   0.3   0.0   0.0   0.0   0.0
0.0

 350.  *   0.3   0.3   0.3   0.2   0.2   0.2   0.9   0.9   1.0   0.6   0.4   0.7   0.6   0.6   0.3   0.1   0.0   0.0   0.0
0.0

 360.  *   0.3   0.3   0.3   0.4   0.6   0.5   0.6   0.6   0.6   0.3   0.3   0.3   0.4   0.4   0.0   0.0   0.0   0.0   0.5
0.5

 ------*-------------------------------------------------------------------------------------------------------------------
-

 MAX   *   0.8   1.0   0.8   0.8   0.9   0.8   0.9   0.9   1.0   0.7   0.7   0.7   0.8   1.0   0.9   0.9   0.8   1.0   1.0
0.8

 DEGR. *   80    80    80    10    10    10    350   350   340   300   300   180   190   260   260   260   100   100   100   170
```

JOB: YTI PP 2017 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2017

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21
0.	0.4
10.	0.6
20.	0.5
30.	0.5
40.	0.4
50.	0.3

```
 60.  *   0.3
 70.  *   0.3
 80.  *   0.3
 90.  *   0.3
100.  *   0.4
110.  *   0.4
120.  *   0.5
130.  *   0.5
140.  *   0.6
150.  *   0.7
160.  *   0.7
170.  *   0.7
180.  *   0.8
190.  *   0.2
200.  *   0.2
210.  *   0.2
220.  *   0.2
230.  *   0.2
240.  *   0.2
250.  *   0.1
260.  *   0.2
270.  *   0.0
280.  *   0.0
```

```
290.  *   0.0
300.  *   0.0
310.  *   0.0
320.  *   0.0
330.  *   0.0
340.  *   0.0
350.  *   0.0
360.  *   0.4
------*------
MAX   *   0.8
DEGR. *  180

THE HIGHEST CONCENTRATION OF    1.00 PPM OCCURRED AT RECEPTOR REC19.
```

JOB: YTI PP 2017 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2017

DATE : 2/14/14

TIME : 16:38: 3

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING

THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

* CO/LINK (PPM)

* ANGLE (DEGREES)

	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK #	*	80	80	80	10	10	10	350	350	340	300	300	180	190	260	260	260	100	100	100	170
1	*	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.0	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2

```
      5  *   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1
0.0
      6  *   0.2   0.2   0.2   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.2   0.1   0.1   0.1   0.2   0.3   0.2   0.3   0.4
0.0
      7  *   0.2   0.2   0.0   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.0   0.0   0.0
0.1
      8  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
      9  *   0.0   0.0   0.0   0.2   0.2   0.2   0.2   0.3   0.3   0.1   0.1   0.1   0.1   0.2   0.1   0.1   0.0   0.1   0.1
0.0
     10  *   0.0   0.0   0.1   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0
0.1
     11  *   0.0   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.4   0.3   0.2   0.3   0.2   0.0
0.1
     12  *   0.2   0.3   0.3   0.0   0.0   0.0   0.1   0.1   0.2   0.2   0.3   0.1   0.1   0.0   0.0   0.0   0.2   0.2   0.2
0.0
     13  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     14  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     15  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     16  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     17  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     18  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0
0.0
     19  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
```

```
      20  *   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      21  *   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      22  *   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      23  *   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      24  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
```

JOB: YTI PP 2017 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2017

DATE : 2/14/14

TIME : 16:38: 3

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	* CO/LINK (PPM) / ANGLE (DEGREES) / REC21 * 180
1	0.1
2	0.0
3	0.0
4	0.2
5	0.0
6	0.0
7	0.1
8	0.0

```
 9  *   0.0
10  *   0.1
11  *   0.1
12  *   0.0
13  *   0.1
14  *   0.0
15  *   0.0
16  *   0.1
17  *   0.0
18  *   0.0
19  *   0.0
20  *   0.0
21  *   0.0
22  *   0.0
23  *   0.0
24  *   0.0
```

CAL3QHC Model Output

Henry Ford Ave. and Anaheim St.
Proposed Project without Mitigation - 2026

JOB: YTI PP 2026 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2026

DATE : 2/14/14

TIME : 16:38: 3

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 100. CM

U = 1.0 M/S CLAS = 6 (F) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT)				*	LENGTH (FT)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)	V/C QUEUE (VEH)
	*	X1	Y1	X2	Y2	*								
1. NBTR	*	33.0	-500.0	25.0	0.0	*	500.	359.	AG	1402.	2.8	0.0	56.0	
2. NBL	*	20.0	-500.0	4.0	0.0	*	500.	358.	AG	195.	2.5	0.0	44.0	

3. SBL	*	-6.0	500.0	7.0	-12.0	*	512.	179.	AG	152.	2.5	0.0 32.0
4. SBTR	*	-15.0	-12.0	-17.0	500.0	*	512.	360.	AG	1129.	2.8	0.0 56.0
5. WBL	*	0.0	-7.0	500.0	6.0	*	500.	89.	AG	237.	2.8	0.0 32.0
6. WBTR	*	0.0	12.0	500.0	12.0	*	500.	90.	AG	1225.	2.8	0.0 56.0
7. EBT	*	-500.0	-31.0	12.0	-26.0	*	512.	89.	AG	883.	2.8	0.0 44.0
8. EBL	*	-500.0	-24.0	12.0	-5.0	*	512.	88.	AG	75.	2.8	0.0 32.0
9. NBD	*	25.0	0.0	25.0	500.0	*	500.	360.	AG	1340.	2.8	0.0 44.0
10. SBD	*	-12.0	-500.0	-15.0	-12.0	*	488.	360.	AG	1346.	1.4	0.0 56.0
11. WBD	*	-500.0	12.0	0.0	12.0	*	500.	90.	AG	1311.	2.8	0.0 44.0
12. EBD	*	12.0	-26.0	500.0	-22.0	*	488.	90.	AG	1301.	2.8	0.0 44.0
13. NBAX	*	33.0	-2000.0	33.0	-500.0	*	1500.	360.	AG	1597.	1.0	0.0 56.0
14. NBDX	*	25.0	500.0	25.0	2000.0	*	1500.	360.	AG	1340.	1.0	0.0 44.0
15. SBAX	*	-17.0	500.0	-17.0	2000.0	*	1500.	360.	AG	1281.	1.0	0.0 56.0
16. SBDX	*	-20.0	-2000.0	-18.0	-500.0	*	1500.	0.	AG	2235.	1.0	0.0 56.0
17. WBDX	*	-2000.0	12.0	-500.0	12.0	*	1500.	90.	AG	1311.	1.0	0.0 44.0
18. EBAX	*	-2000.0	-31.0	-500.0	-31.0	*	1500.	90.	AG	1847.	1.0	0.0 44.0
19. EBDX	*	500.0	-22.0	2000.0	-22.0	*	1500.	90.	AG	1301.	1.0	0.0 44.0
20. EBRX1	*	-500.0	-38.0	-132.0	-42.0	*	368.	91.	AG	889.	1.1	0.0 32.0
21. EBRX2	*	-132.0	-42.0	-55.0	-64.0	*	80.	106.	AG	889.	1.1	0.0 32.0
22. EBRX3	*	-55.0	-64.0	-39.0	-137.0	*	75.	168.	AG	889.	1.1	0.0 32.0
23. EBRX4	*	-39.0	-137.0	-32.0	-500.0	*	363.	179.	AG	889.	1.1	0.0 32.0
24. WBAX	*	500.0	12.0	2000.0	12.0	*	1500.	90.	AG	1462.	1.0	0.0 44.0

JOB: YTI PP 2026 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2026

DATE : 2/14/14

TIME : 16:38: 3

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. R01	-197.0	-58.0	5.9
2. R02	-146.0	-58.0	5.9
3. R03	-101.0	-67.0	5.9
4. R04	-64.0	-106.0	5.9
5. R05	-56.0	-142.0	5.9

```
 6. R06                 *       -55.0     -191.0       5.9   *
 7. R07                 *        62.0     -216.0       5.9   *
 8. R08                 *        60.0     -134.0       5.9   *
 9. R09                 *        60.0      -62.0       5.9   *
10. R10                 *       132.0      -62.0       5.9   *
11. R11                 *       214.0      -62.0       5.9   *
12. R12                 *        58.0      200.0       5.9   *
13. R13                 *        58.0      118.0       5.9   *
14. R14                 *        58.0       46.0       5.9   *
15. R15                 *       130.0       46.0       5.9   *
16. R16                 *       212.0       46.0       5.9   *
17. R17                 *      -199.0       44.0       5.9   *
18. R18                 *      -117.0       44.0       5.9   *
19. R19                 *       -45.0       44.0       5.9   *
20. R20                 *       -45.0      116.0       5.9   *
21. R21                 *       -45.0      198.0       5.9   *
```

JOB: YTI PP 2026 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2026

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM)																			
	* REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	* 0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.3
10.	* 0.2	0.2	0.3	0.5	0.5	0.3	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
20.	* 0.3	0.4	0.4	0.4	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3

```
  30.  *   0.4   0.4   0.4   0.2   0.3   0.4   0.1   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.3
0.3

  40.  *   0.4   0.4   0.4   0.3   0.4   0.4   0.1   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2
0.2

  50.  *   0.4   0.4   0.4   0.4   0.4   0.4   0.2   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2
0.2

  60.  *   0.3   0.3   0.2   0.4   0.4   0.4   0.1   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2
0.2

  70.  *   0.4   0.2   0.4   0.3   0.4   0.3   0.0   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2
0.2

  80.  *   0.3   0.5   0.4   0.2   0.2   0.2   0.0   0.0   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2
0.2

  90.  *   0.2   0.3   0.2   0.1   0.2   0.2   0.0   0.0   0.1   0.1   0.1   0.0   0.0   0.2   0.2   0.2   0.2   0.3   0.4
0.2

 100.  *   0.1   0.1   0.1   0.1   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.4   0.3   0.3   0.4   0.6   0.5
0.3

 110.  *   0.1   0.1   0.1   0.1   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.3   0.3   0.3   0.4   0.5   0.5
0.4

 120.  *   0.1   0.1   0.1   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.3   0.3   0.3   0.4   0.3   0.5
0.4

 130.  *   0.1   0.1   0.1   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2   0.2   0.2   0.3   0.3   0.5
0.4

 140.  *   0.1   0.1   0.1   0.2   0.2   0.2   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.3   0.3   0.3
0.4

 150.  *   0.0   0.1   0.2   0.2   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.1   0.2   0.2   0.2   0.2   0.3   0.4   0.4
0.5

 160.  *   0.0   0.0   0.2   0.3   0.3   0.3   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2   0.2   0.2   0.4   0.6
0.3

 170.  *   0.1   0.1   0.2   0.3   0.3   0.4   0.0   0.0   0.0   0.0   0.0   0.0   0.2   0.2   0.2   0.2   0.3   0.3   0.5
0.5
```

```
 180.  *   0.0   0.0   0.1   0.1   0.2   0.2   0.3   0.4   0.4   0.0   0.0   0.1   0.5   0.6   0.2   0.2   0.2   0.2   0.4
0.4

 190.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.4   0.4   0.5   0.1   0.0   0.4   0.5   0.6   0.4   0.3   0.2   0.2   0.2
0.1

 200.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.3   0.1   0.0   0.3   0.5   0.5   0.3   0.3   0.2   0.2   0.2
0.1

 210.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.3   0.1   0.1   0.4   0.3   0.5   0.3   0.3   0.2   0.2   0.2
0.1

 220.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.3   0.3   0.2   0.1   0.1   0.3   0.3   0.3   0.3   0.3   0.2   0.2   0.2
0.1

 230.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.1   0.3   0.3   0.3   0.3   0.3   0.2   0.2   0.2
0.1

 240.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.1   0.3   0.4   0.5   0.4   0.4   0.3   0.3   0.3
0.2

 250.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.1   0.3   0.4   0.6   0.4   0.3   0.3   0.3   0.3
0.1

 260.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.1   0.1   0.1   0.2   0.4   0.5   0.5   0.4   0.3   0.4   0.4
0.1

 270.  *   0.3   0.3   0.2   0.0   0.0   0.0   0.1   0.1   0.3   0.3   0.2   0.2   0.2   0.3   0.3   0.3   0.2   0.2   0.1
0.0

 280.  *   0.4   0.4   0.3   0.1   0.1   0.1   0.1   0.1   0.4   0.4   0.4   0.2   0.2   0.2   0.2   0.1   0.0   0.0   0.0
0.0

 290.  *   0.3   0.3   0.3   0.2   0.2   0.0   0.1   0.3   0.3   0.3   0.4   0.2   0.2   0.2   0.2   0.0   0.0   0.0   0.0
0.0

 300.  *   0.3   0.3   0.2   0.2   0.2   0.1   0.2   0.3   0.4   0.3   0.4   0.2   0.2   0.2   0.2   0.1   0.0   0.0   0.0
0.0

 310.  *   0.2   0.2   0.2   0.2   0.2   0.1   0.2   0.3   0.4   0.4   0.3   0.2   0.2   0.2   0.2   0.1   0.0   0.0   0.0
0.0

 320.  *   0.2   0.2   0.2   0.2   0.2   0.1   0.3   0.4   0.3   0.4   0.3   0.2   0.2   0.2   0.2   0.1   0.0   0.0   0.0
0.0
```

```
 330.  *   0.2   0.2   0.2   0.2   0.1   0.1   0.3   0.4   0.5   0.4   0.4   0.3   0.3   0.3   0.2   0.1   0.0   0.0   0.0
0.0

 340.  *   0.2   0.2   0.2   0.2   0.1   0.0   0.3   0.4   0.6   0.4   0.3   0.3   0.3   0.3   0.2   0.0   0.0   0.0   0.0
0.0

 350.  *   0.2   0.2   0.2   0.2   0.1   0.0   0.4   0.6   0.6   0.3   0.2   0.2   0.3   0.4   0.0   0.0   0.0   0.0   0.0
0.0

 360.  *   0.2   0.2   0.2   0.3   0.2   0.1   0.2   0.3   0.3   0.2   0.2   0.2   0.2   0.1   0.0   0.0   0.0   0.0   0.2
0.3

 ------*-------------------------------------------------------------------------------------------------------------------
-

 MAX   *   0.4   0.5   0.4   0.5   0.5   0.4   0.4   0.6   0.6   0.4   0.4   0.4   0.5   0.6   0.5   0.4   0.4   0.6   0.6
0.5

 DEGR. *   30    80    20    10    10    30   190   350   340   280   280   190   180   180   260   240   100   100   160   150
```

JOB: YTI PP 2026 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2026

MODEL RESULTS

REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC21
0.	0.2
10.	0.3
20.	0.3
30.	0.3
40.	0.2
50.	0.2

```
 60.  *   0.2
 70.  *   0.2
 80.  *   0.2
 90.  *   0.2
100.  *   0.2
110.  *   0.2
120.  *   0.4
130.  *   0.4
140.  *   0.3
150.  *   0.4
160.  *   0.4
170.  *   0.4
180.  *   0.3
190.  *   0.1
200.  *   0.0
210.  *   0.1
220.  *   0.1
230.  *   0.1
240.  *   0.1
250.  *   0.0
260.  *   0.0
270.  *   0.0
280.  *   0.0
```

```
290.  *   0.0
300.  *   0.0
310.  *   0.0
320.  *   0.0
330.  *   0.0
340.  *   0.0
350.  *   0.0
360.  *   0.2
------*------
MAX   *   0.4
DEGR. *  120

THE HIGHEST CONCENTRATION OF    0.60 PPM OCCURRED AT RECEPTOR REC18.
```

JOB: YTI PP 2026 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2026

DATE : 2/14/14

TIME : 16:38: 3

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING

THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

* CO/LINK (PPM)

* ANGLE (DEGREES)

	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK #	*	30	80	20	10	10	30	190	350	340	280	280	190	180	180	260	240	100	100	160	150
1	*	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.2	0.1
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	*	0.1	0.0	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

```
      5  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
      6  *   0.0   0.1   0.0   0.0   0.0   0.1   0.0   0.1   0.1   0.0   0.0   0.0   0.1   0.1   0.1   0.2   0.1   0.2   0.0
0.1
      7  *   0.1   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.1
0.0
      8  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
      9  *   0.1   0.0   0.1   0.1   0.1   0.0   0.0   0.2   0.2   0.0   0.0   0.2   0.0   0.0   0.1   0.0   0.0   0.1   0.0
0.1
     10  *   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.1
0.0
     11  *   0.1   0.0   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.2   0.0   0.2   0.1   0.1
0.0
     12  *   0.0   0.2   0.0   0.0   0.0   0.1   0.0   0.1   0.1   0.1   0.1   0.0   0.1   0.1   0.0   0.1   0.1   0.1   0.0
0.1
     13  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0
0.0
     14  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     15  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     16  *   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.0   0.0   0.0   0.0
0.0
     17  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     18  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
     19  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
```

```
      20  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      21  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      22  *   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      23  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0

      24  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
0.0
```

JOB: YTI PP 2026 - Henry Ford/Anaheim RUN: Peak Hour CO - Year 2026

DATE : 2/14/14

TIME : 16:38: 3

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	* CO/LINK (PPM)
	* ANGLE (DEGREES)
	* REC21
LINK #	* 120
1	* 0.0
2	* 0.0
3	* 0.0
4	* 0.1
5	* 0.0
6	* 0.1
7	* 0.0
8	* 0.0

```
 9  *   0.1
10  *   0.0
11  *   0.0
12  *   0.1
13  *   0.0
14  *   0.0
15  *   0.0
16  *   0.0
17  *   0.0
18  *   0.0
19  *   0.0
20  *   0.0
21  *   0.0
22  *   0.0
23  *   0.0
24  *   0.0
```

Attachment B2.2

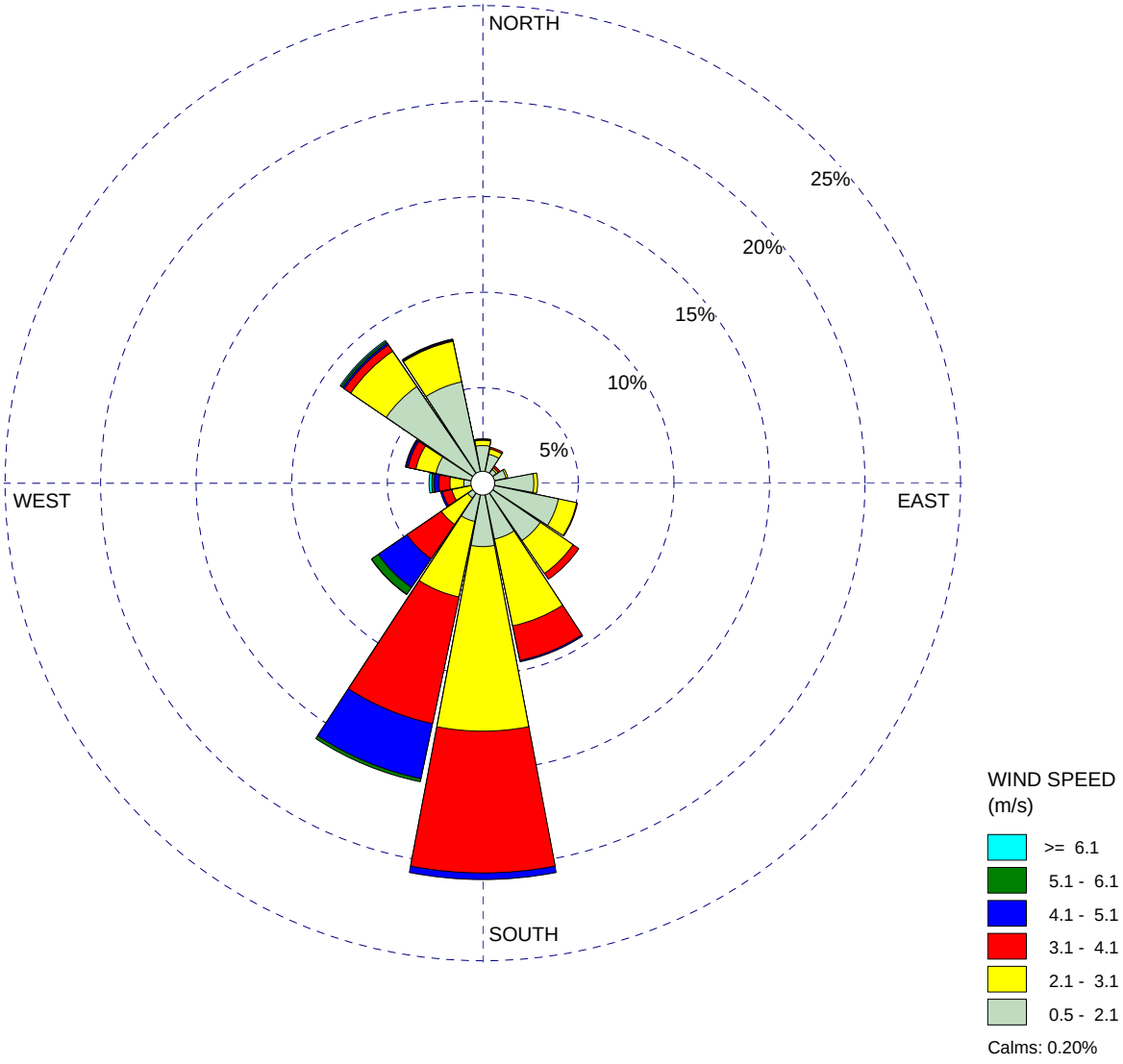
Wind Rose Diagram

WIND ROSE PLOT:

Port of Los Angeles Wind Rose
YTI Terminal Modeling

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 9/1/2006 - 07:00** **End Date: 8/31/2007 - 17:00**	COMPANY NAME: ENVIRON	
		MODELER:	
	CALM WINDS: **0.20%**	TOTAL COUNT: **4015 hrs.**	
	AVG. WIND SPEED: **2.40 m/s**	DATE: **2/28/2014**	PROJECT NO.: